

Architecture and Fire Safety Design



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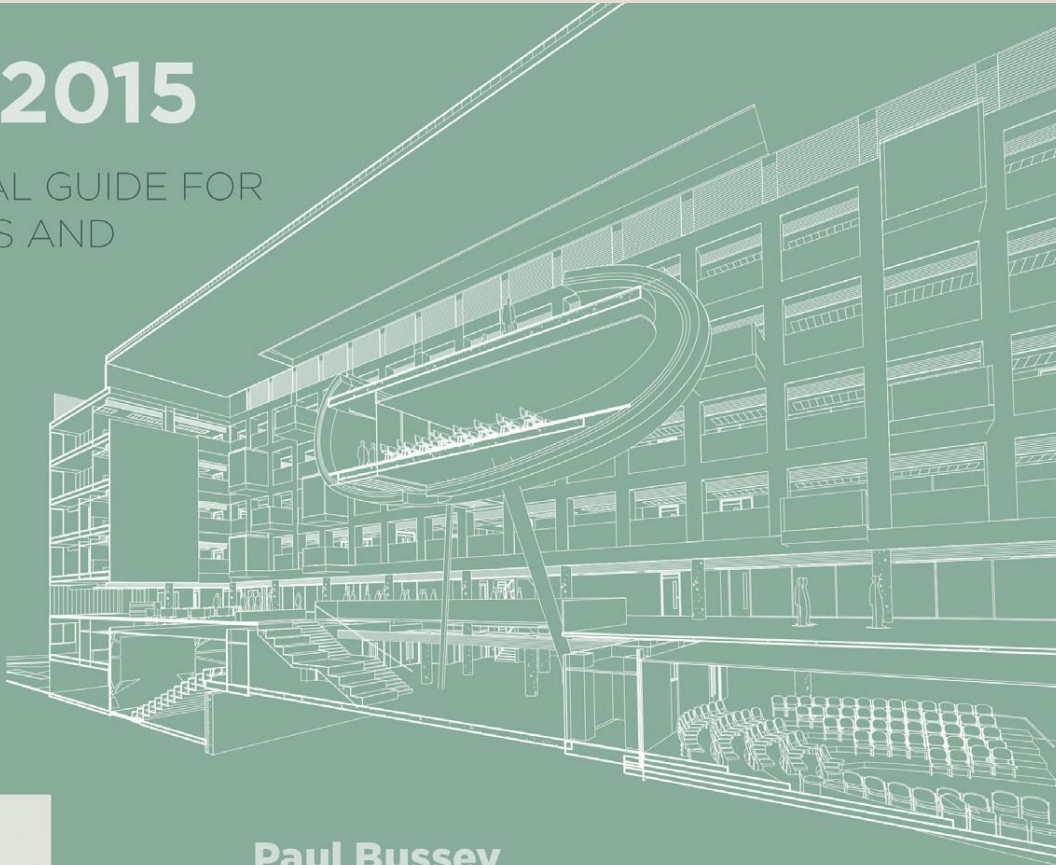


RIBA
Principal
Designer
Course

***Paul Bussey RIBA , IMA PS, FIFireE, FIIRSM
Senior Technical Consultant, AHMM Architects.
Architect , Fire Consultant and Principal Designer***

CDM 2015

A PRACTICAL GUIDE FOR
ARCHITECTS AND
DESIGNERS



CDM 2015:
A Practical Guide
for Architects and
Designers

RIBA  Publishing

Paul Bussey

Can Buildings be totally Fire Risk free?

What about :-

- Timber Buildings?
- Furniture, Furnishings and Fittings?
 - Electrical equipment?
 - Combustible materials?
 - Thatched roofs?
- Should we just use steel, brick and concrete?
- Should we put sprinklers in all buildings?
- What are the Societal Expectations of Buildings?

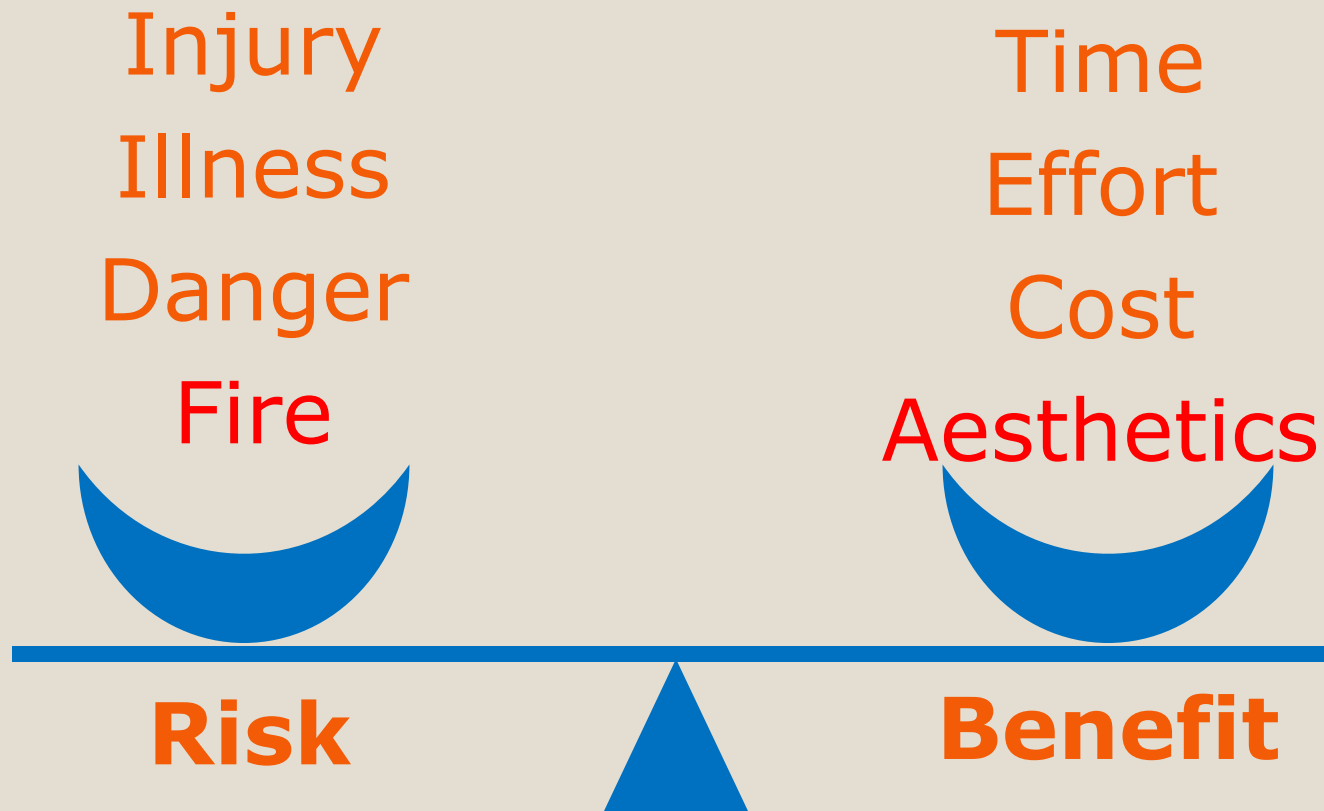
Jean Venables (2009)

