To All Members, Date: 19 December 2005

CANDIDATES APPROVED TO SIT FOR YEAR 2006 PROFESSIONAL INTERVIEW

The following candidates have been approved to sit for the Professional Interview for 2006.

In accordance with Bylaws 3.7, the undermentioned names are published as having applied for membership of the Institution, subject to passing the year 2006 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. MC Hee
Honorary Secretary, IEM

TRANSFER APPLICANTS

Membership No	Name	Qualifications
	Chemical Engineering	
23927	CHOO CHEE MING	BE (HONS) (UPM) (CHEM, 2000) ME (SC) (GRIFFITH) (ENVI, 2000)
	Civil Engineering	
15494	AHMAD TAMARUZZAMAN B. AHMAD TAJUDDIN	BE (HONS) (UM) (CIVIL, 90)
22384	GOH JOON SAI	BE (HONS) (USM) (CIVIL, 2001)
22280	HEW KIN YOONG	BE (HONS) (UTM) (CIVIL, 99) MSC (CONST. MGMT, 2001)
22458	LIM HAN NENG	BE (HONS) (UPM) (CIVIL, 2000)
19652	LIM SIN CHUN	BSC (HONS) (UTM) (CIVIL, 97)
22305	LYE CHIEN YUNG	BE (HONS) (UKM) (CIVIL & STRUCT.,99)
19714	MOHAMAD ADLIN BIN MAD NORDIN	BE (HONS) (LVERPOOL) (CIVIL, 97)
24504	NG VEE KEE	BE (HONS) (UM) (CIVIL, 2001)
20368	SUM CHEE SENG	PART II (IEM/BEM) (CIVIL,99) BSC (NAT. CHENG KUNG UNI) (CIVIL, 97)
22232	TAN KING HONG	BE (HONS) (UTM) (CIVIL, 2001)
19008	WAH KHENG HAW	BE (HONS) (LEEDS) (CIVIL, 98)
23240	WONG KENG LIAN	BE (HONS) (UTM) (CIVIL, 99) MSC (UTM) (CONST. MGMT., 2001)
	Electrical Engineering	
19690	CHENG KOK JOR	BE (HONS) (QUEEN'S) (ELECT & E'TRONIC, 97)
18371	CHEONG SANG WENG	BE (HONS) (SOUTH BANK) (ELECT & E'TRONIC, 96)
22223	GOH HONG PING	BE (HONS) BATH) (ELECT & E'TRONIC, 99) MSC (SHEFFIELD) (CONTROL SYS., 2001)
25445	LEONG SIEW NENG	BE (HONS) (MONASH) (ELECT & COMP., 96)
21116	SHYAMALAN S/O PARAMATHEVAN	BE (HONS) (HERTFORDSHIRE) (ELECT & E'TRONIC, 99)
	Manufacturing Engineering	
19500	NG CHENG SINN	BE (HONS) (SALFORD) (MNFG, 98)
	Mechanical Engineering	
16611	LIM KEK SIA	BE (HONS) (UPM) (MECH-SYSTEM, 98)
22021	RIWAYAT BIN MANSOR	BSC (BOSTON) (MECH, 85)
12336	WAN AHMAD NIZAM BIN WAN ABDULLAH	BSC (SYRACUSE) (MECH, 89)

MEMBERSHIP

NEW APPLICANTS	
Name	**Qualifications**
Civil Engineering	
BOON CHOON TECK	BSC (OKLAHOMA) (CIVIL, 97)
CHEE FAH VUI	BE (MELBOURNE) (CIVIL, 2000)
DARUS AMAN BIN AWANG DERIS	BE (HONS) (UTM) (CIVIL, 92)
HAIRASALEH BIN HUSAIN	BE (HONS) (UTM) (CIVIL, 94)
TING SIEW MING, PHILIP	BE (HONS) (UTM) (CIVIL, 97)
Mechanical Engineering	
CHANG JOON YEW	BSC (TRI-STATE) (MECH, 96)
CHEN KHENG CHUEN	BE (NANYANG) (MECH, 93)
TANG KUM LOONG	BE (HONS) (LEEDS) (MECH, 97)

ANNOUNCEMENT

INTERNATIONAL CONFERENCE AND EXHIBITION ON TUNNELLING AND TRENCHLESS TECHNOLOGY

"Tunnelling and Trenchless Technology in the 21st Century"

BEM approved CPD HOURS : 20 Ref. no. IEM05/HQ319/S

7 – 9 March 2006
Sheraton Subang Hotel & Towers, Subang Jaya
Selangor Darul Ehsan, MALAYSIA

Organised by:
The Institution of Engineers, Malaysia
Tunnelling and Underground Space Technical Division, IEM

The conference covers:
- Tunnelling projects – this includes past and present projects;
- Collaboration among researchers, governments, developers, consultants, contracts and specialist tunnel and trenchless contractors; and
- Standards, legal, social, economic, risk management and related topics use of underground spaces.
- Special focus on Stormwater Management and Road Tunnel (SMART); several papers and site visit.

