9 May 2012

CPD Lecture: Common Mistakes Made in Using CFD in FEA Projects

A 3-hour CPD lecture on the above was organized by Professor W.K. Chow on 21 April 2012 at The Hong Kong Polytechnic University. Professor Chow talked about the common mistakes made such as missing combustion in fire simulations for open kitchens and historic buildings. Another speaker, Dr. N.K. Fong, gave a lecture on CFD concept and application in projects using the fire engineering approach. Over 50 participants from the engineering industry and the relevant government departments attended. Questions were raised during the open forum.

Introduction

Lecture by Professor Chow

Abstract of the lecture:

Fire Engineering Approach (FEA) was allowed to determine fire safety provisions for big construction projects having difficulties to comply with prescriptive codes since 1998. There might be other reasons for using FEA such as for cost reduction. Empirical formula on fire engineering or fire zone models were used to give short FEA reports before. Computational Fluid Dynamics (CFD) was commonly applied in hazard assessment after free software became readily available. However, many mistakes were made in using those CFD packages while preparing the FEA reports.

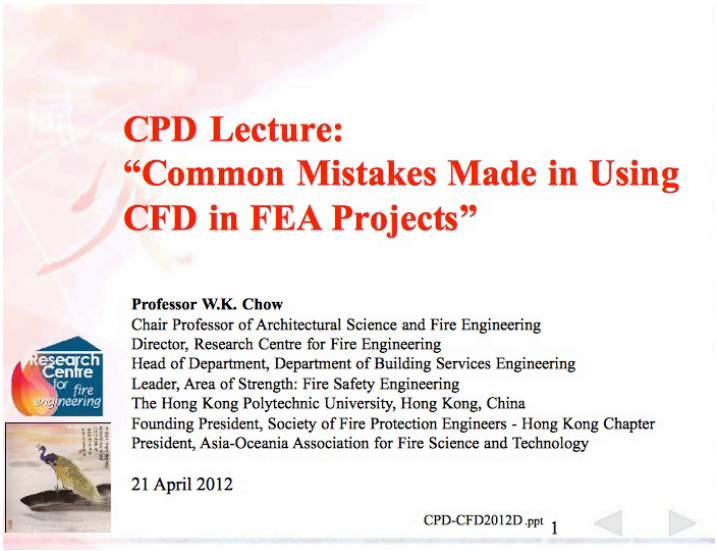
Common examples to watch are:

- Treatment of free boundary conditions for openings.
- Low heat release rates for small design fires.
- Missing other important information on pressure field and turbulence parameters to demonstrate consistency.
- Justification of predicted results.

All these mistakes made in CFD applications would lead to very unsafe design and were briefly outlined in this CPD talk. Such mistakes should be addressed properly in future FEA projects.

Lecture by Dr. Fong

Audience



Powerpoint used in the Lecture

BSE News CPD 21Apr12