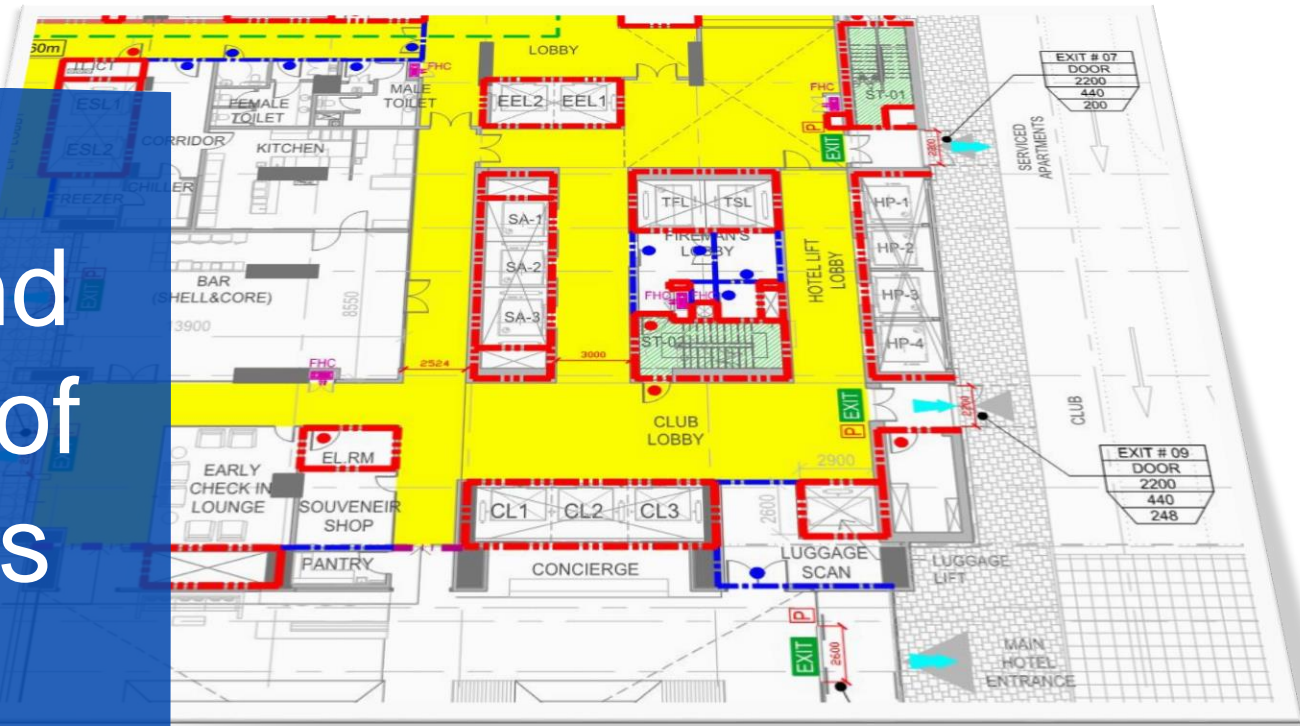




Integration and Coordination of Fire Strategies

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 the information provided within the strategy, the design of the systems to meet the strategy, the installation of systems by the various contractors, and the actual operation and maintenance by the building operators. Some examples include:

- Has there been coordination with the fire & life safety engineer and the other design disciplines
- Has that strategy been clearly written for the contractor to implement the strategy – an example being a cause and effect matrix for Fire Alarm Systems with associated strategy and intent
- Was there coordination on site to validate between the associated disciplines



Presenter

Robert Davies BSc (Hons) MSc CEng MIFireE CFPS

- Head of Fire & Life Safety at WSP | Parsons Brinckerhoff in the Middle East
- Fire Strategy Development
- Authority Liaison
- Inspection and Supervision of Installation
- Witnessing of testing and commissioning
- Auditing maintenance and operations
- Gap analysis on existing buildings



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

**Objective – Protect Life
Of Building Occupant**

Determine Basis of Design

- Codes and Standards
- Best Practice Engineering

Develop Fire Strategy

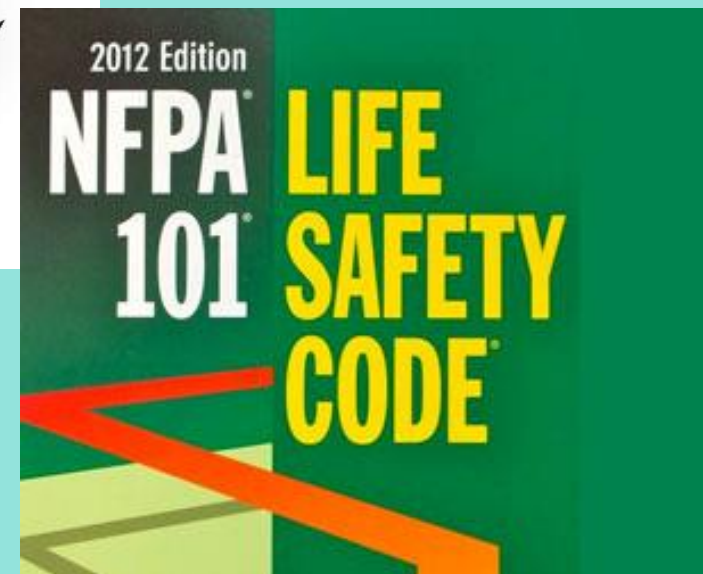
- Design Team Coordination
- Authority Approvals

