



ONE-DAY SEMINAR ON

Design of Bolted and Welded Joints to Eurocode 3: Part 1-8

Organized by
Hong Kong Institute of Steel Construction
Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University

Supported by
Joint Structural Divisions, The Hong Kong Institution of Engineers

Sponsored by
Wo Lee Steel Co. Ltd.

Date:	16 October 2017
Time:	8:45 am (registration) for 9:00 am to 5:00 pm
Venue:	Fiona Cheung Sum Yu Lecture Theatre (SHR-G30), PolyU Student Halls of Residence, 1 Hung Lai Road, Hunghom, Kowloon, Hong Kong The Hong Kong Polytechnic University, Hunghom, Kowloon

Introduction

This course is for engineers and technicians wanting to learn practical knowledge to design steel for frame construction. The course covers the design of nominally pinned connections, in accordance with BS EN 1993-1-8, considering shear and axial force effects. The Eurocode approach to the design of moment resisting connections will also be discussed with the aids of sketches and practical case studies. Bracing connections, column bases, splices, welded joints and non-standard connections will all be covered. The Eurocode rules for ordinary and pre-loaded bolt groups will be discussed. Design checks and rules of thumb will be used for preliminary connection sizing. The course will be taught with examples of connections which could be designed as reliable as well as economical to achieve productivity in steel construction.

The objectives of this course are:

- to equip designers with the knowledge to design steel connections with confidence;
- to explain the key principles and behaviour to detail practical connections;
- to understand the design resistance and stiffness of frame connections;
- to explain the background information on bolted and welded joints.

After attending the course, participants will be able to:

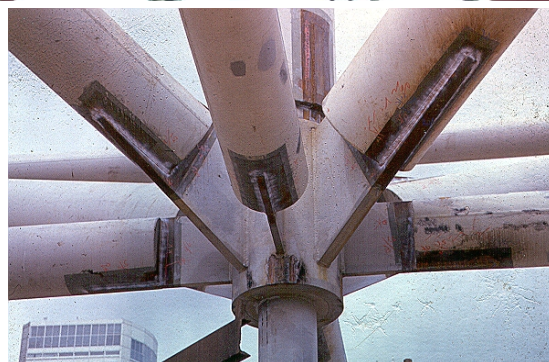
- Design bolted and welded connections for strength and stiffness;
- Apply methods learnt from the course to achieve economy in design, fabrication and erection of steel structures;
- Avoid common mistakes with lessons learned from case studies and collapse investigations.

Official Language

English will be the official language in the presentation. The notes of the seminar will be printed in English.

Programme

- **Overview of Eurocodes**
Characterisation and classification of joints
- **General information and detailing for bolted connection**
- **Design of Non-preloaded bolts**
Requirements for non-preloaded bolts; Shear resistance
Bearing resistance; Effect of steel packing; Effect of long joints
Bolts in tension; Bolts in shear and tension; Bolts in direct shear and torsion
Block shear tearing
- **Design of Preloaded bolts**
Methods for tensioning friction-grip bolts; Slip resistant at ultimate
Slip resistant at serviceability; Torque on HSFG bolts
- **Simple Connections**
Simple beam-to-column connection; Typical beam-to-beam connection
Base connection resisting shear force; Base connection resisting compression and moment
Column splice
- **Moment Connections**
Rigid beam-to-column connection;
Column splice; Various details to achieve rigid and full strength joints
- **Material Weldability and common weld defects**
Chemical compositions and Carbon equivalent value
Welding consumable; Heat affected zone defects
Hydrogen induced cracking; Welding of special steel
- **Design of welded connections**
Detailing requirement; Design of fillet welds using simplified method and directional method; Partial strength and full strength butt welds; Welding of hollow sections
- **Examples and Lessons Learnt**



Speaker's profile

PROF RICHARD LIEW - *BEng (Hons), MEng, PhD, FSEng, CEng, PEng, ACPE, StEr*
Professor of the National University of Singapore, Department of Civil and Environmental Engineering.

Prof Richard Liew is a Chartered Engineer and Professional Engineer. He joined NUS in 1986 where he lectured, conducted research and provided short courses and consultancy services to the industry especially in the field of steel and composite structural engineering. He has been awarded with multiple teaching excellence awards by the Faculty of Engineering over the years. He is world-renowned as an expert of advanced analysis and the application of theory of stability and plasticity in structural and offshore engineering with emphasis on robustness and hazard assessments including the effects due to fire, blast and impact loads. He has authored and co-authored five books and published over 300 technical papers. He is a member of the Institution of Structural Engineers (UK) and the Institution of Engineers, Singapore, and the Honorary Fellow of Hong Kong Institute of Steel Construction and Singapore Structural Steel Society. He has served in numerous international and local technical committees relating to material and building standards. He is currently a member of SPRING, Singapore's Technical Committee on Building Structure and wherein he also serves as a Convenor on the adoption of Eurocode 3 and Eurocode 4 in Singapore and chairing several workgroups for Eurocodes 3 and 4.



香港理工大學, 土木及環境工程學系
THE HONG KONG POLYTECHNIC UNIVERSITY
Department of Civil and Environmental Engineering



香港
鋼結構學會
Hong Kong Institute of
Steel Construction



**ONE-DAY SEMINAR ON
DESIGN OF BOLTED AND WELDED JOINTS TO EUROCODE 3: PART 1-8
REGISTRATION FORM**

(To be received on or before 14th October 2017)

Registration fees

Please make your reservation as soon as possible. The registration includes lecture notes, CPD certificate and tea refreshment. Lunch is not included. The fees of the seminar are devised below:-

Programme	HKISC member	HKIA/HKIE/HKIS member	Others
One-day Seminar	HK\$ 900	HK\$ 1,000	HK\$ 1,200

Should you have further query, please do not hesitate to contact Mr. Tommy LI at man@hkisc.org.

Please follow the 2-step registration procedure:

1. Fax the completed registration form to *Mr Sam CHAN* (Fax: 852-2334 6389) for preliminary registration.
2. Post the completed registration form within 7 days together with a crossed cheque payable to **Hong Kong Institute of Steel Construction Limited** to *Mr Sam CHAN*, at:

The Hong Kong Institute of Steel Construction
c/o Room ZS945, Department of Civil and Environmental Engineering,
The Hong Kong Polytechnic University, Hunghom, Kowloon, Hong Kong
on or before 12th October 2017

To: Mr Sam CHAN

Fax: 852- 2334 6389

Personal Details:

Title	Name in full (Block Letter)	Name of Company	Tel.	Fax	E-mail address	Institution/ Membership No.
1.						
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