For more information and registration, please contact:
Conference Secretariat
Tunnelling and Trenchless Technology
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
MALAYSIA

Telephone number: **+(603) 7968 4001 / 4002**
Fax number: **+(603) 7957 7678**
E-mail: **Tunnel2006@iem.org.my**
Website: **http://www.iem.org.my**

PRACTICAL ROCK ENGINEERING WITH Q IN TUNNEL DESIGN AND EXECUTION USING TBM AND DRILL-AND-BLAST METHODS

20 & 21 February 2006

BEM approved CPD HOURS = 16. Ref. no. IEM05/TC/324 C

For more information and registration, please contact:

IEM Training Centre Sdn. Bhd.
1009A, 9th Floor, Block E, Kelana Parkvew Tower
No. 1, Jalan SS 6/2, 47301 Kelana Jaya, Petaling Jaya, Selangor Darul Ehsan
Telephone no. 03-78049851 Fax no. 03-78049131 E-mail: iemtcsb@gmail.com

IEM DIARY OF EVENTS

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

Water Resources Technical Division
12 JAN 2006
Time: 5.30 p.m. - 7.30 p.m.
Talk on Application of Radar for Rainfall Detection and Measurement

17 - 19 JAN 2006
Time: 8.30 a.m. - 5.30 p.m.
Hands-On Course on Urban Stormwater Management Manual for Malaysia (MSMA)
Department of Irrigation and Drainage Malaysia (DID), Ampang

Electrical Engineering Technical Division
13 JANUARY 2006
Time: 5.30 p.m. - 7.30 p.m.
Talk on Energy Efficiency and Sustainable Energy Usage in Urban Households and Residential Buildings – Using a Demonstration House in Petaling Jaya as a Case Study

18 JANUARY 2006
Time: 9.00 a.m. - 2.00 p.m.
Half Day Course on Pump

Graduates & Students Section
16 JAN 2006
Time: 9.00 a.m. - 1.00 p.m.
Technical Visit to MIMOS Semiconductor (M) Sdn Bhd

Geotechnical Engineering Technical Division
17 JAN 2006
Time: 5.30 p.m. - 7.30 p.m.
Talk on "Shear Strength and Structural Stability of Constructions in Soft Ground"

Highway and Transportation Engineering Technical Division
19 JAN 2006
Time: 5.30 p.m. - 7.30 p.m.
Forum on Road Safety Issues – "How Safe are Our Roads from Engineers' Perspective?"

Civil and Structural Engineering Technical Division
19 JAN 2006
Time: 9.00 a.m. - 5.00 p.m.
One-Day Seminar on Lightweight Steel Truss
Armada Hotel, PJ

21 JAN 2006
Time: 9.00 a.m. - 1.00 p.m.
Half Day Talk on "Design and Practical Skills for the IStructE Part 3 Examination"

Mechanical Engineering Technical Division
24 JAN 2006
Time: 5.30 p.m. - 7.30 p.m.
Talk on Nanomaterials and Their Applications

Chemical Engineering Technical Division
21 JAN 2006
Time: 10.00 a.m. - 12.00 noon
Talk on Role of Multimedia Communication in Intelligent Instrumentation and Control in Process Plant

Branches
IEM PERAK BRANCH
6 - 7 MAR 2006
2-Day Conference on Landslite, Sinkhole, Structure Failure: Myth or Science?
Casuarina Hotel, Ipoh, Perak Darul Ridzuan

20 - 21 FEB 2006
Practical Rock Engineering with Q in Tunnel Design and Execution Using TBM and Drill-and-Blast Methods

22 FEB 2006
Visit to MEWC Low Energy Office Building in Putrajaya
MEWC, Putrajaya

7 - 9 MARCH 2006
International Conference and Exhibition on Trenchless Technology
Sheraton Subang Hotel

20 - 25 MARCH 2006
Engineering Week

15 APRIL 2006
AGM & 47th Annual Dinner and Awards Night
IEM and Palace of the Golden Horses

7 MAY 2006
Open House
JKR Hall, Dewan Tan Sri Mahfoz Kahlid

8 - 12 MAY 2006
IEM/BEM Exam

9 - 11 MAY 2006
Conference on Concrete Engineering and Technology (CONCET)
Sheraton Subang Hotel

