



Applied Technology Group

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Torsion In Building Structures Subject To Earthquake and Wind Loads



Conducted by

Associate Prof Nelson Lam & Ir. Adjunct Prof M C Hee

Torsion In Building Structures © 2016

Petaling Jaya

Armada Hotel

1 – 2 November 2016



Supported by The Institution of Structural Engineers, Malaysia

Torsion In Building Structures Subject To Earthquake and Wind Loads

COURSE OVERVIEW

This is a completely new course which is very valuable for practicing engineers who are involved in the design of high rise buildings. The fundamental of torsion is explained through principle of virtual displacement (PVD). Torsion for planar and non-planar elements are highlighted primarily. Furthermore, manual computation and computer modelling technique is used to provide a comprehensive understanding on the implementation of the whole concept. Extra practical examples are included in the course.

BENEFITS OF COURSE

At the conclusion of the course, participants will be able to:

- Obtain sufficient knowledge and good understanding on torsion in building structures subject to earthquake and wind loads;
- Carry out seismic analysis on buildings;
- Carry out Static and dynamic analysis on torsional actions in buildings;
- Conduct computation of floor weight centre and lateral stiffness centre and global torsional stiffness under wind loads;
- Attain knowledge on the application of principle virtual displacement to cater for torsion effects;
- Understand Saint-Venant twisting moment and warping moment of inertia;
- Apply manual and computer program modelling techniques to verify the torsional effects in building structures.

SPEAKER PROFILE



Ir. MC Hee(Adjunct Professor UM)

Dip CE, FRMIT, BE (Civil), M. Eng. Sc., FIEM, MIE Aust., MACI, P.Eng.
Registered Structural Accredited Checker

Ir. Adjunct Prof MC Hee is a practicing Structural Consulting Engineer and Principal of M C Hee & Associates. He obtained his Bachelor of Engineering (BE) and Master of Engineering Science (M.Eng.Sc.) from The University of New South Wales, Sydney, Australia. His expertise is in the design and construction of high-rise buildings particularly in value engineering and alternative design. His philosophy is “**design for simplicity and buildability**” with a “**total concept approach**”.

He has over 40 years’ of experience in this field. His major overseas projects include the 68-storey MLC tower, 40-storey CML building in Sydney and 42-storey at 530, Collins St in Melbourne. In Malaysia, the number of high rise buildings he has embarked on is numerous, some of which are the 39-storey Core Project and 25-storey Plaza Perangsang in Shah Alam, 43-storey Mount Kiara Condominium, 28-storey Desa Parker Condominium, 25-storey Arab Malaysian Bank in Kuala Lumpur and the 4 high tower blocks of condominium ranging from 20 to 28 story in Sentul.

In addition he is 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 transfer girders and deep beams. He is a strong advocate of manual check methods such as 2-cycle moment distribution and qualitative analysis on load response by sketching the deflected shapes and drawing the bending moment diagrams.

Ir. Hee is active in contributing to the engineering society. He is a registered accredited structural checker in BEM and highly regarded in the investigation committee. Some of his other activities include being the Vice President of IEM from 2009 to 2011, Chairman for drafting the Malaysian National Annex of EC0, EC1, EC2 and active member of Technical Committee drafting the Malaysian National Annex of EC8.

Ir. Hee has also conducted other intensive courses such as Design to BS8110, Eurocodes EC0, EC1 and EC2, Finite Element Modelling of Deep Beams and Raft Foundation and Analysis and Design to EC8.

SPEAKER PROFILE



Associate Professor Nelson Lam

Nelson Lam, Associate Professor and Reader in Civil Engineering at The University of Melbourne, is an internationally recognized expert in structural dynamics, earthquake engineering and protective technology. In the past 20 years, he has been researching and consulting widely in this field and has published some 200 technical articles which include some 80 journal articles.

His achievement in research and knowledge transfer in this field was recognized by the award of the Chapman Medal (1999), the Warren Medal (2006) by Engineers Australia, Best Paper Award (2004-2007) by the ISET Journal of Earthquake Technology and Chapman Medal (2010).

He is chief investigator of numerous research programs that have won ARC Discovery and Linkage Funding Awards. At University of Melbourne, he is co-ordinator of research higher degree programs in Department of Infrastructure Engineering and is co-ordinator of master coursework programs in civil and structural engineering. His early career was with Scott Wilson International as structural engineer in their Hong Kong Office throughout the 1980's and attained British chartered engineer status (MICE, MStructE) during that period.

He was awarded the degree of PhD in structural engineering at the University of Melbourne in 1993, master degree in concrete structures at Imperial College of Science & Technology, London in 1982 and bachelor degree in civil engineering with first class honours at the University of Leeds, England in 1981.

