

RISER SHAFTS

Fire Safety



02nd Dec 2024
By Nick Atkinson
Ambar Kelly Ltd

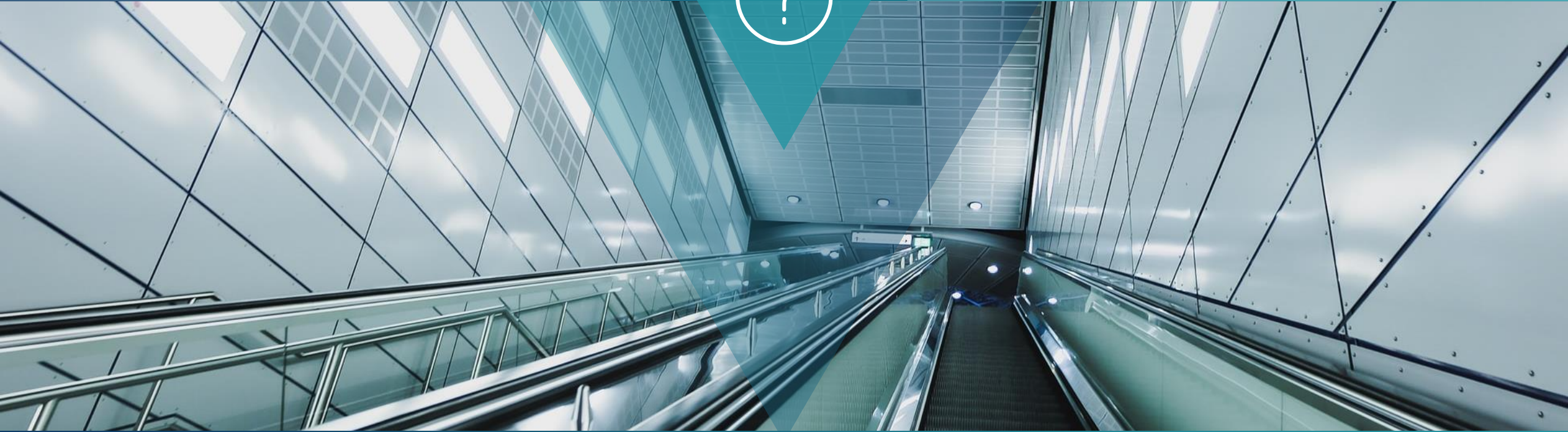
Ambar Kelly



WHAT DOES THE WORD 'SHAFT'
CONJURE UP IN YOUR HEAD?



WHAT DOES THE WORD '**SHAFT**'
CONJURE UP IN YOUR HEAD?



WHAT DOES THE WORD **'SHAFT'**
CONJURE UP IN YOUR HEAD?

WHAT WAS THE WORST SHAFT FIRE IN LIVING MEMORY?

Kings Cross Fire



At approx.
19:30pm



18th November
1987



31 people killed
and **100** injured



AN ACCIDENT WAITING TO HAPPEN?



A LESSON LEARNT



Eliminate risk
through design



Remove the fuel,
use Euro Class A1
products



Take into account all
the elements connected
to the location



Demand the
appropriate testing for
the intended use



BUT HAVE WE APPLIED THIS TO THE
CONSTRUCTION OF MODERN
BUILDINGS? - **No!**

What Happens in a Shaft Fire?



Image © Elite Fire Protection

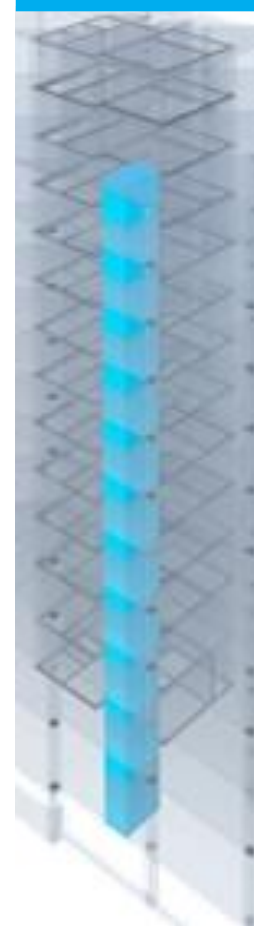
Riser shafts, which are vertical cavities housing utilities such as pipes and cables, pose a heightened risk as potential conduits for the rapid spread of fire and smoke between floors if not adequately designed or properly fire-stopped.