22 - 26 MAY 2006
11th Asian Congress on Fluid Mechanics
Berjaya Times Square Hotel and Convention Centre

23 - 24 AUGUST 2006
National Food Production and Processing Conference
Equatorial Hotel, Bangi
Call for Papers (1st Bulletin)

27 - 30 AUGUST 2006
11th APCChE Congress
Kuala Lumpur Convention Centre (KLCC)

5 - 7 SEPTEMBER 2006
Brownfield Asia 2006 - International Conference on Remediation and Management of Contaminated Land: Focus on Asia
Berjaya Times Square Hotel and Convention Centre

24 - 25 OCTOBER 2006
Conference on Current Trends in Food Engineering

6 - 10 DECEMBER 2006
24th Conference of ASEAN Federation of Engineering Organisation (CAFEO)
DoneChan Palace Hotel, Vientiane Capital, Laos

8 - 11 MAY 2007
16th Southeast Asian Geotechnical Conference (SEAGC 2007)
Venue : Sheraton Subang Hotel & Towers, Subang Jaya
E-Mail : 16seagc@iem.org.my
Website : http://www.16seagc.com
(Call for Papers)

1 - 5 AUGUST 2007
3rd World Engineering Congress (WEC)

CONFERENCE & SEMINAR

MALAYSIA

6 - 9 July 2006
6TH COSTAM/SFRR (ASEAN) INTERNATIONAL WORKSHOP 2006: MICRONUTRIENTS, OXIDATIVE STRESS AND THE ENVIRONMENT
Venue : Kuching, Sarawak
Organiser : COSTAM, SFRR
Tel : 03-8928 2858 / 03-7118 2062
Fax : 03-8925 9446 / 03-7118 2063
E-mail : sarnesar@mpob.gov.my / secretariat@costam.org.my
(Invitation to Register)

9 - 10 August 2006
NATIONAL CONFERENCE ON DESIGN AND CONCURRENT ENGINEERING 2006
Venue : Century Mahkota Hotel, Melaka
Organiser : KUTKM
Tel : 06-233 2576 / 2372 / 2377
Fax: 06-233 2414
E-mail : decon2006@kutkm.edu.my
Website : www.kutkm.edu.my/fkp/decon2006
(Invitation to Register)

12 - 14 September 2006
3RD INTERNATIONAL RUBBER GLOVE CONFERENCE AND EXHIBITION: "EXAMINATION GLOVES: THE FOREFRONT OF DISPOSABLE MEDICAL DEVICES"
Venue : Shangri-La, KL
Organiser : MARGMA
Tel : 03-7957 8362
Fax: 03-7957 8412
E-mail : margma@streamyx.com / margma@tm.net.my
Website : www.margma.com.my / www.gloveconference.com.my
(Invitation to Register & Call for Papers - Deadline 31 March 2006)

NOMINATIONS FOR ELECTION TO FILL VACANCIES FOR THE COUNCIL SESSION 2006/2007

The IEM Council at its 349th meeting on 17th October 2005 had decided to fill Council vacancies for the Session 2006/2007 in accordance with Article 5.2 of the Constitution. An election programme had also been approved by the Council for implementation.

The following Council vacancies will arise for the Session 2006/2007 as a result of Council members retiring at the end of the Session 2005/2006

Post	No of Vacancies	Term of Office
Vice President	Three (3)	2 sessions (2006/2007 & 2007/2008)
Hon. Secretary	One (1)	1 session (2006/2007)
Hon Treasurer	One (1)	1 session (2006/2007)
Council Member – Civil Representative	One (1) Casual Vacancy	2 sessions (2006/2007 & 2007/2008)
Council Member – Chemical and Others Representative	One (1)	3 sessions (2006/2007, 2007/2008 & 2008/2009)
Council Member – Ordinary Representative	Ten (10)	3 sessions (2006/2007, 2007/2008 & 2008/2009)

Article V of the Constitution and Section V of the Bylaws give details of the composition, office tenure, nomination and election of the Council. Extracts of the relevant Articles and Sections are provided at the website for your easy reference. The IEM Code of Conduct for Committee Members are also posted on the website for your reference.

A list of office bearers who are retiring at the end of the session 2005/2006 is also available. Subject to the provisions in paragraph 3 above, some are eligible for re-election and some are not.

Nominations, in the prescribed forms, to fill Council vacancies are hereby invited from amongst Corporate Members.

Nomination Forms may be obtained at the IEM Secretariat addressed above or downloaded from the IEM website http://iem.org.my after 10th January 2006.