OBE FREng FICE

President, Institution of Civil Engineers



How to balance risk and benefit?



The Concept of “Reasonable Practicability”

Proportionality of Risk Management

SFARP

“So Far As Reasonably Practicable”

In essence, it requires weighing the risk against the resources needed to eliminate or reduce the risk.

And the question, whether a measure is or is not “reasonably practicable” is one which requires no more than the making of a value judgment in the light of all the facts (not just H&S or fire).ie:-

Empowerment of the team to make properly informed project judgements, without fear of prosecution.

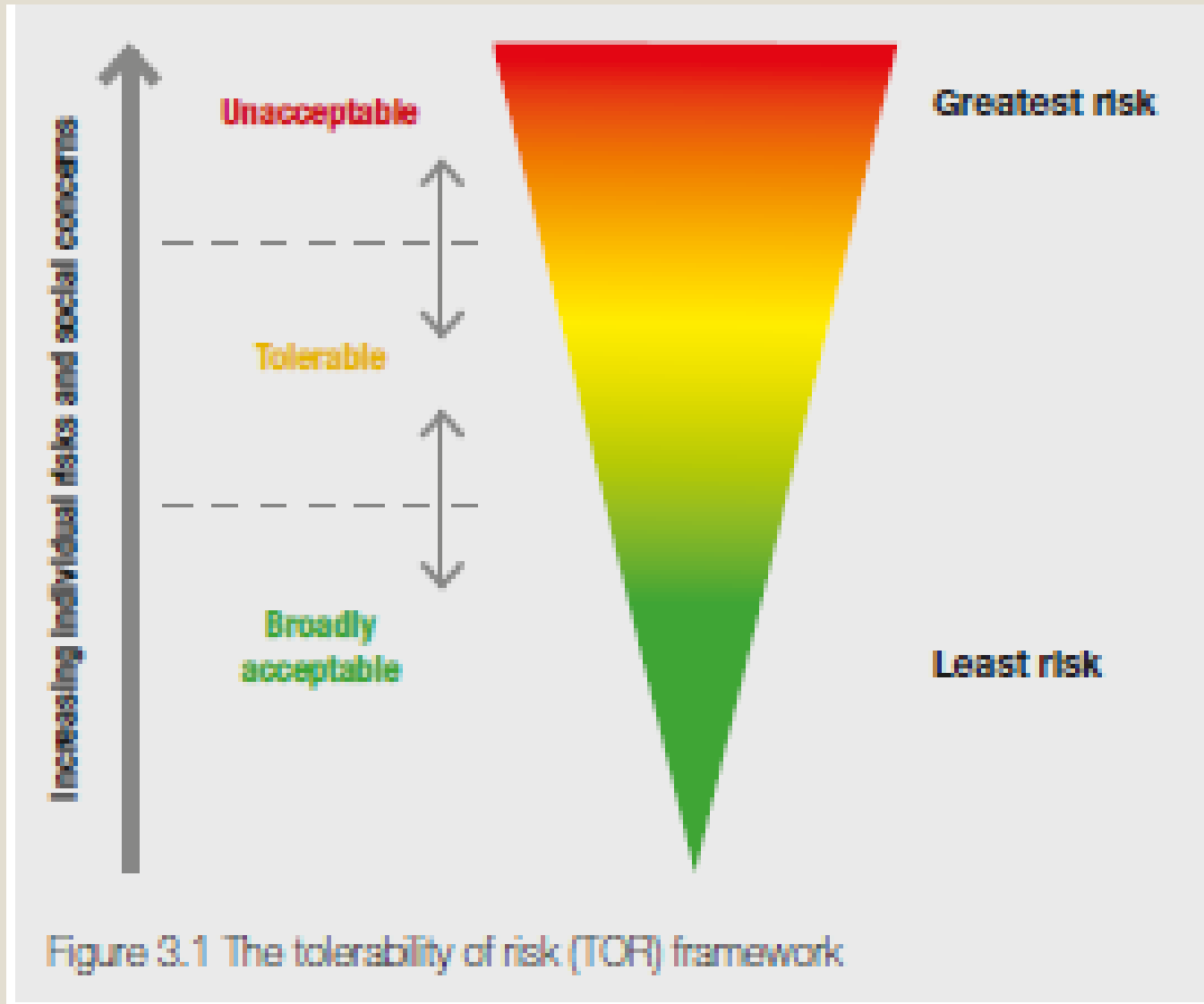


**All Designers must understand SFARP
(HASAWA 1974)**

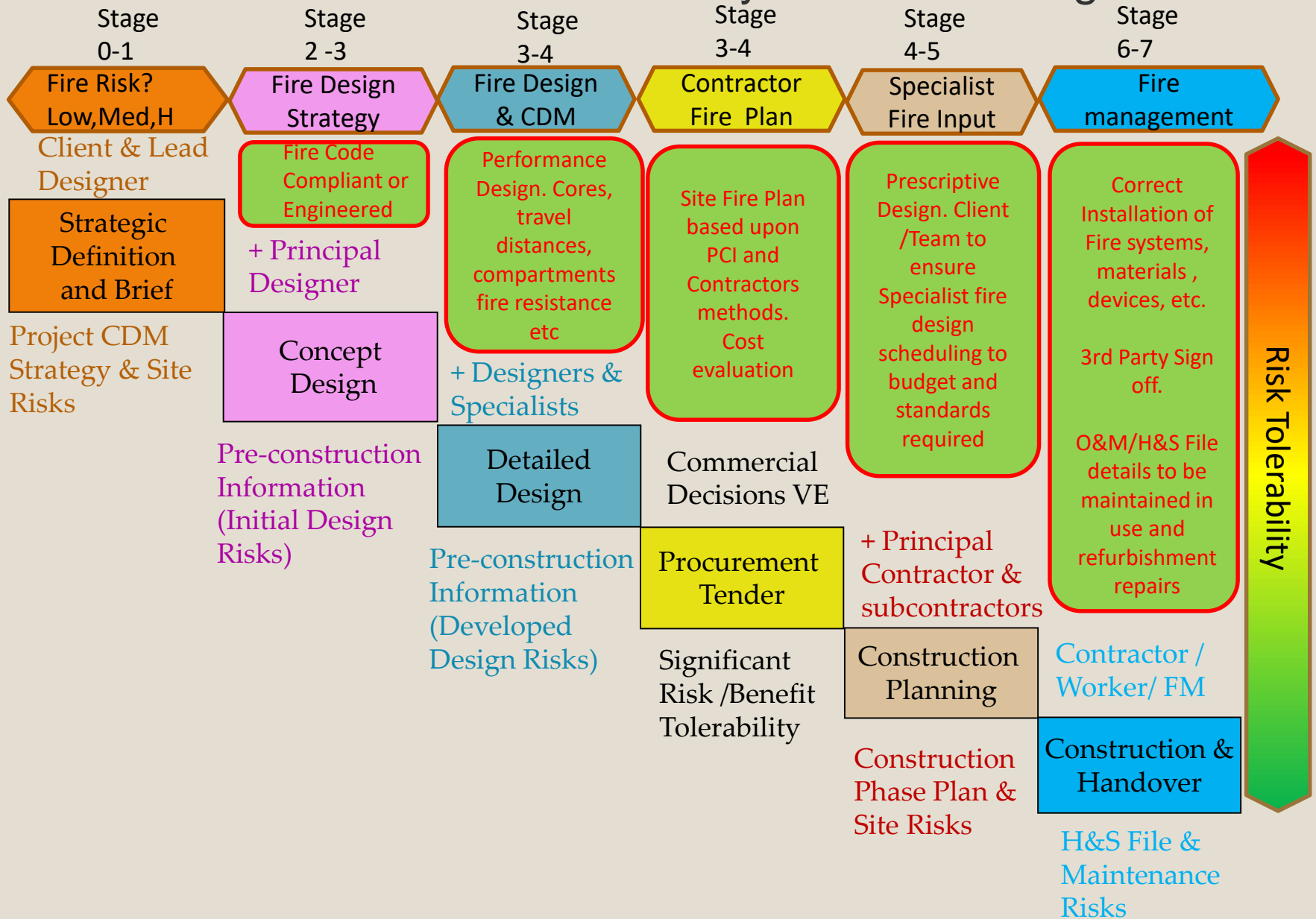
Significant Design Stage Hazards & Risks

- Definition in CDM 2015 - not necessarily the greatest risks but unusual, **difficult to manage, not obvious (hidden)** inc. health **eg.**
- Potentially **catastrophic** issues eg. **Fires, in use and during construction**
- **difficult maintenance issues**

HSE Tolerability of Risk Framework



Fire Risk Identification, Evaluation, Reduction & Communication Process by RIBA Workstages





Site Hazard

Used to identify a hazard or a risk.

The Site Hazard symbol will be used where we have known “significant risks”.

This category will also be used for the majority of CDM “significant risks”.

This could also be used to notify users to the danger of fire if something is NOT installed eg.

- **Compartmentation**
- **Cavity Barriers**
- **Fire Stopping**
- **Fire doors**



Information

Used to convey relevant CDM information

The Information symbol will be **passing on information** which a specialist designer or contractor should be aware of when they complete a CDP design element, construction phase plan or method statements.eg.

- **Working adjacent to gas pipes**
- **Temporary fire protection required**
- **Fire escape route blocked so needs alternative provisions**



Prohibited

Used to prohibit a certain dangerous activity or material.

The Prohibited symbol will be used where we **do not want a material or action** to be used on the project.

This could be :-

- **hot welding works,**
- **Hot cutting works**
- **or the use of flammable or combustible materials**



Encourage action

Used to encourage safe activity or use of a safe material.