Incomplete compartmentation of the structure may lead to an inordinately rapid spread of smoke and flames (23.1b JCoP edition 10 – amendment 1). *when coupled with combustible materials this can lead to disaster like Grenfell.*

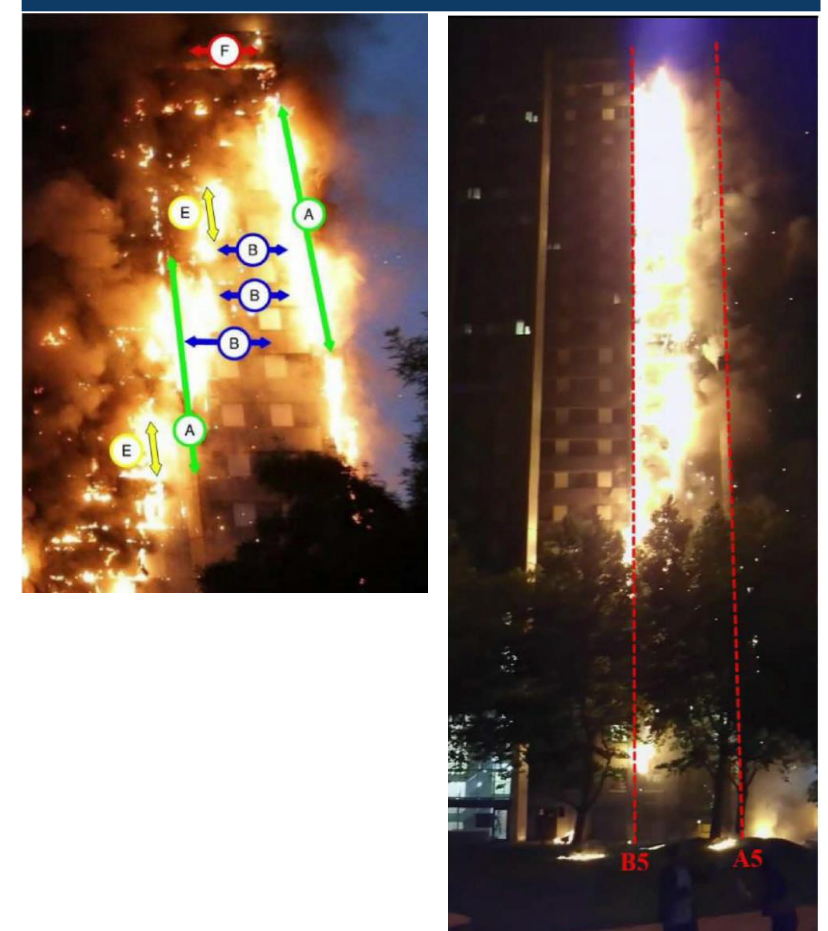
Shaft fire



Riser Shaft



Grenfell Tower



Shafts are like columns noted in the Grenfell report by Dr Barbara Lane (pathway (A) vertical spread up and down the full height of the columns) 10.3

RISER SHAFTS

WHAT'S HAPPENING HERE?



⊗
No design

⊗
Money is king

⊗
Complacency

⊗
No single responsibility

⊗
No joined-up thinking

⊗
Assumption

⊗
Risk management - not prevention

⊗
Bad habits

⊗
Wrong materials used

WRONG MATERIALS TEST

GRP GRATING SIMULATED RISER FIRE TEST

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Ortho Resin GRP



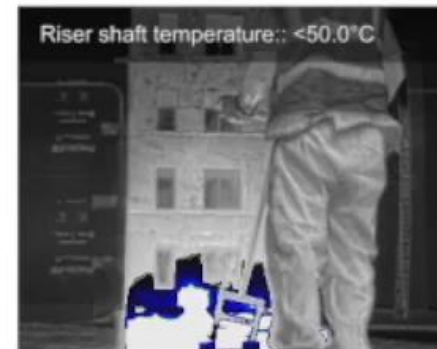
ISO Resin GRP
BS 476 pt7 Fire Test – Pass