All Nomination forms, duly completed, shall be sent in a sealed envelope marked "*Confidential: Nomination Paper for session 2006/2007*" o :-

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: 03-79684001/2

and to reach him not later than 12.00 noon on **Friday, 23rd February 2006**.

Regards.

Dato' Ir. Pang Leong Hoon
IEM Election Office

VOTING PAPERS FOR COUNCIL ELECTION SESSION 2006/2007

Notice inviting nominations for the Election of Council Members for Session 2006/2007 will be posted on the IEM Notice Board and on the website on 10th January 2006 for the information of all Corporate Members. Following the close of nominations on 23rd February 2006, the election exercise will proceed. All Corporate Members residing overseas are requested to take note of the requirements of Bylaw section 5.11

> *The voting paper shall, not less than twenty-eight clear days before the date of the Annual General Meeting be sent by post to all Corporate Members residing in Malaysia and to any other Corporate Members who may in writing request to have the paper forwarded to him. The voting paper shall be returned to the Honorary Secretary in a sealed envelope so as to reach him by a specified date not less than seven days before the Annual General Meeting.*

It is expected to send out the voting papers by 10th March 2006.

Any Corporate Members residing outside Malaysia, who wish to receive voting papers, are advised to write to the Honorary Secretary on or before 20th February 2006

Regards.

Dato' Ir. Pang Leong Hoon
IEM Election Office

Geotechnical Engineering Technical Division

COMMENT

Soil Nailing and Guniting

By: Ir. Neoh Cheng Aik and Ir. Yee Yew Weng

We refer to Ir. Dr Gue See Sew and Sdr. Gue Chang Shin's comments about gunite facing for soil-nailed slope published in IEM Bulletin April 2005. According to Ir. Dr Gue SS and Sdr. Gue CS, gunite facing shall be designed to satisfy the structural design requirements in bending and shear with 2 layers of BRC wire mesh as shown in Figure A (IEM Bulletin April 2005). Such comments and proposed design of thick facing for soil-nailed slope to take bending and shear, though extra safe, is generally not necessary and is against what is normally practiced and constructed at site for cut slopes with just a thin layer of gunite nominally reinforced by a layer of BRC wire mesh against thermal shrinkage cracks.

According to Ilan Juran and Victor Elias (1991), "**the facing of the soil-nailed structure is not a major structural load-carrying element but rather ensures local stability of the soils between reinforcement layers (nail heads) and protects the ground (slope) from surface erosion and weathering effects.**" In fact, the maximum tensile force generated in the nail itself in a soil-nailed slope, as evidenced by instrumentation works, is significantly greater than the force actually transferred to the nail head near the facing. It is the nail head that needs to be designed as an individual reinforced concrete pad with MS plate or reinforced RC grid beam system so as to be sufficiently large and stiff to resist punching shear or reduce slope deformation due to the possible axial nail load near the facing, when the bond or frictional resistance at the interface of soil nail/grout and the soil in the active zone is low or inadequate. The normal nominal 100mm gunite facing for soil-nailed slopes (not walls) can actually be omitted and replaced by HDPE geocell slope protection system or other equivalent green vegetative slope protection system with buried nail heads camouflaged with the slope surface as commonly practiced in Hong Kong and as shown in Figure 2 of Ir. Yee Yew Wing's report (IEM Bulletin, October 2004).

The bending and shear stress in the gunite or shotcrete facing for a soil-nailed structure will only become substantial when the slope is virtually vertical like a wall, or when the slope inclination angle is about or more than 70°.

In brief, when soil nails are used to enhance the factor of safety of a cut slope (not wall), hard facing such as guniting is optional though is usually preferred by designers as an effective and reliable means to mitigate against surface erosion and weathering effects. Thick structural gunite or shotcrete facing (>150mm) with double layers wire mesh reinforcement designed to confine and resist bending and shear stress due to significant earth pressure between the nails is necessary when the slope is very steep (>700) or virtually vertical like a wall or when the spacing of soil nails is too large (say >2m), as mentioned in the "Manual For Design and Construction Monitoring Of Soil Nail Walls" by FHWA (1998). ■

ROCK BREAKAGE BY BLASTING
M I PETROSYAN / A A BALKEMA
624.121 PET / 004714

Results of complex investigations into the rock breakage mechanism and the patterns of crack formation during a blast are presented in this monograph. The problems of modeling, principal equations linking the model with prototype and similarity criteria are discussed. Methods of recording stresses, propagation and quality of ore fragmentation and the stability of enclosing rocks is established. The various breakage schemes adopted are subjected to techni-economic evaluation. This monograph is intended for specialists working in research and design organizations in hard rock mining.

