



EXTERNAL FIRE SPREAD RISK IN TALL BUILDING DESIGN

COURSE BROCHURE

DUBAI, UAE

17 – 21ST MARCH 2019



This course has been developed, and is presented by:



THE UNIVERSITY *of* EDINBURGH



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

This course is hosted in Dubai by:

VORTEX FIRE

Hosted by VORTEX FIRE



BACKGROUND

Recent fire events in buildings involving cladding systems in the United Kingdom and the United Arab Emirates have raised concerns regarding the fire risk that these systems can pose. An adequate engineering approach to guarantee the safety of buildings' occupants during evacuation and a safe environment for the fire service operations requires understanding the performance of all systems involved. Therefore, a detailed quantitative assessment of the performance of cladding systems is necessary to establish design criteria that can be used by practising engineers. This is particularly important with cladding systems that exhibit any level of combustibility. External flame spread has a critical influence on the fire safety strategy of buildings, especially tall buildings, therefore, the role of cladding systems is one of particular importance.

The evaluation of solutions for these buildings requires competent fire engineers to understand key fundamental principles regarding the fire safety strategy, façade design, and the interactions between a façade and the building in the event of a fire. The purpose of this course is to provide practising engineers with that specialist knowledge in order that they can address the fire safety strategy of buildings using cladding materials capable of supporting vertical flame spread, e.g. insulation materials and aluminium composite panels.

COURSE STRUCTURE AND TEACHERS

The course uses a combination of lectures, interactive discussions and case studies to deliver a comprehensive review of the fire safety strategy, the fire performance of cladding systems, and the implications of potentially combustible insulation materials and ACPs to the fire safety strategy of buildings. This course programme has been developed in close collaboration between The University of Queensland, the University of Edinburgh (UK), and the University of Maryland (USA). It is hosted in Dubai by Vortex Fire. The course is run in two parts, the first aimed at professionals from the wider construction industry, and the second aimed solely at qualified, competent fire engineers.

Part One lasts two days and provides an introduction to the principal issues introduced by cladding materials capable of supporting vertical flame spread, and their implications for the fire safety objectives. This part is open to applicants from all sectors of the construction industry and contains no prerequisites in terms of technical fire engineering knowledge.

Part Two of the course is aimed solely at qualified, professional fire safety engineers and covers more technical content aimed at delivering a professional who can competently address the use of flammable materials in a tall building façade. This second part lasts a further three days on top of part 1 and finishes with an examination of the material covered during the week.

The course programme has been developed by The University of Queensland, the University of Edinburgh and the University of Maryland. All three institutions will use the content of this course as the single curriculum that reflects the minimum necessary knowledge in this matter.



The course will be delivered by Professor Jose L. Torero (CEng), Dr Juan P. Hidalgo, and Dr Rory M. Hadden with support from others TBC. Professor Torero is the John L. Bryan Chair in the Department of Fire Protection Engineering at the University of Maryland. He is a registered professional engineer in the UK and state of Queensland in Australia. He is a fellow of the Royal Accadamy of Engineering (UK), Australian Academy of Technological Sciences and Engineering, and the Royal Society of Edinburgh. He was co-chair of Fire Safety at the Council for Tall Buildings and Urban Habitat. Dr Hidalgo is a Lecturer in Timber and Fire Safety Engineering at The University of Queensland. He holds a PhD from the University of Edinburgh and an MEng from the Universitat Politecnica de Valencia. Dr Hadden, Rushbrook Senior Lecturer in Fire Investigation at the University of Edinburgh. He holds a PhD and MEng from the University of Edinburgh.

