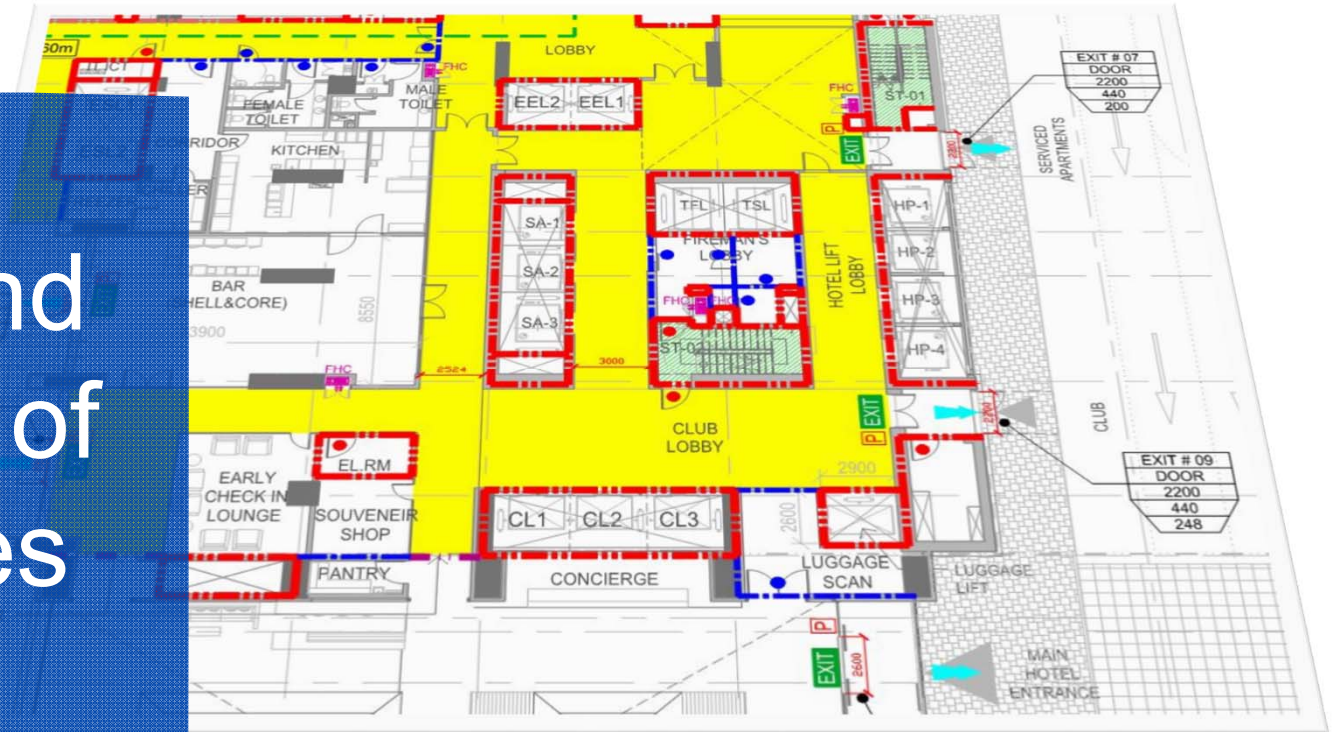


Integration and Coordination of Fire Strategies

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 times there will be a gap of information between 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 for fire safety systems include:

- Has there been coordination with the life safety and the other disciplines
- Has that strategy been clearly written for the contractor to implement the strategy – example cause and effect strategy/matrix with associated strategy and intent
- Was there coordination on site to validate between the associated disciplines



Presenter

Alexander Castellanos

- Associate director at WSP | Parsons Brinckerhoff in the Middle East
- Fire strategy Development
- Authority liaison