COURSE SCHEDULE

DAY 1

9.00am - 9.10am	Course Opening by Ir. Adjunct Prof. MC Hee
9.10am - 10.30am	Session 1 (NL) : <ul style="list-style-type: none">• Overview of Day One of short course by Prof. N Lam• Methods of seismic analysis of building structures and representation of seismic action• Force method of analysis of building structures
10.30am - 11.00am	<i>MORNING TEA BREAK</i>
11.00am - 12.30pm	Session 2 (NL) : <ul style="list-style-type: none">• Force method of analysis of torsional actions in buildings
12.30pm - 2.00pm	<i>LUNCH</i>
2.00pm - 3.15pm	Session 3 (NL) : <ul style="list-style-type: none">• Dynamic analysis of building structures
3.15pm - 3.45pm	<i>TEA BREAK</i>
3.45pm - 5.00pm	Session 4 (NL) : <ul style="list-style-type: none">• Dynamic analysis of torsional actions in buildings <p>Summary</p> <p>Question and Answers session</p>
<i>END OF DAY ONE</i>	

COURSE SCHEDULE

DAY 2

9.00am - 10.00am	<p>Session 1 (MCH) :</p> <ul style="list-style-type: none"> • Application of PVD to cater for bending, shear and Saint-Venant torsional deformation. • Verify by computer program Midas-Gen using sick and wall membrane elements • Understanding Saint-Venant twisting moment (GJ) and warping moment of inertia or warping constant (EI_w) • What is planar and non-planar elements
10.00am - 10.30am	<i>MORNING TEA BREAK</i>
10.30am - 11.30am	<p>Session 2 (MCH) :</p> <ul style="list-style-type: none"> • Spatial behaviour (3D) Approximate analysis of rigid framed structures subject to lateral wind loads with torsional moment • Example building of 2 story framed structure. • Verify using manual and computer modelling
11.30am - 12.30pm	<ul style="list-style-type: none"> • Spatial behaviour (3D) Approximate analysis of shear-walls/core walls structures subject to lateral wind loads • Important to distinguish different types of wall assemblies • How to compute floor weight centre and lateral stiffness centre and global torsional stiffness under wind loads
12.30pm - 2.00pm	<i>LUNCH</i>
2.00pm - 3.15pm	<p>Session 3 (MCH) :</p> <ul style="list-style-type: none"> • 3D - 7 story building braced by parallel planar walls/and braced by perpendicular wall-membrane elements • Comparison between 3D L-shaped 1 story planar shear walls/non planar shear walls using wall-membrane elements
3.15pm - 3.45pm	<i>TEA BREAK</i>
3.45pm - 5.00pm	<p>Session 4 (MCH) :</p> <ul style="list-style-type: none"> • Modelling 3D 15 story building with off-set cores <p>Summary</p> <p>Question and Answers session</p>
<i>END OF DAY TWO</i>	



COURSE REGISTRATION FORM

Course title:
Torsion In Building Structures Subject To Earthquake and Wind Loads

(✓ Please tick)

1st – 2nd November, 2016 Petaling Jaya, Armada Hotel

Company Information

Company:	
Address:	
State/ Province:	
Zip/Postal Code:	
Country:	
Contact Person:	
Email:	
Phone:	

Attendee Information

Name (1)	
Job title:	
E-mail:	
Mobile/Tel No:	
Name (2)	
Job title:	
E-mail:	
Mobile/Tel No:	
Name (3)	
Job title:	
E-mail:	
Mobile/Tel No:	

Registration Fee

	Fee Before GST (6%)	GST (6%)	TOTAL
Individual Fee	RM2,000	RM120	RM2,120
Group Fee (3 or more delegates)	RM1,800	RM108	RM1,908

Closing date: 25th October 2016. An early bird discount of RM100 for payment received before 1st October 2016.

Payment

Payment is to make payable to:

Applied Technology Group Sdn Bhd
Public Bank Berhad (Malaysia)

Account no: 3178247302

GST Registration Number: 000641294336

Payment terms:

Payment is required before the event. Once received your place is automatically reserved. Registration fee includes lunch, refreshments and full training documentation as specified. Delegates may be refused admission if payment is not received prior to the event. The fee does not include hotel accommodations.

Cancellation Policy

All cancellation of registration must be made in writing.

If you are unable to attend:

- A substitute delegate is welcomed at no additional charge.
- Your registration can be credited to a future event.
- You will receive a full refund less 10% administration charge if cancellation is received in writing more than 14 days before the event.
- No cancellations will be accepted within 14 days before the event start date. Full course documentation will however be sent to the delegate.

Course Schedule

Course starts at 9.00am and ends at 5.00pm daily. Please arrive at 8.30am on day one to allow time to register and receive course materials.

Please send completed form to:

Fax to: **+603 5637 9945**

or Email to : admin@apptechgroups.net

For enquiry, please call: +603 5634 7905

Or refer to our website www.apptechgroups.net

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