The **Encourage Action symbol** will be used where we wish to **promote a positive action**. This could be an action which is good practice such as :-

- **Additional Fire extinguishers to be located in this area**
- **Temporary escape route lighting and signage to be used**
- **Temporary fire protection to be used during construction eg. Timber frame buildings**

Performance Requirements - Design Stage



Specifications

We can add the symbols to the relevant specification system to highlight its importance.

The screenshot displays a software interface for managing specifications. The top part shows a ribbon with tabs like File, Home, Insert, Review, Office Master, Update, View, and Manage. Below the ribbon is a 'Contents' table listing various specifications with columns for Title, Suffix, Classification, Number, and Last Modified. A red arrow points from the 'Hazard warning' text to a yellow warning icon in the 'System outline' section of the right-hand pane.

Title	Suffix	Classification	Number	Last Modified
General fittings, fur...	-	35-05-35	135	08/12/2015 10:23
CDM Site Hazard No...	-	25-90-90	101	05/01/2016 11:44
CDM Design note: ...	-	25-50-95	100	05/01/2016 17:30
CDM Design note: ...	-	25-50-95	101	05/01/2016 17:29
Timber framed wall ...	type B	25-15-35	185	25/08/2015 15:13
Timber framed wall ...	type C	25-15-35	185	25/08/2015 15:13
CDM Site Hazard no...	-	25-10-55	101	05/01/2016 10:02
Masonry internal le...	-	25-10-55	160	14/12/2015 10:30
Masonry external le...	-	25-10-55	150	04/01/2016 15:13
Scope of works	-	25-05-60	102	10/12/2015 11:55
Cementitious weari...	-	20-55-15	115	04/09/2015 11:49
CDM Site Hazard: H...	-	20-50-30	101	11/01/2016 11:51
Mastic asphalt cold ...	-	20-50-30	145	-
Daylight pipe system	-	20-25-75	120	08/12/2015 09:10
CDM Site Hazard No...	-	20-10-10	101	05/01/2016 10:53
Board suspended c...	type A	20-10-10	110	04/12/2015 15:27
Board suspended c...	type B	20-10-10	110	04/01/2016 17:22
CDM Site Hazard No...	-	20-05-80	101	05/01/2016 12:23
Composite concrete...	-	20-05-80	110	08/12/2015 09:12
Precast concrete be...	-	20-05-80	160	21/08/2015 12:12
In situ reinforced co...	-	15-05-50	110	06/11/2015 11:16
CDM Site Hazard No...	-	10-45-20	101	06/01/2016 10:12
Deconstruction syst...	-	10-45-20	110	05/01/2016 12:31
Works Contract Co...	-	00-80-70	-	-
Works Contract Ad...	-	00-70-70	-	-

System outline

- 20-50-30/101 CDM Site Hazard: Hot applied mastic asphalt roof membrane.**
 - Danger of fire:** The new asphalt roof is being laid to the roof of the existing fuel store which will remain in use. Provide the correct grade of fire fighting equipment to enable a fire to be extinguished. Include the use of gas burning asphalt heaters in the site fire safety plan during the construction stage..
 - Noxious fumes:** Reasonable measures should be taken to avoid noxious fumes from causing a nuisance or health hazard to adjoining properties and other trades people. Refer to site plan drawing number 13046 (21) 100

Hazard warning



Fire Hazard

Use to indicate a risk item.

The Fire Hazard symbol will be used where we have known risks. This could be used to notify users of **action required to install permanent fire rated elements and systems eg. fire dampers, cavity barriers, fire stopping around services, etc**



Fire Information

Use to indicate fire information.

The Information symbol will be passing on information which a specialist designer or contractor should be aware of when they complete a CDP design element, construction phase plan or method statements where fire performance is critical.



Fire Encourage Action

Use to indicate action.

The **Encourage Action** symbol will be used where we wish to **promote a positive transient action**. This could be an action which is good practice such as **temporary provision of fire extinguishers, fire protection measures, etc. during refurbishment or maintenance works**

Method:

We can add the highlights as custom systems appended to the relevant specification system.

The screenshot displays a software interface with a ribbon menu at the top (File, Home, Insert, Review, Office Master, Update, View, Manage) and a toolbar. The main workspace is divided into three panes:


- Contents:** A tree view on the left showing a hierarchy of project management and preparatory systems, with '25 Framed partition systems' expanded to show '25 Framed partition systems' and '35 Framed wall structure systems'.
- Resources:** A list of resources on the left, including '05 Districts, facilities and buildings', '10 Preparatory systems', '15 General structural systems', '20 Roof, floor and paving systems', '25 Wall and barrier systems', '00 Monolithic wall systems', '05 Structural (unframed) panel wall systems', '10 Unit wall systems', '30 Damp proof course renewal and insertion systems', '40 Glass block wall systems', '55 Masonry wall systems', '75 Straw bale wall systems', '15 Framed wall systems', '20 Fence systems', '25 Fixed pedestrian barrier systems', '50 Door and window systems', '55 Other wall opening systems', '60 Gate systems', '70 Operable traffic barrier systems', '80 External wall covering and finish systems', '85 Internal wall covering and finish systems', '90 Wall and barrier accessory systems', '30 Stair, ramp, tunnel, shaft and vessel systems', '35 FF&E and general finishing systems', '40 Flora and fauna systems', '45 Fabric, FF&E and landscape products', '50 Disposal systems', '55 Piped supply systems', '80 Transport systems', and '90 Services engineering products'.
- Main Content Area:** Displays the details for '25-15-25/135 Gypsum board partition system FPS-105'.
 - System outline:** Type: E; Description: Fire rated shaft wall partition system; Function: FPS-105.
 - System performance:** Framed partition system design requirements; Structural performance; Fire performance to BS EN 13501; and Acoustic performance.
 - System manufacturer:** Knauf.
 - System reference:** Firefighting Shaftwall 146 mm stud.
 - Studs:** Type: 146 mm 'C-T'; Centres: 600 mm.
 - Head condition:** Type: 'U' channel fixed to slab; Deflection allowance: 22mm.
 - Insulation:** 25 mm insulation quilt, density 12–16 kg/m³.
 - Linings:** Shaft side: One layer of 20 mm Coreboard; Room side: Two layers of 15 mm Fireshield.
 - Finishing:** Type: Knauf skim plaster and Taped seamless finish with Knauf joint tape one side and and Knauf jointing compound the other side.
 - Primer/Sealer:** For painted condition.
 - Accessories:** Knauf deep flange 'U' track; Knauf fixing channel; Knauf flat plate; and Knauf movement control joint.
 - Execution:** Installing framed partitions generally; Installing partitions onto new concrete and screeds; Installing framing for partitions; Framing to staggered stud partitions; Installing deflection heads; Installing plasterboard to metal framing; and Sealing gaps and air paths around partitions.
 - System completion:** Removal of samples and Verification of performance.
- System performance (bottom):** 25-15-25/207 Framed partition system design requirements. Shared by: Gypsum board partition system FPS-102 and Gypsum board partition system FPS-105. Standard: To BS 8000-0 and BS 8212. Materials, components and: Use only the same as those tested and identified in assessment reports.