Phenolic Resin GRP



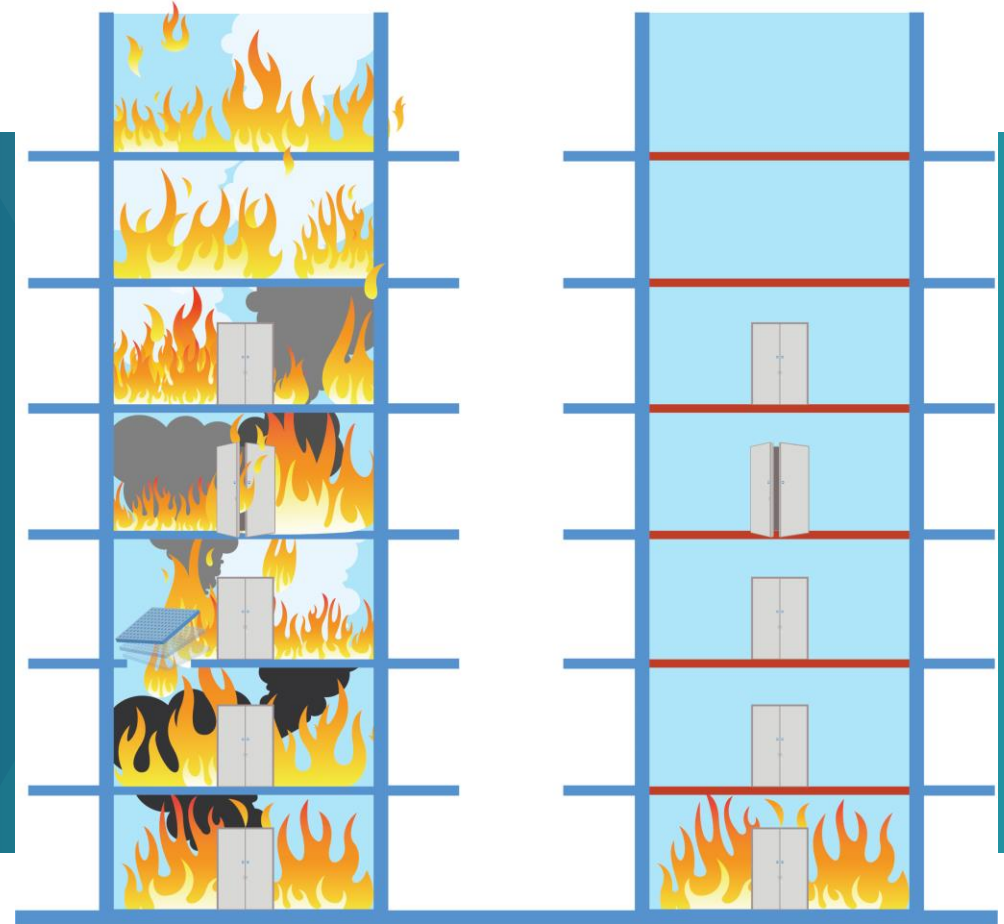
RiserSafe



00:00:00:00

STOPPING THE SPREAD OF SMOKE & FLAME (COMPARTMENTATION)

This material is in 75% of tall buildings being
constructed in London now



RISER SHAFTS

WHAT'S HAPPENING HERE?



Building Safety Act – Change in Standards

Withdrawal of BS 476 Part 6 & 7 (March 2025): Impact of Grenfell Inquiry

Reason for Withdrawal: Concerns over fire safety standards raised by the Grenfell Tower Inquiry.



Key Issues:

- **Inadequate Real-World Reflection:** Tests focused on flame spread, not material combustibility.
- The Grenfell Tower Inquiry team concluded BS 476 part 6 & 7 did not adequately assess the fire risks posed by modern materials, such as the combustible cladding used at Grenfell Tower. In particular, the Class 0 rating gave a false sense of security, as it did not reflect a material's true combustibility.
(FPA 25-09-24)
- Under BS EN 13501 the standard Euro class A1-A2 noncombustible (Euro Class B,C,D, & E are combustible).
- Approved document B now only refers to combustibility of materials which is a change.



Goal: Modernise and align with international standards, ensuring fire safety in high-risk buildings (HRBs).

Building Safety Act – Introduction of Gateways

Building Safety Act 2022 Construction industry Gateways:

Construction Gateways and Non-Combustible vs Combustible Products:

- Gateway 1 (Planning): Embeds fire safety early, especially with non-combustible materials. *(RICS)*
- Gateway 2 (Pre-construction): Thorough review by the Building Safety Regulator, with stricter material scrutiny. *(RICS)*
- Gateway 3 (Completion): Final verification that construction complies with approved design and has a completion certificate . *(BESA)*
- BS 467 parts 6 & 7 (surface spread of flame) will be withdrawn in March 2025, as they don't address combustibility. BS EN 13501 non-combustible materials are Class A1-A2.