Part	Duration	Title	Who should attend?	Prerequisites	Cost (USD)
Part 1	2 Days	Introduction to External Fire Spread Risk in Tall Building Design	Professionals in the construction industry (architects, fire consultants, insurers, project managers, developers, facility managers, façade consultants/contractors, MEP engineers, structural engineers, quantity surveyors etc.)	None	\$2,000.00
Part 2	3 Days	Advanced External Fire Spread Risk in Tall Building Design	Fire consultants, Approval Authority and façade consultants (with fire background)	Part 1 and an accredited engineering degree (4-year minimum) or equivalent	\$3,000.00

COURSE LEARNING OBJECTIVES

Upon completion of Part One of the course, the participant should be able to:

- Conceptually define and describe the fire safety strategy for a given building in the context of external fire spread;
- Interpret the inherent links and interdependence of fire safety systems and phenomena with respect to code-based solutions and external fire spread;
- Understand at a conceptual level the physical phenomena surrounding external fire spread over façade systems.



In addition to the above, and upon completion of Part Two of the course, the participant should be able to:

- Explicitly define and describe the fire safety strategy for a given building in the context of external fire spread;
- Interpret the inherent links and interdependence of fire safety systems and phenomena with respect to code-based solutions and external fire spread;
- Describe the fire dynamics and fluid dynamics behind vertical fire growth;
- Recognise the distinction between construction typologies with respect to the fundamental phenomena that control fire spread;
- Comprehend the mechanical behaviours that are relevant to external fire spread in common cladding typologies;
- Create fire safety engineering solutions that explicitly link the governing phenomena of vertical fire spread, common cladding typologies, and the fire safety strategy.

COURSE SCHEDULE

Day		Day 1	Day 2	Day 3	Day 4	Day 5	
Date		17/03/2019	18/03/2019	19/03/2019	20/03/2019	21/03/2019	
08:00	08:30	Registration	Introduction	Introduction	Introduction	Introduction	
08:30	09:00	Introduction	General Issues of Material Flammability	Detailed Material Flammability	Material Library	Practical Case- Study	
09:00	09:30	Dept. of Civil					
09:30	10:00	Defence (TBC)					
10:00	10:30	Coffee Break					
10:30	11:00	Explicit Fire Safety Strategy	Estimating Vertical Flame Spread	Mechanics of the Structure-Façade System	Detailed Estimation of External Fires	Ad-Hoc Testing	
11:00	11:30		Mechanics of the Structure-Façade System				
11:30	12:00						
12:00	12:30						
12:30	13:00	Lunch					
13:00	13:30						
13:30	14:00	Implicit Fire Safety Strategy and Vertical Flame Spread	Case Study 1	Case Study 2	Case Study 3	Examination	
14:00	14:30						
14:30	15:00						
15:00	15:30	Coffee Break					
15:30	16:00	NFPA EFFECT	Case Study 1	Case Study 2	Case Study 3		
16:00	16:30	Tool					
16:30	17:00	Summary					



FURTHER INFORMATION

CERTIFICATION

Those completing Part One of the course are awarded a certificate of attendance for their CPD logs. All attendees completing Part Two will get a further certificate of attendance and those passing the exam will get a certificate of completion demonstrating competency in evaluating façade fire performance as per UAE Fire and Life Safety Code of Practice.

REGISTRATION PROCESS

A registration form for those wishing to attend the course is available at the link below. Those wishing to attend Part One of the course only should complete Part One of the form. Fire engineering professionals wishing to attend both parts of the course must complete both parts of the application form and submit it with a 2-page Curriculum Vitae or Resume.

Forms and supporting documents should be submitted via email to cpd@taec.engineering no later than the 1st February 2019. Registration does not require payment.

The course requires a minimum enrolment in order to be viable thus the organisers reserve the right to postpone the course should this minimum not be achieved.

Applicants will be notified by the 15th February if their application has been accepted and the course is sufficiently subscribed.

The registration form is downloadable from the following location:
<https://www.taec.engineering/dubai-2019>

VENUE

The course is provisionally due be held at the Media Rotana hotel in Dubai, UAE. The course fee includes lunch and coffee breaks for each day of attendance. There will also be a course dinner on the night of the second day (18th March 2019) for all attendees. Please indicate on your registration form if you have any specific dietary requirements.