The **NBS Guidance** pane on the right shows search results for 'System performance', including a detailed description and a list of NBS values such as 'Acoustic performance', 'Airtightness performance of partition systems', 'Compliance with performance requirements', 'Design submittals', 'Fire performance to BS 476', 'Fire performance to BS EN 13501', 'Framed partition system design requirements', and 'Structural performance'. Below this, it lists 'System manufacturer' and 'Damp proof course' with further guidance text.

A red arrow points to a red square icon in the 'Execution' section of the main content area, with the text 'Encourage action highlight' written in red next to it.

Generic Fire Materials - Design Stage

Passive Fire Tracking Document

Fire Stopping Condition	Image Product	Image Installation	Information	Action/ Date
Through Penetration Fire Stopping				
Fire Barrier Cast-in-Place Devices: Firestopping device for use prior to a concrete pour.	 <p>CFS-CID Firestop cast-in device</p>		<p>Height: 250 mm Base materials: Concrete Application temperature range: 5 - 50 °C Temperature resistance range: 20 - 100 °C Colour: Red Reaction to fire: class (EN 13501-1) E Re-penetration: Yes webpage: https://goo.gl/BjTHQ4</p>	<p>Action/ Owner: Work stage: Date:</p>
Fire Barrier Pipe Device: Intumescent device for firestopping of pipe and cables through rated walls and floors.	 <p>CFS-BL Firestop block</p>		<p>Dimensions (LxWxH): 200 x 130 x 50 mm Colour: Red Acoustics performance: Test report available Tested in accordance with: EN 1366-3 Re-penetration: Yes Reaction to fire: class (EN 13501-1) E Application temperature range: 5 - 40 °C Temperature resistance range: -15 - 60 °C Can be painted: Yes Shelf life: Not relevant 1 Chemical basis: Polyurethane LEED VOC: 5.4 g/l</p>	<p>Action/ Owner: Work stage: Date:</p>
Fire Barrier Restricting Collar: For firestopping of plastic pipes from 4 inches (102 mm) to 10 inches (254mm) in diameter.	 <p>CFS-C P Firestop collar</p>		<p>Approvals: ETA-10/0404 Application temperature range: 5 - 50 °C Temperature resistance range: 20 - 100 °C Reaction to fire class: (EN 13501-1) E Shelf life: Not relevant 1 Can be painted: No LEED VOC: 7.6 g/l Minimum ceiling thickness: 150 mm Minimum wall thickness: 100 mm Mold and mildew performance: Class 0 (EN ISO 846)</p>	<p>Action/ Owner: Work stage: Date:</p>

Construction Stage Details- All Gaps & Penetrations

Number

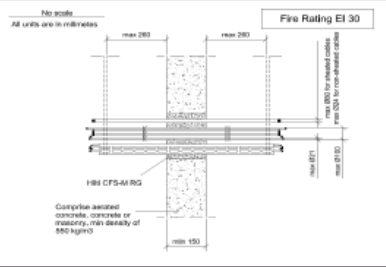
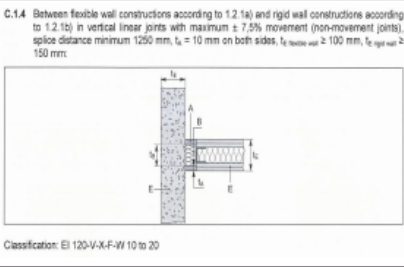
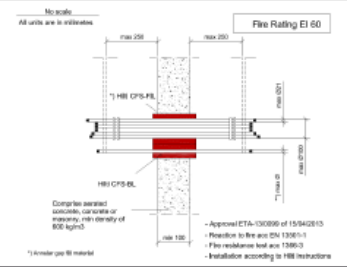
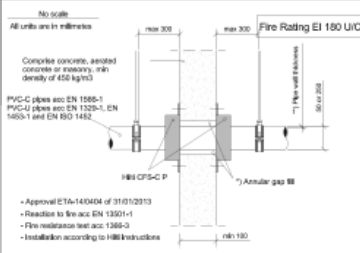
Pipes