PDF HACKS : 100 INDUSTRIAL-STRENGTH TIPS AND TOOLS
SID STEWARD / O'REILLY
681.324 STE / 004693

- Customize PDF viewers to make reading PDFs more comfortable
- "Refry" huge PDF files into much smaller files
- Edit PDF text from gVim
- Use familiar software to create PDF with advanced navigation features
- Build PDFs with sophisticated navigation and interactive feactures
- Generate PDFs on the fly
- Integrate PDF files with web sites beyond a simple hyperlink
- Collect data on your web site with PDF forms
- Index and compare your PDF files
- Convert incoming faxes to PDF
- Write scripts that control Acrobat

PORT DESIGNER'S HANDBOOK : RECOMMENDATIONS AND GUIDELINES
CARL A. THORESEN / THOMAS TELFORD
627.2.21 THO / 004694

Some of the key topics discussed include :

- Port planning and site selection
- Channels and harbour basins
- Environmental forces, operational condition and acceptable ship movements
- Manoeuvring and berthing requirements
- Safety considerations in layout and design of berth structures
- Design loads on berth structures and impacts from ships
- Criteria for choice of berth structures
- Solid and open berth structures
- Container terminals
- Fender design and berth details
- Erosion protection
- Corrosion of steel sheet piles
- Different methods of underwater concreating
- Deterioration and repair of concrete in marine environments
- Ship dimensions and ship wind and current areas for different type of ship

TENSION STRUCTURES FORM AND BEHAVIOUR
W J LEWIS / THOMAS TELFORD
624.177 LEW / 004690

The book presents numerical modeling of the structural form and behaviour of tension structures, but also addresses certain misconceptions related to their design. It provides unique insights into the most commonly used computational methods, emphasizing their main strengths and limitations. Mathematical expositions do not go beyond the level of undergraduate engineering mathematics and, wherever possible, non-mathematical language is used to aid understanding of the fundamental concepts. The intention of the book is to provide a balance between analytical and pictorial aspects of the subject. Examples presented demonstrate the potential of tension structures as an art form.

NANOFILTRATION PRINCIPLES AND APPLICATIONS
AI SCHAFER / AG FANE / TD WAITE
660 NAN / 004674

Nanofiltration processes are finding wide applications in several 'wet' industries, such as water/wastewater treatment, water re-use, the textile, diary and food industries and the pulp and paper industry. Despite this, there has been no definitive book until now. This book explains the principles of the techniques and their potential and actual applications.

Nanofiltration : Principles and Applications is edited by three well-known specialist from Australia, and contains chapters from top international authorities. The result is a comprehensive, authoritative and up to date account which will be essential reading for membrane designers, manufactures and endusers worldwide.

DESIGN OF MACHINERY : AN INTRODUCTION TO THE SYNTHESIS AND ANALYSIS OF MECHANISMS AND MACHINES
ROBERT L NORTON / MGRAW HILL
621.8 NOR / 004678

Note: IEM Library is open from 9.00 a.m. to 6.00 p.m. (Mon - Fri)
9.00 a.m. to 4.00 p.m. (Every Saturday)

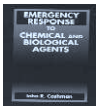
HOW TO DO EVERYTHING WITH GOOGLE
FRITZ SCHNEIDER / NANCY BLACKHMAN / ERIC FREDRICKSEN
681.324 SCH / 004698

Go beyond Google's deceptively plain interface to explore the many features of this powerful tool. The new user and the Web-savvy alike will benefit from the many simple and advanced tactics and strategies the authors share for finding information on the web with Google. Save time with tips to narrow or broaden your web searches, choose effective search terms, utilize google search syntax, and understand your search results. Discover useful services such as images, answers, groups, news, google's bargin-finder froogle, and much more. And along the way, get fund facts about the company and the people behind google.

THE AUTOCAD 2004 : TUTOR FOR ENGINEERING GRAPHICS WITH AUTHOCAD 2005
UPDATE ALAN J KALAMEJA
681.324 KAL / 004682

Self-paced tutorial take readers all the way from one-view engineering drawings to geometric constructions, multi-view projections, section and auxiliary view, 3D solid modeling, and photorealistic rendering. Tutorials utilize a step-by-step approach, following traditional engineering drawing techniques and methods while teaching users how to make the most of AutoCAD 2005 to achieve professional results. The key new features and functions in AutoCAD 2005 are included in a separate addendum. Topics range from new drawing productivity enhancements to navigating with the new layer propeorties manager dialog box, creating and using tables, creating fields or "autotext", tool palette enhancements, and managing projects using the sheet manager.

