



THE HONG KONG
POLYTECHNIC UNIVERSITY

DEPARTMENT OF
BUILDING SERVICES ENGINEERING



SPEAKER

Dr YAPING HE

Senior Lecturer
School of Computing, Engineering and
Mathematics
University of Western Sydney, Australia

Reply to:
Miss Y.Y. Yeung
Tel: 2766 5862 Fax: 2765 7198
E-mail: beelize@polyu.edu.hk
Department of Building Services Engineering
The Hong Kong Polytechnic University
Hung Hom, Kowloon
[Ref: Analysis of Structural Fire Hazards of
Heritage Housings in Sydney]

Name (in Full): _____
Company: _____
Tel: _____
E-mail: _____

D a t e 5 February 2015 (Thu)
T i m e 7:00 – 8:00 pm
V e n u e Room Z414
The Hong Kong
Polytechnic University

- Free Admission -

C P D L E C T U R E

Analysis of Structural Fire Hazards of Heritage Housings in Sydney

Schedule

6:45 pm Registration
7:00 pm Welcome and Introduction by Professor W.K. Chow
7:10 pm Talk by Dr Yaping He

Organized by

Professor W.K. Chow JP FHKEng
Director, Research Centre for Fire Engineering
Head of Department, Department of Building Services
Engineering
Leader, Former Area of Strength: Fire Safety Engineering
The Hong Kong Polytechnic University

ABSTRACT

The destruction by fire is a major threat to the conservation of heritage buildings as well as their contents worldwide. Building fires are the result of human occupation and activity. Interestingly, it is the continuing usage and maintenance that is regarded as an effective means of conservation of heritage buildings. Old buildings may undergo renovations or refurbishments to adapt the changes in life style and technology. These renovations inevitably alter or have impacts on the structure of the existing buildings and their fire safety measures. In order to assist in developing strategies to alleviate structural fire hazards, a field study has been conducted to collect information in regard to building structure defects from a sample group. The identified structural fire hazards were categorised into eight types. The data was then subjected to statistical analysis to obtain frequency of occurrence of various types of hazards, the probability distribution of multiple fire hazards. Hamming similarity, Jaccard similarity and virtual similarity analyses were also introduced and conducted to reveal pairwise relationships between various fire hazards. The results show that the probability of finding at least one structural fire hazard in heritage housing stock is as high as 87%. The probability of a heritage building possessing multiple structural fire hazards is also high (44%). Such significant values indicate high likelihood of structural damage and fire spread to adjacent properties in events of fires, and non-negligible risk to heritage housing protection.