Cables

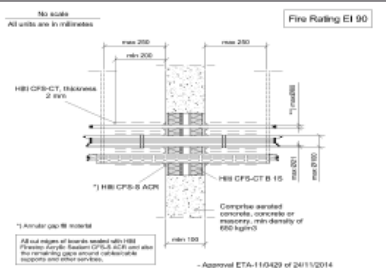
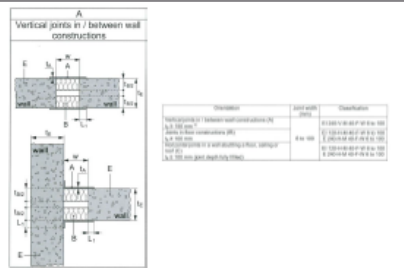
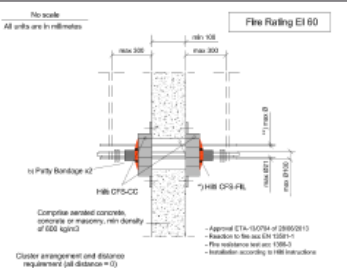
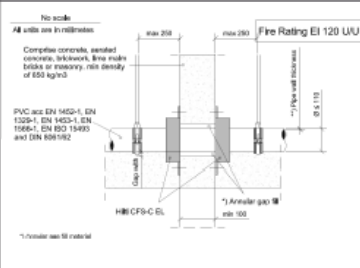
Joints

Multiple Penetrations

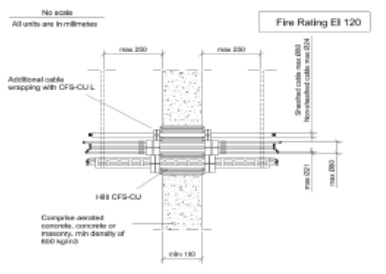
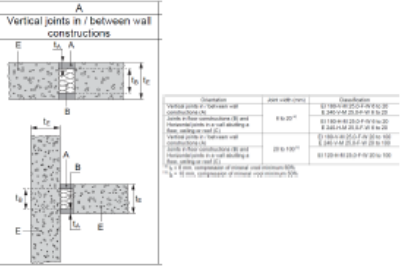
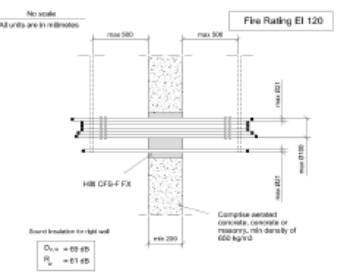
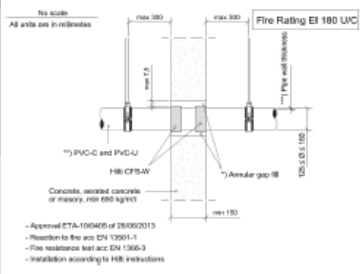
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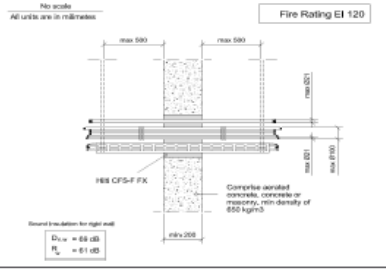
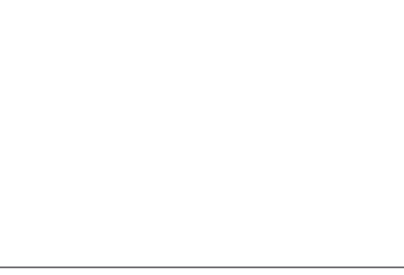
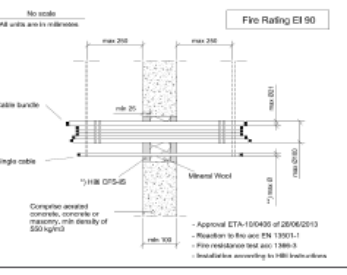
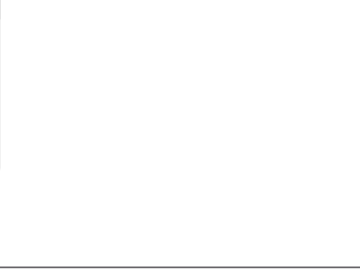
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3



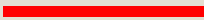





4



ASFP
RIBA
HILTI
Plan of Work
For Fire
Prevention
Initial Draft
HoP
Firex
IFE
ASFP