EMERGENCY RESPONSE TO CHEMICAL AND BIOLOGICAL AGENTS
JOHN R. CASHMAN / LEWIS PUBLISHERS
628.92 CAS / 004697



- provides a complete training manual for emergency responders
- utilises case studies to illustrate its points
- discusses the safe handling and disposal of biological and chemical agents
- explains the standard operations of hazardous materials teams before, during, and after an incident
- covers urban search and rescue procedures, and a mass casualty incident

FRPRCS – 5 : FIBRE REINFORCED PLASTICS FOR REINFORCED CONCRETE STRUCTURES
CHRIS BURGOYNE - VOLUME 1 AND VOLUME 2
C.J BURGOYNE / THOMAS TELFORD
624.012 FRP / 00 4691 AND 004692

This books provides up-to-date research results to give engineers confidence in their design methods. Originally, it was thought that steel bars could be replaced by equivalent FRP rods, but their properties are significantly different and optimum use is made when the properties of FPR are considered from the outset.

The books compares current practice in the UK, Europe, the USA and Japan and considers how the topic can be codified to assist widespread use of this exciting new technology.

INTRODUCING AUTOCAD 2005
THOMAS A STELLMAN & G V KRISHNAN / THOMSON DELMAR LEARNING
681.324 STE / 004683

- similar format and coverage as our successful harnessing AutoCAD 2004 book, with additional introductory material geared toward the first time user
- extensive pedagogy includes learning objectives, integrated exercises, summaries, problems and quizzes, all aimed at helping novices master fundamental AutoCAD concepts
- exercises are provided in complete project format for practicing concepts and commands learned in a chapter or section, as well as for testing single concepts and commands
- the comprehensive appendices list commands, system and dimension variables, interface concepts, fonts, fill and hatch patterns, linetypes, hardware requirements, and plotter and printer devices - available e-resources that includes computerized test banks, an instructor's guide, syllabus,chapter hints and lesson plans

CURRENT AND FUTURE TRENDS IN BRIDGE DESIGN CONSTRUCTION AND MAINTENANCE : SAFETY, ECONOMY, SUSTAINABILITY AND AESTHETICS
PARAG C DAS / DAN M FRANGOPOL / ANDRZEJ S NOWAK
624.2 CUR / 004689

This book presents the proceedings of an international conference convened to take stock of developments in bridge engineering at the end of the millennium and look ahead to what the future may hold. It includes contributions from leading international experts, supplemented by important papers on major bridge projects and other current issues. Topics include bridge design, construction, assessment methods, reliability analysis and bridge management. This volume will prove useful to all sectors of the bridge engineering community, particularly those who may wish to be aware of regional bridge activities from around the world and the more general state-of-the-art developments in bridge engineering.

ENVIRONMENTAL CONTAMINANTS : ASSESSMENT AND CONTROL
DANIEL A. VALLERO / ELSERVIER ACADEMIC PRESS
628.5 VAL / 004700

Environmental contaminants will advance the reader's understanding of the science, engineering, and technology of environmental problem solving and risk assessment through a series of real-life and theoretical questions, problems, and exercises. The text serves as a tool for environmental professionals who must generate technically sound and reproducible scientific evidence, as well as others who simply need to know how environmental assessments are conducted and what the results mean. The book identifies ways to clean up environmental problems in air, water, soil, sediment, and living systems. Ethical issues, environmental management, and environmental economic problems are woven throughout the text to provide contexts for decision making while assisting the reader in understanding an applying quantitative analysis to environmental problems.

One Day Seminar on Fundamentals of Safety Management Theme: *The Theory and Practice for Engineers*

By: Ir. Fathullah Razzaq bin Ghazali

The IEM Oil, Gas & Mining Technical Division organised a one-day seminar titled "Fundamentals of Safety Management: The Theory and Practice for Engineers" on 22 June 2005 at Bangunan Ingenieur. Ir. Muhamad Apandi bin Osman (OGP Technical Services Sdn Bhd) chaired the seminar, which was attended by seventy-three people. The seminar saw five presentations from very senior and experienced practitioners in the field of Occupational Safety, and Health (OSH).

Mr. Monihuldin Haidar Ali presented a paper on "The Development and Implementation of Safety Systems in the Works Place." Providing an overview of the paper with the OSH-based statistics and OSH regulations established, he exhorted that one should learn from other people's experiences so as to strengthen one's accident investigation approach and preclude undesirable recurrences. He also explored the application of accident causation theories and forensic engineering and attempted to relate them to salient mishaps.