Site Implementation

- Contractors
- Site Team

FIRE AND LIFE SAFETY CONCEPTS - GOVERNING CODES AND STANDARDS

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



FIRE AND LIFE SAFETY CONCEPTS – FIRE RESISTANCE

- Structural resistance for stability during fire

Coordination:

- Architect
- Structural engineer

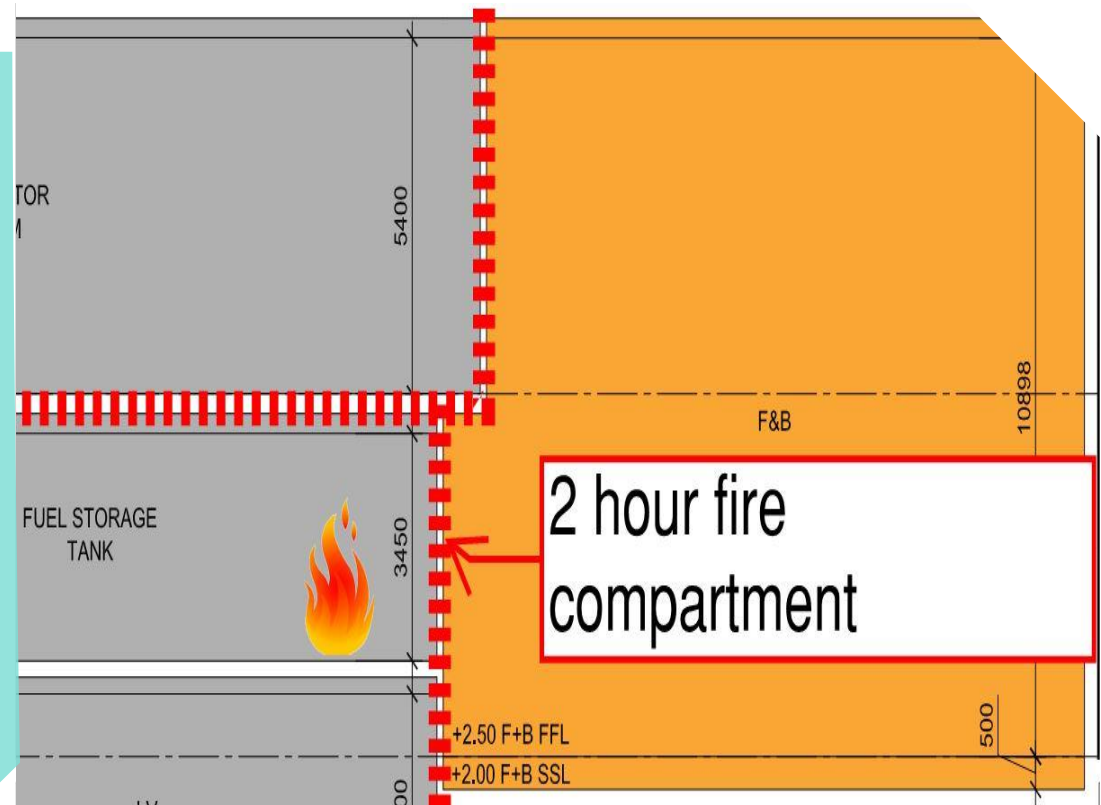


FIRE AND LIFE SAFETY CONCEPTS – FIRE RESISTANCE

→ Compartmentation to mitigate fire spread

Coordination:

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

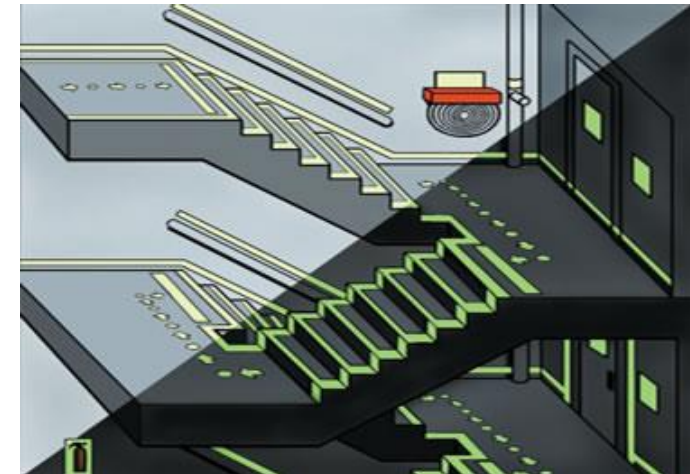


FIRE AND LIFE SAFETY CONCEPTS – MEANS OF EGRESS

→ Egress paths

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 – FIRE ALARM

- Code or strategy requires manual or automatic fire alarm



COORDINATION – FIRE ALARM GENERAL

- Upon fire alarm activation occupants
- Occupants evacuate



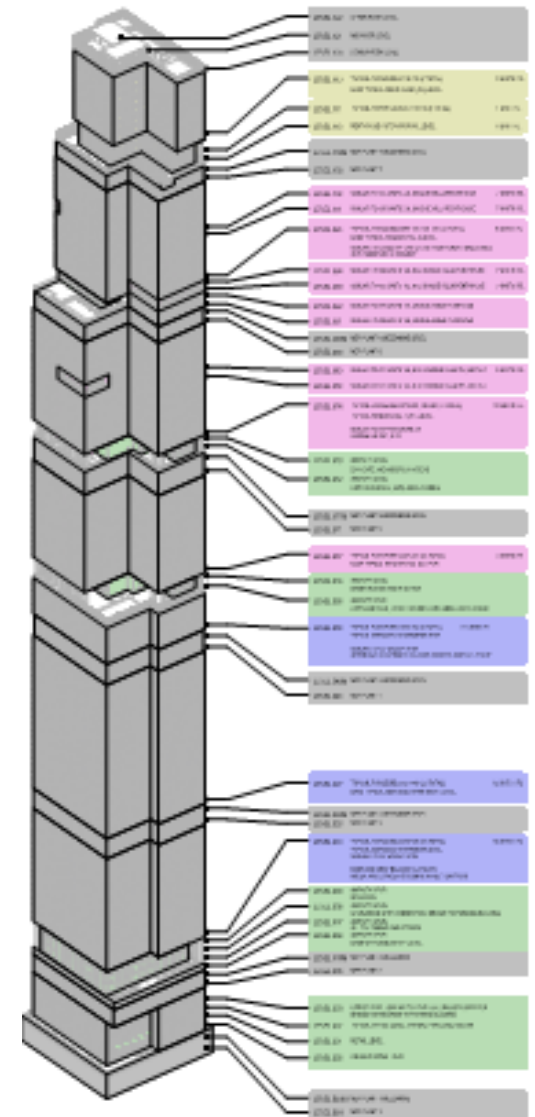
COORDINATION – FIRE ALARM MALL BUILDINGS

- Upon fire alarm activation
 - Occupants evacuate fire zone
 - Adjacent zones evacuate
 - Smoke control system activates
 - Doors open for make up air
 - Ventilation system shuts down
 - Fire shutters activate
 - Any background music shuts off



COORDINATION – FIRE ALARM HIGH RISE BUILDINGS

- Upon fire alarm activation
- Occupants evacuate fire floor, floor above and floor below
- Ventilation system shuts down
- Notification in unaffected areas



