



CPD OPEN SEMINAR

Organized by
Structural Division of HKIE
Sponsored by
Building Division of HKIE
The Institution of Fire Engineers (Hong Kong Branch), and
Fire Group of Hong Kong Institute of Steel Construction

Structures in Fire:
The value of full scale Cardington fire tests to the structural engineers and the
use of finite element analyses in structural fire design

Dr Young Wong and Dr Rachel Yin
Ove Arup & Partners HK Ltd

Abstract:

A full-scale 8-storey building has been constructed inside one of the old airship hangers at Cardington, England. A series of natural and real fire tests were carried out in separate compartments to investigate and advance knowledge of the performance of steel frames during fire. These tests have been of international significance to a wide range of construction professionals. A major fire test programme such as Cardington can have effects beyond the immediate technology that they deliver. In very simple terms Cardington has illustrated that unprotected steel does not necessarily cause collapse in the early stages of a fire and therefore there is now a more open mind about their performance during fire. Some of the main ideas and concepts that lay behind the tests are of potential value to the designer. The presentation will describe the details of the fire test and the major outcome that can be utilised.

On the other hand, the use of finite element analyses for design of steel structures in fire has become the state of art design method following the Cartington fire test and the numerical studies afterwards. It demonstrates the whole structural behaviour under the real fire scenarios. Arup Fire has successfully applied this approach in many projects in UK. Platisation Place – the first building using the advanced method approved in the city of London will be discussed in detail.

Speakers

Dr Young Wong joined Arup Fire Hong Kong in 2005 after spending more than 10 years in the UK on research and fire engineering consultancy. He is a chartered engineer with the Institute of Fire Engineers and Engineering Council UK. His main expertise is in structural fire design and producing fire strategies using performance-based approach. While in the UK, Young conducted research at the University of Sheffield Structural Fire Research Group, focusing on the behaviour of steel structure in fire. Young was guest lecturer at the University of Leeds and University of Sheffield while he was in England. Currently he also teaches at SCOPE, City University of Hong Kong for the University of Central Lancashire's Fire Engineering degree course.

Dr Rachel Yin obtained her PhD from the University of Manchester, UK. Upon graduation, she joined Arup Fire as a fire engineer and has worked in London, HK and China. Dr Yin has expert knowledge in structural fire engineering, specialised in finite element modelling.

Date : 15 July 2006 (Saturday)

Time : 9:30 am – 11:30 am

Venue : Rm TU103, The Hong Kong Polytechnic University, Kowloon.

Registration fee: Free of Charge

CPD certificate: The seminar is recommended for 2 CPD hours, and an attendance certificate will be issued upon request.

Free attendance but places are limited. Please fax or email the completed registration form to Miss Cherry Chiu: Fax no. 2334-6389; Email: Cherry.Chiu@inet.polyu.edu.hk

For further information, please call Miss Cherry Chiu at Tel.: 2766-6020



CPD SEMINAR REGISTRATION FORM

(To be replied before 7 July 2006)

Topic of Seminar: **Structures in Fire:
The value of full scale Cardington fire tests to the structural engineers and the
use of finite element analyses in structural fire design**

Date: *15 July 2006 (Saturday)*

Venue: *Rm TU103, The Hong Kong Polytechnic University, Kowloon.*

To : Miss Cherry Chiu

Fax : 2334-6389

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