Presenter

David Campbell

- Regional Director of Fire Compliance at Thomas Bell Wright





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

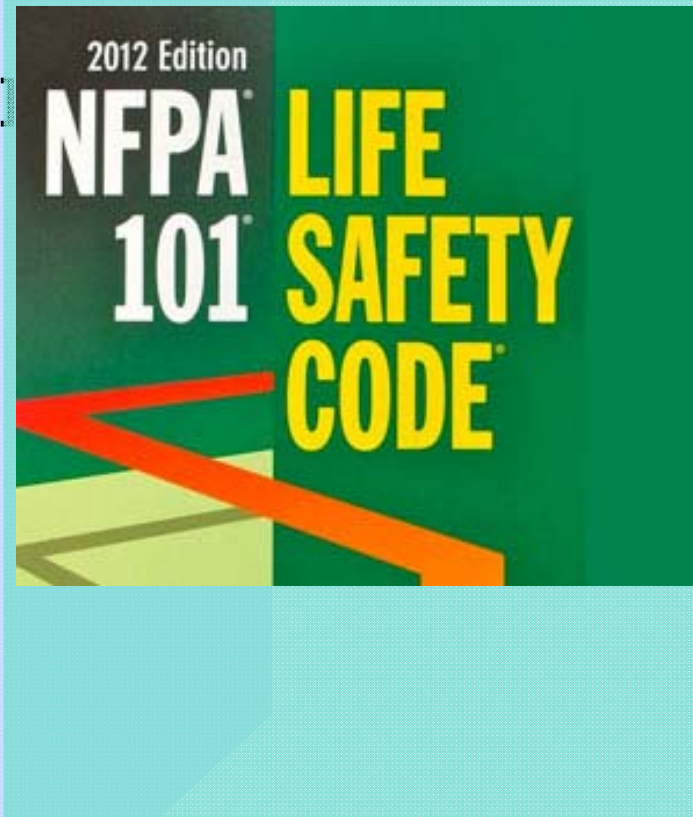
- Design Team Coordination
- Authority Approvals

Site Implementation

- Contractors
- Site Team

FIRE AND LIFE SAFETY CONCEPTS - GOVERNING CODES AND STANDARDS

- Local codes
- [General Requirements]
- International codes
- Supporting standards
- Best practice



FIRE AND LIFE SAFETY CONCEPTS – FIRE RESISTANCE

- Structural resistance for stability during fire

Coordination:

- Architect
- Structural engineer

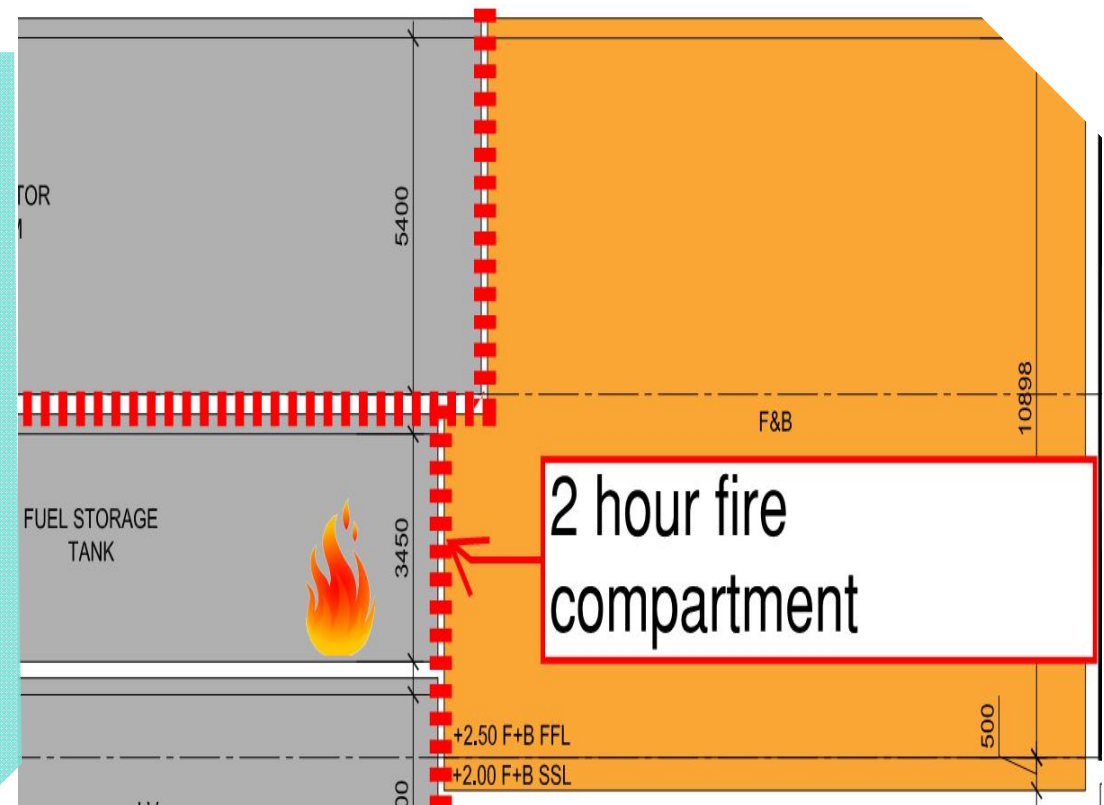


FIRE AND LIFE SAFETY CONCEPTS – FIRE RESISTANCE

→ Compartmentation to mitigate fire spread

Coordination:

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

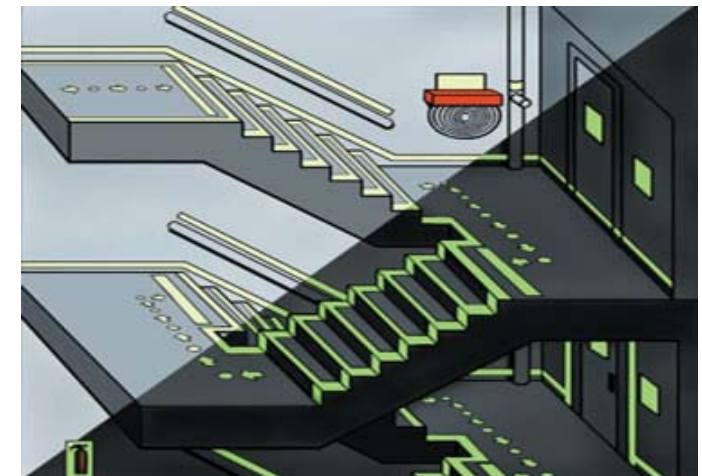


FIRE AND LIFE SAFETY CONCEPTS – MEANS OF EGRESS

→ 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 COMPLEX BUILDINGS

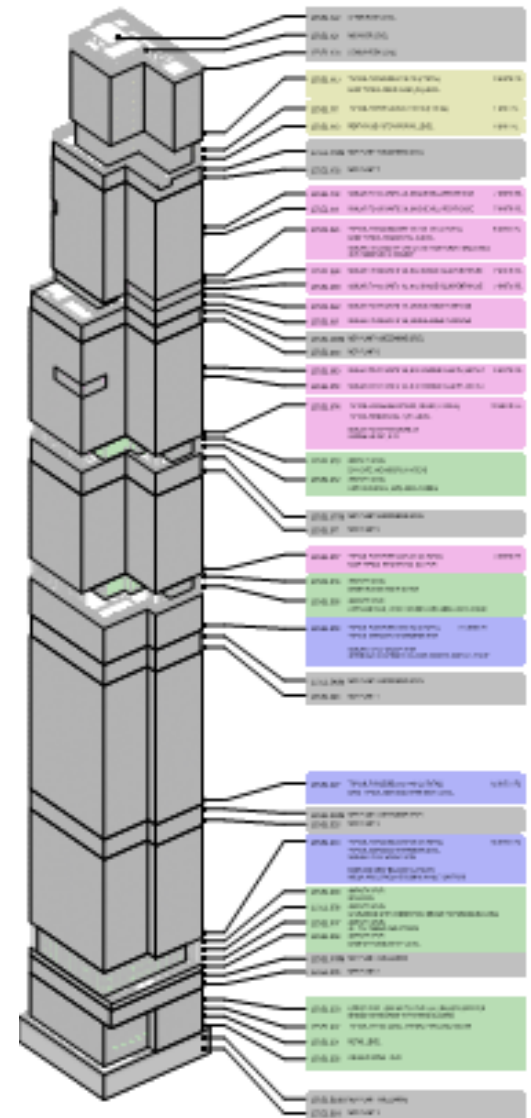
- Upon fire alarm activation
- Occupants evacuate
 - Adjacent zones evacuate
 - Smoke control system activates
 - Doors open for make up air
 - Ventilation system shuts down
 - Fire shutters activate
 - Any background music shuts off



COORDINATION – FIRE ALARM COMPLEX BUILDINGS

→ Upon fire alarm activation

- Occupants evacuate
- Floor above, floor below
- Shutdown of ventilation
- Notification



COORDINATION – FIRE ALARM COMPLEX BUILDINGS

→ Upon fire alarm activation

- Occupants evacuate
- Floor above, floor below
- Shutdown of ventilation
- Notification



COORDINATION – FIRE ALARM COMPLEX BUILDINGS

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



COORDINATION – FIRE ALARM COMPLEX BUILDINGS

→ Fire Strategy

- Should include the cause and effect strategy
- Coordination with the design team
- Contractor develops matrix
- Design team reviews matrix

