

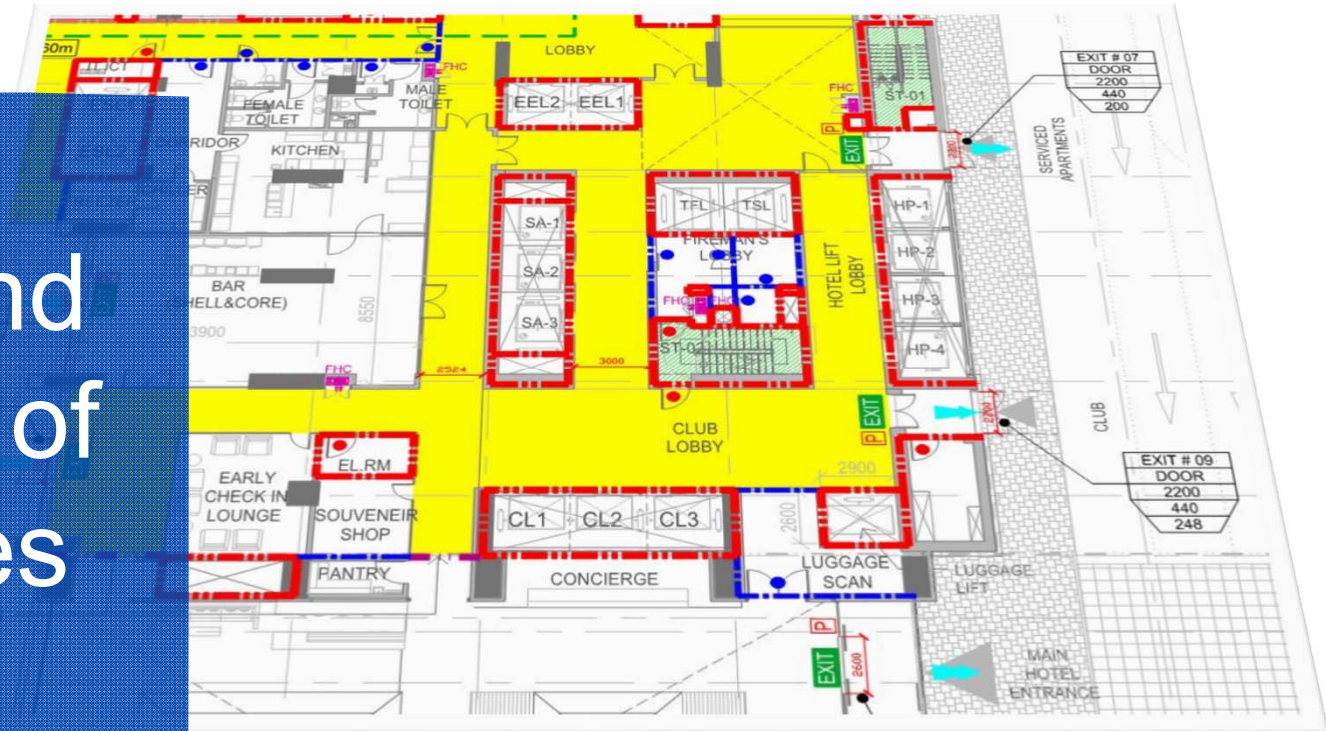


Intersec Conference

Dubai Convention Centre Trade Centre 2, Sunday, January 17, 2016

Integration and Coordination of Fire Strategies

Construction Phase





Course Description

Fire strategies are developed with varying degrees of information and detail for specific system requirements dependant on the type of project. Often there will be a gap in information between the fire strategy, the design of the systems to meet the fire strategy, the installation of systems by the various contractors, and the actual operation and maintenance by the building operators. Some examples for fire safety systems include:

- Has there been coordination with the life safety engineer and the other disciplines
- Has that strategy been clearly written for the contractor to implement the strategy – example cause and effect matrix
- Was the life safety engineer on site to verify the installation



Presenter

Robert Davies BSc (Hons) MSc CEng MIFireE CFPS

- BSc in Fire Safety from University of Central Lancashire in 2001
- Worked with AkerKvaener as fire protection systems designer for Petro-Chemical and Pharmaceutical facilities
- Worked with International Fire Consultants Limited and gained experience in Fire Testing and Material Science
- Masters in Fire Safety Engineering from University of Ulster in 2006
- Worked with Buro Happold based in UAE on large mixed use & high rise developments throughout the ME region.
- Obtained Chartered Engineer status and NFPA Certified Fire Protection Specialists in 2009
- Worked as a fire safety advisor for Arriyadh Development Authority
- Joined WSP | Parsons Brinckerhoff in 2010. Now Head of Fire & Life Safety



Learning Objectives

1. Fire and Life safety concepts summary
2. Key design aspects critical during construction
3. Coordination during construction

The purpose of this presentation is to convey technical knowledge to the conference participants.