As an experienced practitioner, Ir. Normarzuki bin Ya'acob endeavored to elucidate frank pointers in his paper titled "Best Safety Practices-Maintenance Work on Boiler and Unfired Pressure Vessels." Making brief mentions on the history of relevant legislations and current legislations enforced, he covered various relevant and important topics such as Permit-to-Work (PTW), aspects of opening up boiler and pressure vessels, and maintenance activities. He further explored other subjects that pose challenges in their implementation; such as working at height, confined spaces, personnel protective equipment and scaffolding requirements.

The participants were fortunate to get a glimpse of a corporate approach to OSH. Mr. Morris Kho Kee Wee (Corporate HSE Unit, Petronas) talked about the Health, Safety and Environment (HSE) Management System, aspects of HSE leadership. But most important is the way the oil and gas corporate giant attempts to influence change of mindset and behaviour in the aspect of HSE towards long term corporate sustainability.

Industrial hygiene (IH) may be a term unfamiliar to many participants but Ms. Shamini C. Samuel (ModuSpec Malaysia) attempted to broach the subject in her paper titled "Effective Industrial Hygiene Programs at the Workplace." IH apparently functions on four interdependent pillars: the anticipation, recognition, evaluation and control of occupational hazards. She enumerated the goals and benefits of IH and the salient aspects of an IH program such as Employee Exposure Program, Chemical Hazard Management and Personal Protective Equipment (PPE). She also concluded that IH success hinged on the management's effort in providing relevant policies and resources.

The Minerals and Geosciences Department Malaysia (Pahang State) representative enlightened the participants with regard to OSH implementations in mining and quarry vides his paper, "Safety Management in Mines and Quarry." The elements of framework of a safety programme comprised for example, management leadership, an accident record system and medical and first aid systems. Mine safety apparently works on the spirit of sharing the responsibility of and understanding the roles involved in safety. Quarry safety has been apparently enforced at state level under the auspices of the National Land Code. Environmental protection and rehabilitation appeared to be a common subject to both the Mining Enactments and the Environment Quality Act, especially where an approved environment impact study is required prior to commencement of mining projects.

Ir. Muhamad Apandi bin Osman closed the seminar with a wise advice that emphasised that safety is everyone's concern and that a safety issue that seemed to trouble one party in a process chain could jeopardise every party therein.

Please refer to the IEM for further information on the papers presented. ■

Geotechnical Engineering Technical Division

Report on the IEM-GSM *Oktoberforum 2005*: "Case Histories in Engineering Geology and Geotechnical Engineering", 4 October 2005, Armada Hotel, Petaling Jaya

By: Assoc. Prof. Tan Boon Kong

The IEM-GSM ***Oktoberforum 2005*** on "Case Histories in Engineering Geology and Geotechnical Engineering" was jointly organised by the Geotechnical Engineering Technical Division of IEM and the Working Group on Engineering Geology & Hydrogeology of the Geological Society of Malaysia (GSM). This forum was the 13th in the series of such forums organised by GSM/IEM, initiated by GSM since 1992.

This 13th forum was made very general in nature in order to encourage more paper contributions. It covered practically any topic, and was targeted as a compilation of local case histories on engineering geology and geotechnical engineering. A total of 20 papers were received and included in the proceedings of the forum; 5 by geologists and 15 by engineers. Topics ranged from engineering geology, soil and rock slopes, slope failures and stabilisation, foundations, ground improvement, soil chemistry, etc. Understandably, slope failures and remedial works form the majority of the papers received. There was one case history from Turkmenistan, and a video presentation on earthwork quality.

Response to the forum was overwhelming, with 200 participants. To accommodate the large number of requests to register for the forum, the venue was shifted/upgraded from IEM building to Armada Hotel. Ample time was allocated for questions and discussions, and these were fully utilised, resulting in very lively and fruitful discussions after every presentation. ■

Limited copies of the proceedings are available for sale at IEM secretariat. Please enquire at IEM secretariat. (Tel.: 03-7968-4001; E-mail: aziah@iem.org.my)

Report on One-Day Seminar on "Key Aspects of Building Steelwork Design to BS 5950 and Eurocode 3"

By: Ir. Tu Yong Eng

The IEM Civil and Structural Engineering Technical Division, with sponsorship from Alpine Pipe Manufacturing Sdn Bhd, has organised a one day seminar on "Key Aspects of Building Steelwork Design to BS 5950 and Eurocode 3." The seminar was held on 13 August 2005 at Eastin Hotel, Petaling Jaya, and it was well attended by 114 participants. The invited course lecturers were Associate Prof. Ir. Dr Chiew Sing Ping (Nanyang Technological University, Singapore) and Prof. Chan Siu Lai (Hong Kong Polytechnic University). The seminar was chaired by Ir. Dr Sooi Took Kowng, the Chairman of IEM-SWO Technical Committee on Structural Steel Design. The sponsor's representative, Mr. Lee Kee Bau also presented several local and international projects undertaken by Alpine Pipe, using tubular and other steel members, during the intermissions of the seminar.