COORDINATION – FIRE ALARM COMPLEX BUILDINGS

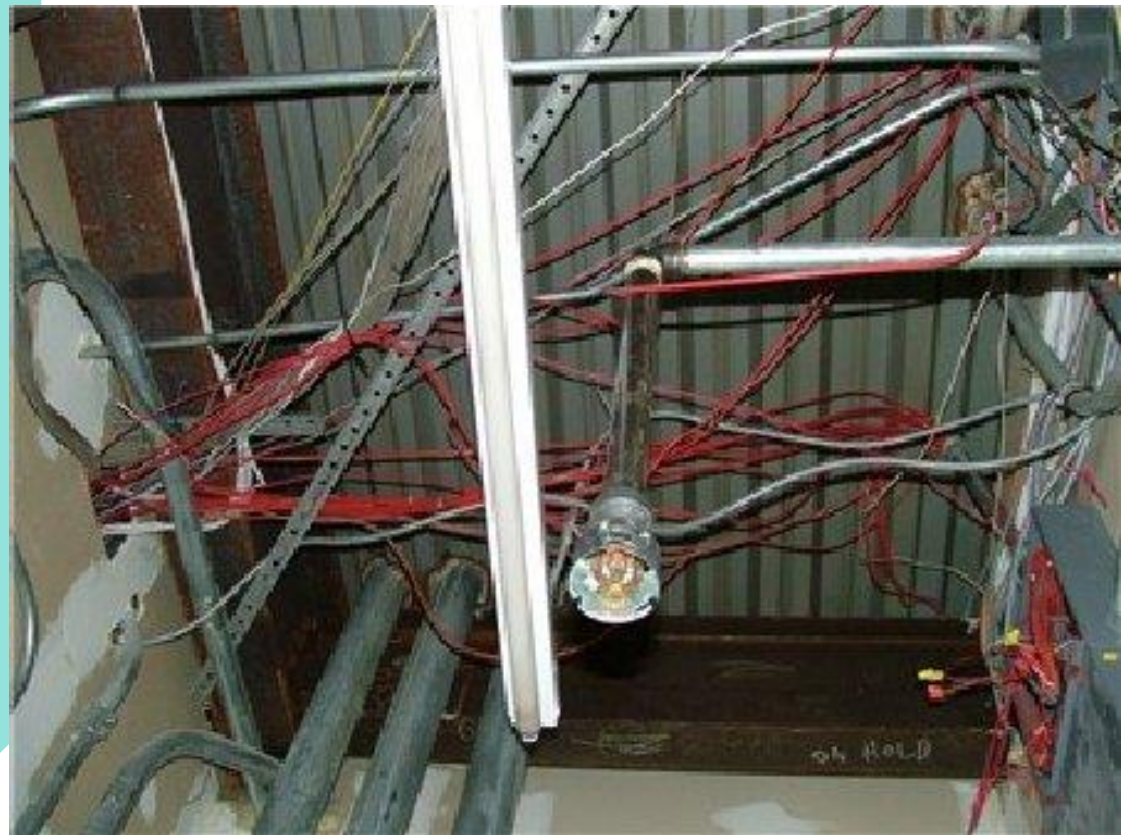
- Alarm Communication
 - Main Fire Alarm Panel
 - Building Fire Command Centre if available
 - Fire Department/ Civil Defence
 - Central Station (monitored location)



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



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COORDINATION – FIRE SYSTEMS AND SERVICES COORDINATION

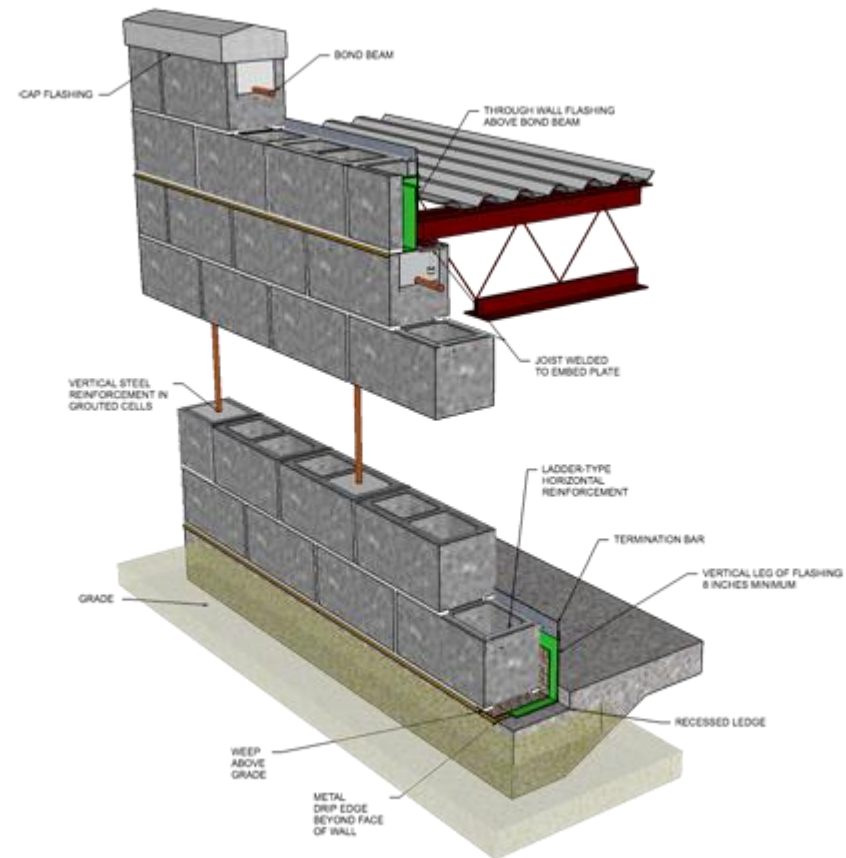
- Interior fit out coordination
 - Changes in design
 - Systems not fit for purpose



COORDINATION – COMPARTMENTATION

→ Fire strategy requirement for fire rated wall

What types of construction do you use, do you take advantage of inherent 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 and how these need to be sealed



COORDINATION – COMPARTMENTATION

→ Fire stropping of penetrations

How do penetrations get addressed

A point which should have more focus during design



COORDINATION – COMPARTMENTATION

→ Fire stropping of penetrations

All disciplines involved should understand the number and types of penetrations



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 and handover**

Thank you

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