EFFECT	Notification		SBS SYSTEM		LFTB TO GROUND FLOOR, FAIL, OPEN, AND DISABLE	
	Fire Alarm on NFI/SCP and Fire Computer in SBS Room	Voice Alert to Fire Affected Floor via the PAVA System	Standalone Evacuation of Affected Area via Fire Alarm Signal to SCID 2417	Alarm to SBS (Central Control Station)		
CARPARK GENERAL AREA - ZONE 1						
MANUAL CALL POINT						
SPRINKLER FLOW SWITCH						
GAS LEAKAGE ALARM						
FIRE PUMP RUN						
CARPARK GENERAL AREA - ZONE 2						
MANUAL CALL POINT						
SPRINKLER FLOW SWITCH						
GAS LEAKAGE ALARM						
FIRE PUMP RUN						
CARPARK GENERAL AREA - ZONE 3						
MANUAL CALL POINT						
SPRINKLER FLOW SWITCH						
GAS LEAKAGE ALARM						
FIRE PUMP RUN						
GENERATOR ROOM - A						
HEAT DETECTOR ALARM						
FOAM SYSTEM RELEASE						
GENERATOR ROOM - B						
HEAT DETECTOR ALARM						
FOAM SYSTEM RELEASE						
GENERATOR ROOM - C						
HEAT DETECTOR ALARM						
FOAM SYSTEM RELEASE						
GENERATOR ROOM - D						
HEAT DETECTOR ALARM						
FOAM SYSTEM RELEASE						
DATA CENTER FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
UPS ROOM FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
MECHA ROOM FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
SECURITY EQUIPMENT ROOM FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
NETWORK OPERATION ROOM FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
LV ROOM A FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
LV ROOM B FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
LV ROOM C FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
LV ROOM D FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						
LV ROOM E FM 200						
HEAT DETECTOR ALARM						
GAS RELEASE						

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 – FIRE SYSTEMS AND SERVICES COORDINATION

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COORDINATION – FIRE SYSTEMS AND SERVICES COORDINATION

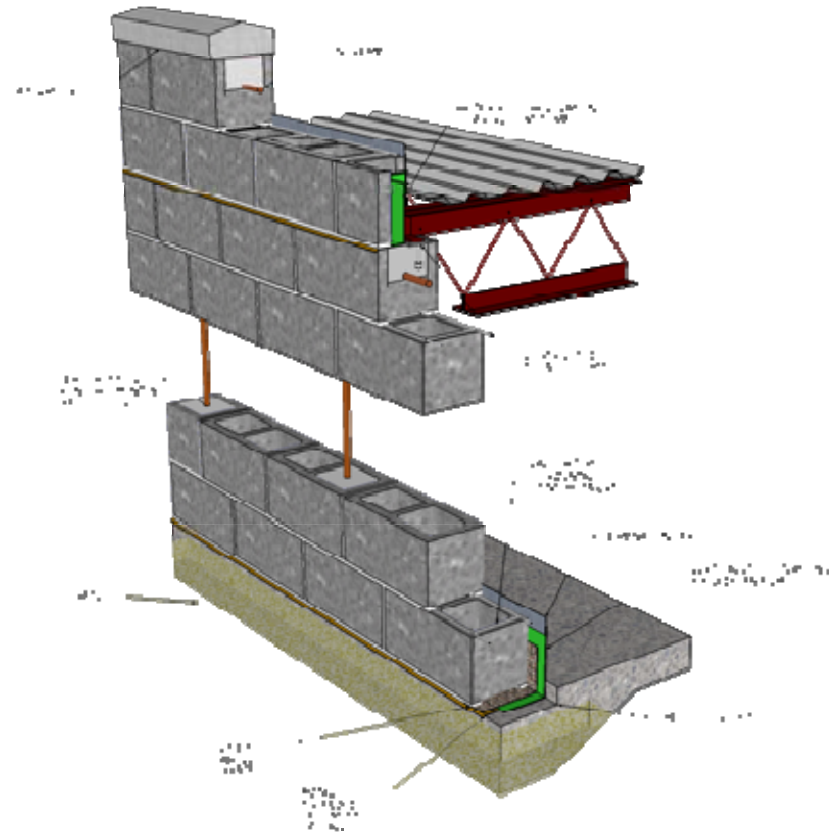
- Interior fit out coordination
 - Changes in design
 - Systems not fit for purpose



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 stropping 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 – COMPARTMENTATION

→ Fire stropping of penetrations

How do penetrations get addressed

A point which should have more focus during design



COORDINATION – COMPARTMENTATION

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All disciplines involved should understand the number and types 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**