This document is a work in progress. It shall be subject to review and approval		RIBA Work Stages			Tasks				
		Preparation Brief/Concept Design and Stages 0, 1, 2	Developed Design Stage 3	Technical Design Stage 4 (Tender Documentation)	Construction Stage 5 (Construction Stage Documentation)	Handover Stage 6	Defects Period	In Use Stage 7	
		Specifications and Drawings (including tests and verification activities)							
		Installation and Inspection (including installation/operation schedule)				Practical Completion/Handover (including H&S and O&M)			
Stakeholders	Client Team	Name	Abb.	Brief	Concept	Planning			
		Client C	C	●	●				
		Landlord	LL	●					▲
		Tenant	T						▲
		Developer	DEV	●	●				
	Design Team	Facilities Managers	FM					●	▲
		Architect/Navarch Architect	ARCA	←	←	←	←	←	←
		Principal Designer	PD						
		Structural Engineer	SE	●	●	●	●	●	
		Mechanical & Electrical Engineer	ME	●	●	●	●	●	
	Construction Team	Specialist Fire Engineer's Inc Manufacturer	SFEI		●	●	●	●	
		Historical Conservation Consultant	SFC	●					
		Principal (Main) Contractor	PC					▲	●
		Sub-Contractor / Fabricator Ceiling/Join	Con				●	●	●
		Specialist Fire Subcontractors	SFSC				●	●	●
Inspection Team	INS	INS	●	●	●	●	●	●	
	Third Party Certification Scheme	TPCS					▲	●	
	Independent Inspection Bodies	IB					▲	▲	
	Building Control	BC	●	●	●	●	●	●	
FRA	Fire Brigade	FB	●						
	Fire Risk Assessors	FRA						▲	
Documentation and Drawings		Refer to Work Stages Appointment							
Work Stages Deliverables		Concept & Scheme Design Documentation	Outline Specification and Performance Criteria	Generic Descriptive Technical Specification and Generic Drawings for Fire Protection Application	Construction Documentation: detail design drawings, approvals etc.	Fire Strategy, Detailed Report of all firestop applications installed, Health & Safety File, Operation Manuals	Client and FM Team Implementation		
Design Documentation	Architectural	Fire strategy and Plan with Floor plans, Sections, Elevations indicating: CA's strategy with annotation for key fire issues; Conditions for Fire Brigade access; Travel distances; Compartment sizes and extent; Stair core locations; Atria and voids; Elevations for adjacency calculations; Suppression systems	Fire performance criteria and locations: Fire strategy drawings; Vertical M.E.P. requirements; Horizontal M.E.P. requirements; Shaft and void requirements; Fluorescent ceilings, sockets/ spray/ barriers; Fire features (atria and voids)	Fire protection measures: Fire detailed drawings; Fabric & fire resistance; Walls; Floor/ stairs; Smoke/ soffits; Ceilings; Generic type of protection for service penetrations; Cavity barriers; Floor barriers; Roof barriers; Doors; Dampers; Fire protection passive aids; Sprinklers; Firechambers; COP	NA	NA			
	Structural Engineer	Identification of: Frame type; Structural fire resistance; Structural walls; Compression walls stability in fire	Fire protection proposals: Fireproofing; Element fire protection and resistance; Cladding fire protection and resistance; Water or other protection; Structural thermal models; determination of limiting temperatures for all structural members	Detailed fire protection proposals: Transoms/boards/springs/partitions; Water or other protection; Structural design signed off as Design Certifier	NA				
	Mechanical, Electrical, Public Health Consultant	Indicating: horizontal and vertical services strategy; Risers and structural holes indicated; Indication of: Mechanical; Electrical; Ventilation	Indicating: Service locations and routes; Locations of holes and sizes including separation of; Mechanical services penetrations; Electrical services penetrations; Ventilation services penetrations; Flues for boilers, waterheats, etc.	Fire protection: Generic riser protection; Generic type of protection for service penetrations; Fire protection services; Fire protection penetrations; Fire protection firechambers; Fire support systems; Include Methods 1-4 of BS 9999	NA				
	Mechanical, Electrical, Public Health Contractor	N/A	NA	NA (unless early appointment)	Requirement: Prescribe fire protection systems to match the design criteria	Detailed Documentation of all active and passive fire stopping elements			
Specialist Consultants	Specialist Fire Consultant/ Insurer	Specialist requirements: Risk assessment and fire suppression and control; Smoke strategy; Sprinklers; Firechambers; Pressurisation; Fire Brigade Statutory Bar/ Consultation	Fire requirements on structural frame	NA	NA	NA	Handover of Fire Strategy Documentation (Regulation 38); Fire Brigade Licensing Approvals	NA	
	Specialist Fire Manufacturer Supplier	NA	Conceptual solutions for the application; Product attributes.	Test reports and Approvals for the exact applications specified (an approval applies to an application and not to a single product)	Construction for specialist solutions; Engineering adjustments				
	Fire Installation Contractor and Sub-Contractor	NA	NA	NA	renders for work. Detailed Material Test O&M and On Site Instructions for detail sections. Details of all passive fire protection related including fire doors, fire resisting ducts/dampers and fire-stopping.	Certification of Completion (ancillary certified); Marked-up drawings and documentation; Installation inspection reports; (Regulation 38)			
Documentation (Works Sign Off)	Design Certifier								
	Ancillary Certifier								
Completion	Tender	Contribution/ Handover		Defects Sign-off					
Definitions	Contribution	Inspection		Signoff					
		Consultation period and/ or meetings for contributions on drawings, specifications, applications, products, etc. to advance the process.		The process of examination of drawings, specifications, applications, products, and the inspection of works on site for installation.			Formal approval of drawings, specifications, applications, products, and the installation of works on site.		

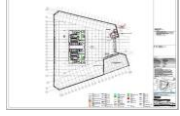


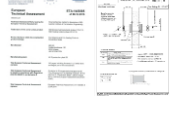


Key

Completion	Tender 	Construction/ Handover 	Defects Sign-off 
Definitions	Contribution 	Inspection 	Signoff 
	Consultation period and/or meetings for contributions on drawings, specifications, applications, products, etc. to advance the process.	The process of examination of drawings, specifications, applications, products, and the inspection of works on site for installation.	Formal approval of drawings, specifications, applications, products, and the installation of works on site.

