

Atrium Hot Smoke Test : Hong Kong Convention and Exhibition Centre 22 June 2009

Professor W.K. Chow, Director, Research Centre for Fire Engineering, Head of Department, Department of Building Services Engineering, and Leader of Area of Strength: Fire Safety Engineering was invited by IFireE (Hong Kong Branch) and China Hong Kong Fire Protection Association to give a seminar on atrium hot smoke test on 22 June 2009 at the Hong Kong Convention and Exhibition Centre (HKCEC). Over 120 local professionals dealing with fire safety attended.



The seminar



[Powerpoint](#)

Concept behind atrium hot smoke test was introduced by Professor Chow first. The objective is to evaluate performance of smoke exhaust systems in halls taller than 12 m, or of irregular shape or with big space volume. The dynamic smoke exhaust system in hall 3 zone B of the HKCEC expansion project was taken as an example.



Talk by Professor Chow



Souvenir gift presented by Mr. H.S. Li,
President, IFireE (Hong Kong Branch)

The hot smoke test was then carried out at Foyer Zone A of the HKCEC Expansion after the seminar. It was also taken as an official inspection test by the Fire Services Department (FSD). The part on leading the field test is a consultancy project awarded to Professor Chow going through the PolyU Technology & Consultancy Company Limited.



Briefing at the site



Control unit

A 2 MW methanol pool fire was set up within a fire chamber to induce adequate buoyancy. Smoke guns from the FSD were rented to emit visible smoke particles. The chamber was used to shield thermal radiation. The smoke control sequence was tested with detection system activated, alarm and public address system sounded, fire shutters closed, smoke curtains fell down to 2.5 m above the floor level, and then smoke exhaust system operated. Smoke was observed to be kept well over the required height of 4.5 m above the floor during the steady burning period of the methanol fire with adequate buoyancy.



The 2 MW fire



Smoke layer kept above 4.5 m

The test was passed successfully, a good demonstration that smoke exhaust system installed in there will provide adequate fire safety.