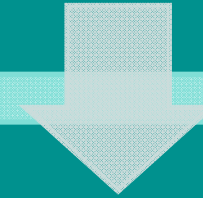
The presentation also contains slides with text that summarises the content of the presentation and the main learning objectives.

These may be used to update CPD records for relevant organisations including the Chartered Institute of Building (CIOB).

FIRE AND LIFE SAFETY CONCEPTS - PROCESS

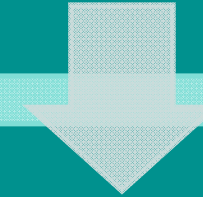
Determine Basis of Design

- Codes and Standards
- Best Practice Engineering



Develop Fire Strategy

- Design Team Coordination
- Authority Approvals



Site Implementation

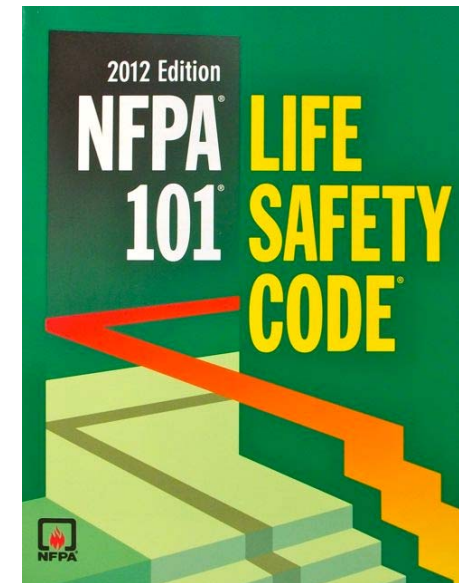
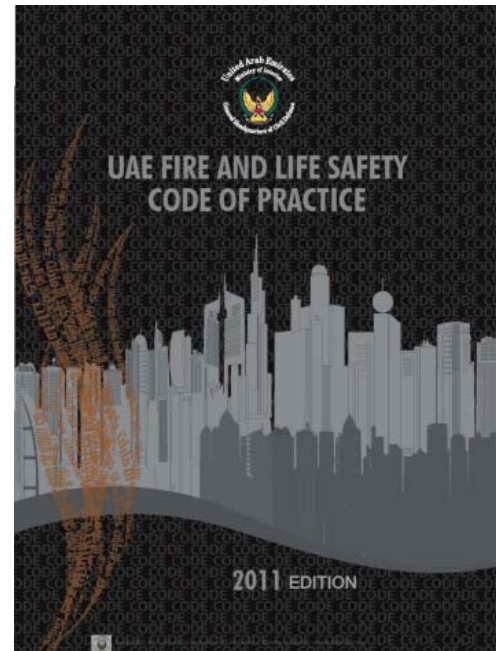
- Contractors
- Site Team

FIRE AND LIFE SAFETY CONCEPTS - GOVERNING CODES AND STANDARDS

- Local codes
- International codes
- Supporting standards
- Best practice

Coordination:

- Authority Having
- Jurisdiction



FIRE AND LIFE SAFETY CONCEPTS – FIRE RESISTANCE

Structural resistance for stability during fire

Coordination:

- Architect
- Structural engineer

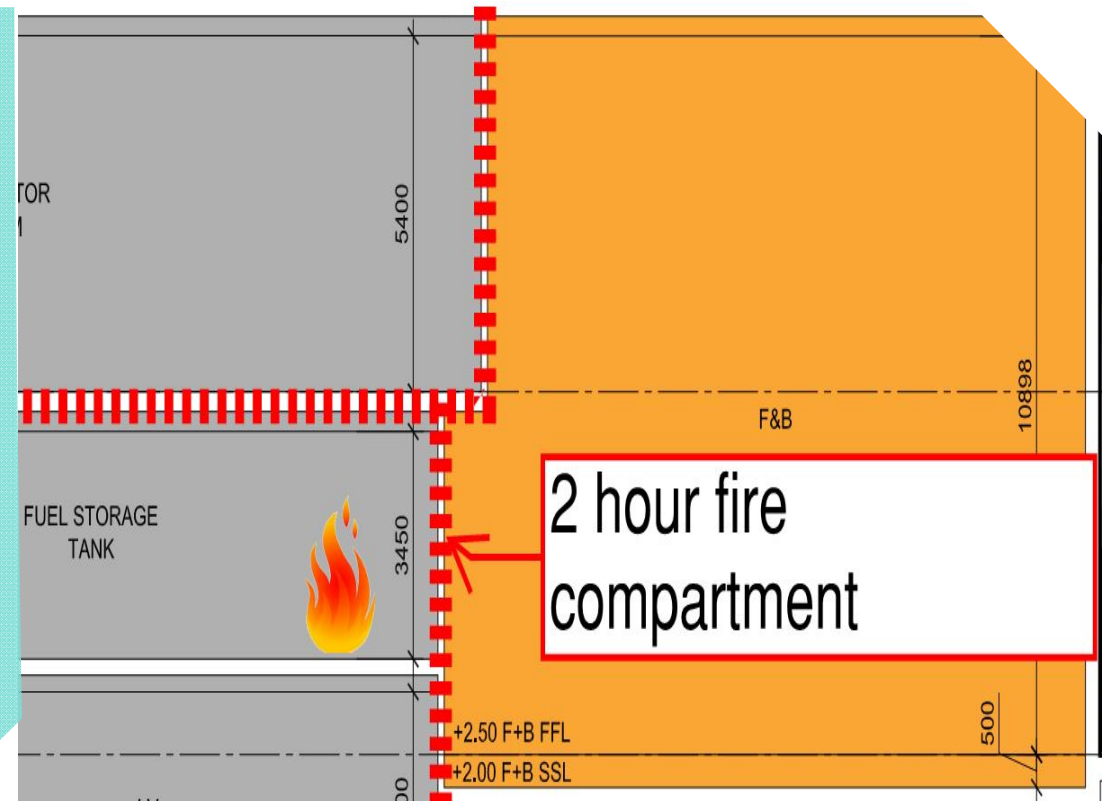


FIRE AND LIFE SAFETY CONCEPTS – FIRE RESISTANCE

Compartmentation to mitigate fire spread

Coordination:

- Architect
- Structural engineer
- Mechanical engineer
- Plumbing Engineer
- Electrical Engineer

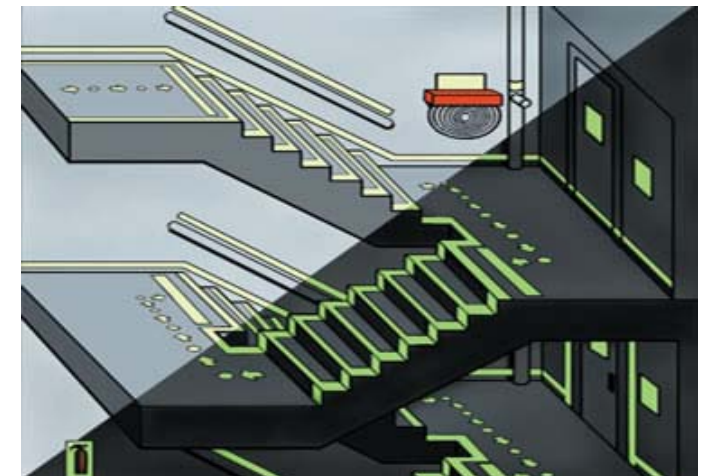


FIRE AND LIFE SAFETY CONCEPTS – MEANS OF EGRESS

Egress paths and features

Coordination:

→ Architect



FIRE AND LIFE SAFETY CONCEPTS – MEANS OF EGRESS

People and Capacity

Coordination:

→ Architect



FIRE AND LIFE SAFETY CONCEPTS – ACTIVE SYSTEMS

- Sprinklers and active suppression
- Fire Alarm
- Smoke control

Coordination:

- Architect
- Fire Protection Engineer
- Electrical Engineer
- Mechanical Engineer