The Fire Prevention Collaborative Team

This document is a work in progress. It shall be subject to review and adaptation.		RIBA Work Stages																			
		Preparation Brief/ Concept Design incl Stages 0, 1 - 2			Developed Design Stage 3		Technical Design Stage 4 (Tender Documentation)		Construction Stage 5 (Construction Stage Documentation)		Handover Stage 6	Defects Period	In Use Stage 7								
Name		Abb.		Tasks																	
				Brief	Concept	Planning	Specifications and Drawings (including tests and certification evaluation)				Installation and Inspection (including installation documentation schedule)		Practical Completion/ Handover (including H&S and OM's)								
Stakeholders	Client Team	Client C	C	●	●																
		Landlord	LL	●																	▲
		Tenant	T																		▲
		Developer	DEV	●	●																
		Facilities Managers	FM						●		●				■		■				▲
	Design Team	Architect/ Novated Architect	ARCH	← [Task Bar] →																	
		Principal Designer	PD		●	← [Task Bar] →	●	← [Task Bar] →	●	← [Task Bar] →	●	← [Task Bar] →									
		Structural Engineer	SE			●	← [Task Bar] →	●	← [Task Bar] →	●	← [Task Bar] →										
		Mechanical & Electrical Engineer	ME			●	← [Task Bar] →	●	← [Task Bar] →	●	← [Task Bar] →										
		Specialist Fire Engineer's inc Manufacturer	SpFE			●	← [Task Bar] →	●	← [Task Bar] →	●	← [Task Bar] →										
	Construction Team	Historical/ Conservation Consultant	SpFE			●	← [Task Bar] →		●	← [Task Bar] →											
		Principal (Main) Contractor	PC								← [Task Bar] →	▲	■	← [Task Bar] →							
		Sub-Contractor / Fabricator Cladding/ Steel	Con								●	← [Task Bar] →	●	■	← [Task Bar] →						
	INS	Specialist Fire Subcontractors	SpSC								●	← [Task Bar] →	●	■	← [Task Bar] →						
		Insurers	INS			●		●		■		■									●
		Third Party Certification Schemes	3PCS										▲	■							
		Independent Inspection Bodies	IB										▲	■					▲	■	
		Building Control	BC		●			●		●		■	▲	■							
FRA	Fire Brigade	FS		●																	
	Fire Risk Assessors	FRA													■	▲	■				

The Fire Prevention Process

This document is a work in progress. It shall be subject to review and adaptation.		RIBA Work Stages						Defects Period	In Use Stage 7
		Preparation Brief/ Concept Design incl Stages 0, 1 - 2	Developed Design Stage 3	Technical Design Stage 4 (Tender Documentation)	Construction Stage 5 (Construction Stage Documentation)	Handover Stage 6			
		Tasks							
Documentation and Drawings	Refer to Work Stages Appointment	Specifications and Drawings						Practical Completion/ Handover	
									
Work Stages Deliverables		Concept & Scheme Design Documentation	Outline Specification and Performance Criteria	Generic Descriptive Technical Specification and Generic Drawings for Fire Protection Application	Construction Documentation: detail design drawings, approvals etc.	Fire Strategy, Detailed Report of all firestop applications installed, Health & Safety File, Operation Manuals	Client and FM Team Implementation		
Design Documentation	Architectural	Fire strategy and Plan with Floor plans; Sections; Elevations Indicating: GA's drawings with annotation for key fire issues Locations for Fire Brigade access Travel distances Compartment sizes and extent Stair core locations Atria and voids Elevations for adjacency calculations Suppression systems	Fire performance criteria and locations: Fire strategy drawings Vertical M.E.P requirements Horizontal M.E.P requirements Shaft and void requirements Intumescent coatings /boards/ sprays/ renders Fire features (atria and voids)	Fire protection measures: Fire detailed drawings Fabric & fire resistance Walls Floors/ slabs Roofs/ soffits Ceilings Generic type of protection for service penetrations Cavity barriers Floor barriers Roof barriers Doors Dampers Fire protection passive aids Sprinklers Drenchers CO ²	N/A		N/A		
	Structural Engineer	Identification of: Frame type Structural fire resistance Structural walls Structural steels Compartmentation walls stability in fire	Fire protection proposals: Intumescents Inherent fire protection and resistance Cladding fire protection and resistance Water or other protection Structural thermal models determination of limiting temperatures for all structural members	Detailed fire protection proposals: Intumescents/boards/sprays/renders Water or other protection Structural Design signed of as Design Certifier	N/A				
	Mechanical, Electrical, Public Health Consultant	Indicating: Horizontal and vertical services strategy Risers and structural holes indicated including separation of: Mechanical Electrical Ventilation	Indicating: Outline services locations and routes Locations of holes and sizes Indication of: Mechanical services penetrations Electrical services penetrations Ventilation services penetrations Flues for boilers, kitchens,etc.	Fire protection: Generic riser protection Generic type of protection for service penetrations Fire protection services Fire protection sprinklers Fire protection drenchers Include support systems Include Methods 1-4 of BS 9999					
	Mechanical, Electrical, Public Health Contractor	N/A	N/A	N/A (unless early appointment)	Requirement: Prescriptive fire protection systems to match the design criteria	Detailed Documentation of all active and passive fire stopping elements			
Specialist Consultants	Specialist Fire Consultant/ Insurer	Specialist requirements: Risk assessment and fire suppression and control Smoke strategy Sprinklers Drenchers Pressurisation Fire Brigade Statutory Bar/ Consultation	Fire requirements on structural frame	N/A	N/A	Handover of Fire Strategy Documentation (Regulation 38). Fire Brigade Licensing Approvals	N/A		
	Specialist Fire Manufacturer Supplier	N/A	Conceptual solutions for the application Product attributes.	Test reports and Approvals for the exact applications specified (an approval applies to an application and not to a single product)	Construction for specialist solutions Engineering adjustments				
	Fire Installation Contractor and Sub-Contractor	N/A	N/A	N/A	Tenders for work. Detailed Material Take Offs and dry film thicknesses for steel sections. Details of all passive fire protection installed including: fire doors, fire resisting ducts/dampers and fire-stopping.	Certification of Completion (ancillary certifier) Marked-up drawings and documentation Installation inspection reports (Regulation: 38)			
Documentation Works Sign Off	Design Certifier								
	Assigned Certifier								
	Ancillary Certifier								

**How Far does the the Team need to go with
regard to Fire?**

This is a complicated process?

Collaboration of all the Professionals is Key



THANK-YOU