The seminar was divided into four sessions, in which the topics covered were as follows:

i. Session 1 – Pitfalls in BS 5950;
ii. Session 2 – BS 5950 vis-à-vis EC 3;
iii. Session 3 – Frame Design Concepts and Practical Design to EC 3; and
iv. Session 4 – Second Order Elastic and Plastic Analysis & Design.

The lecture sessions 1 and 2 were presented by Dr Chiew, whereas sessions 3 and 4 were taken by Prof. Chan. Both speakers gave lively lectures, covering many aspects and interesting areas in structural steel design.

In session 1, based on the case study of the collapse of Nicoll Highway in Singapore on 20 April 2004, Dr Chiew presented various performances and behaviour of steel structures. A detailed description of the failure of the Nicoll Highway was presented. Based on the findings by the appointed Committee of Inquiry, the collapse was caused by two critical design errors:

i. Under-design of the diaphragm wall;
ii. Under-design of the strut-waller connections.

Dr Chiew also highlighted the Three Cardinal Rules for Good Structural Engineering Practice (W. F. Chen, 2005), which are as follows:

i. Rule No. 1 – Ductility can be forgiving for one's mistake;
ii. Rule No. 2 – Connection detailing is everything; and
iii. Rule No. 3 – Redundancies are our best defense against unexpected failure.

Besides the above presentation, the following items were also discussed:

i. Disproportionate collapse, which is based on UK's building regulations (Part A3 – 2004), where the buildings were divided into Classes 1, 2A, 2B and 3. Various design requirements were imposed based on the classification of the buildings.
ii. Material performance indicators, which are the minimum yield and tensile strengths; ductility; weld-ability; quality in terms of dimension, tolerance and formability.
iii. Shear buckling of thin web, in which the tension field action was discussed.
iv. Stiff bearing length for non-stiffened web.
v. Web buckling and effective lengths.
vi. Beam-column connections design.

In session 2, Dr Chiew presented a comprehensive comparison between BS 5950 and EC 3 (EN 1993-1). The comparisons were as follows:

i. The notation of the decimal point is different;
ii. Material properties and section classification;
iii. Tension, compression and shear capacities;
iv. Plastic moment capacity and interaction equation;
v. Strut curves;
vi. Slenderness formula and buckling resistance moment.

In sessions 3 and 4, Prof. Chan presented the frame design concepts, practical design to EC 3 and second order elastic and plastic analysis and design. The talk was mainly focused on the collapse load and determination of the effective lengths. An analytical software was developed to determine the collapse load and effective lengths based on the second order analysis at the ultimate limit state.

Prof Chan also explained the requirements by EN1993-1 (2005) on the various design methods and imperfections. The imperfections included in the EN 1993-1 were due to geometry and residual stress, and these are represented by curves a_0, a, b, c and d for different degree of imperfections.

Prof Chan demonstrated the second order analysis by the software *NIDA*, in which the moment redistribution method was used in the software. Various design examples, case studies and verifications, including structures such as portal frame and bracket-ball stadium were demonstrated during the seminar. The speaker also highlighted on the load applied when the first plastic hinge was formed in a steel frame.

Prof Chan also highlighted that buckling failure check and connection detailing were two important aspects in structural steel design against collapse. The recommended design should allow for plastic behaviour and stress redistribution, so as to ensure both safe and sensible directions for design.

Prof Chan also pointed out that the effect of buckling and member/frame imperfections were considered implicitly in the second order analysis. However, the principle of superposition will not be applicable since second order analysis is a non-linear analytical approach.

At the end of the seminar, upon invitation, members of the audience posed a number of interesting questions, which focused mainly on practical design and application problems in the industry. Both Dr Chiew and Prof. Chan managed to handle all the questions raised and referred the audience to a useful published textbook co-authored by Dr Chiew, entitled, "Structural Steelwork – Design to Limit State Theory", 3rd Edition, 2004.

The seminar was adjourned after the interesting and lively question and answer session. Both Dr Chiew and Prof. Chan were presented with tokens of appreciation by the organisers of the event, for their invaluable contributions to the knowledge and benefit of local practising engineers in the field of structural steel design. ■