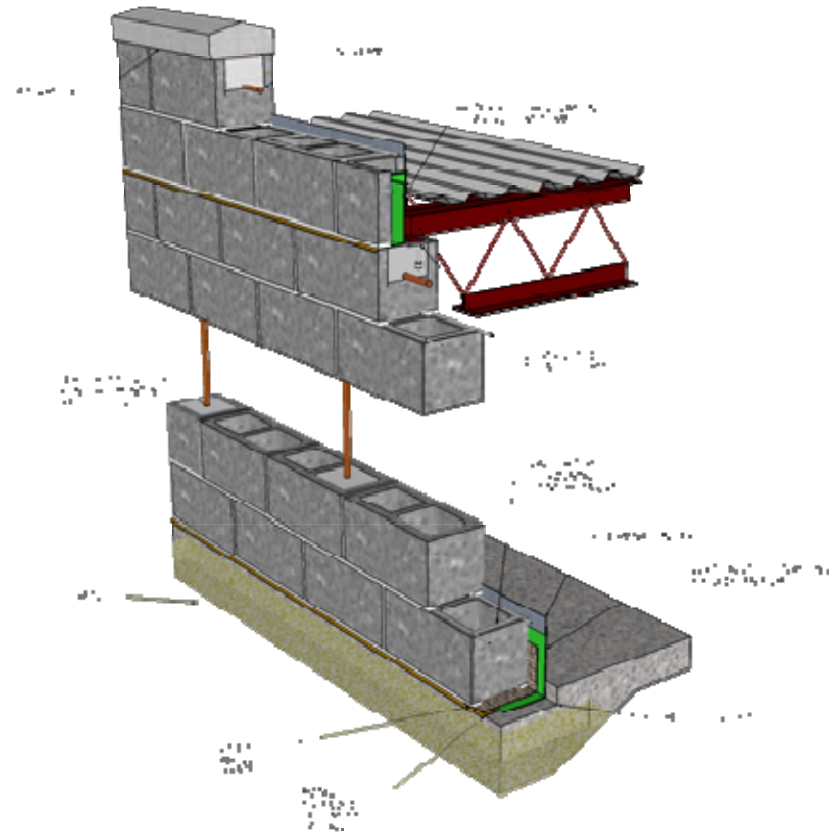


SITE COORDINATION

COORDINATION – COMPARTMENTATION

→ Fire strategy requirement for fire rated wall

What types of construction do you use, do you take advantage of inherent fire resistance in construction such as concrete walls



COORDINATION – COMPARTMENTATION

→ Fire strategy requirement for fire rated wall

Specification of gypsum board

The architect has to have a good understanding of their intent and input the fire strategy into their design



COORDINATION – COMPARTMENTATION

→ Fire stopping of penetrations

How do penetrations get addressed

A point which should have more focus during design

All disciplines involved should understand the number and types of penetrations



COORDINATION – MEANS OF EGRESS

- Ensuring means of egress is constructed as designed
 - Tread length
 - Riser height
 - Handrails
 - Guardrails
 - Egress lighting
 - Door opening forces



COORDINATION – FIRE ALARM

- Code or strategy requires manual or automatic fire alarm



COORDINATION – FIRE ALARM BASIC CONCEPT

- Upon fire alarm activation occupants
- Occupants evacuate



COORDINATION – FIRE ALARM MALL BUILDINGS

- Upon fire alarm activation
 - Affected occupants evacuate
 - Adjacent zones await instruction
 - Smoke control system activates
 - Doors open for make up air
 - Ventilation shuts down
 - Fire shutters activate
 - Background music shuts off
 - Automatic Fire Department notification



COORDINATION – FIRE ALARM COMPLEX BUILDINGS

- Alarm Communication
 - Building Fire command center if available
 - Fire Department/ Civil Defence
 - Central Station (monitored location)



COORDINATION – FIRE SYSTEMS AND SERVICES COORDINATION

- Installation
- Sensitive components and cables
- Installation sequence to mitigate potential damage from other system installs



COORDINATION – FIRE SYSTEMS AND SERVICES COORDINATION

- Building services coordination
- Design drawings not fully coordinated
- Last items to be installed are sprinklers and other systems
- Lack of space for fire systems which need to be prioritized
- Ensure during the design that as a minimum, fire services routing is understood



COORDINATION – EXTERIOR CLADDING

- Façade type and specification
- Fire performance of the system - What does the code require?
- Fire rating – fire resistance or reaction to fire?
- Insulation type!
- Waterproofing!



SUMMARY

- **Fire strategies should be coordinated during design with each discipline**
- **It is beneficial to identify from the start which disciplines are affected by the fire strategy**
- **Systems designers should prioritize space planning for fire systems**
- **For complex buildings, it is in the best interest of the project to maintain a fire consultant during construction**