ELIMINATE RISK THROUGH DESIGN



Health and Safety
Executive

Managing health and safety in construction

Construction (Design and Management) Regulations 2015

Guidance on Regulations

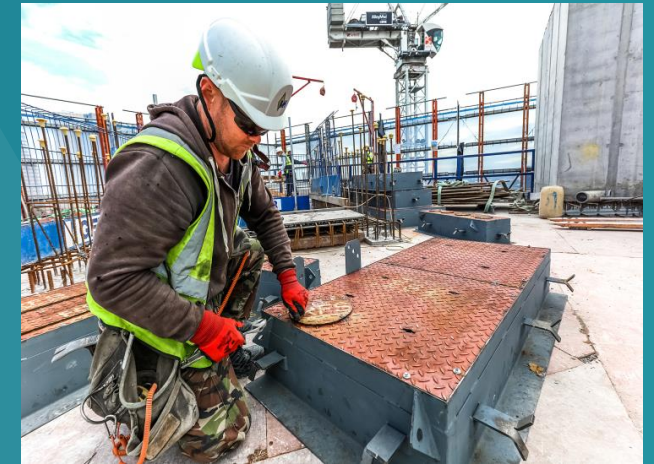
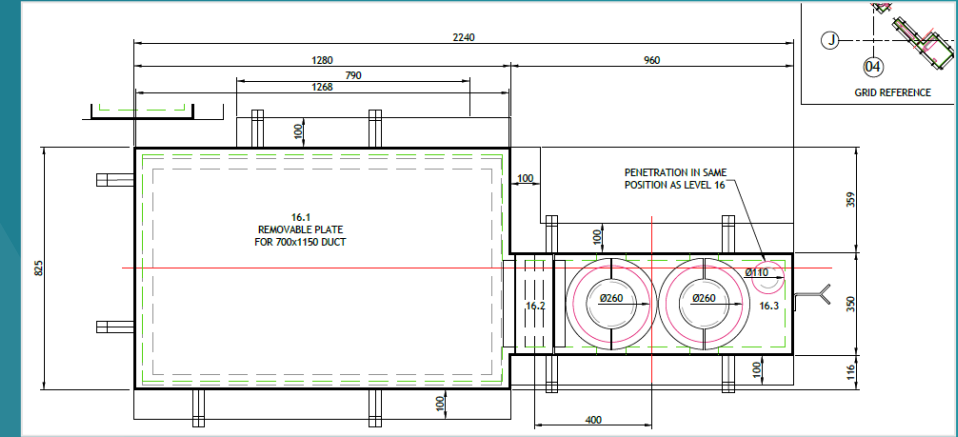
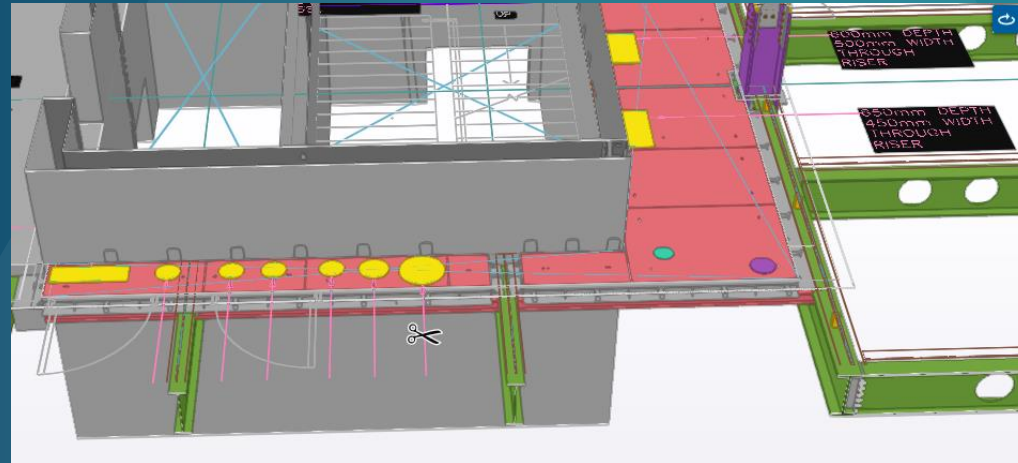
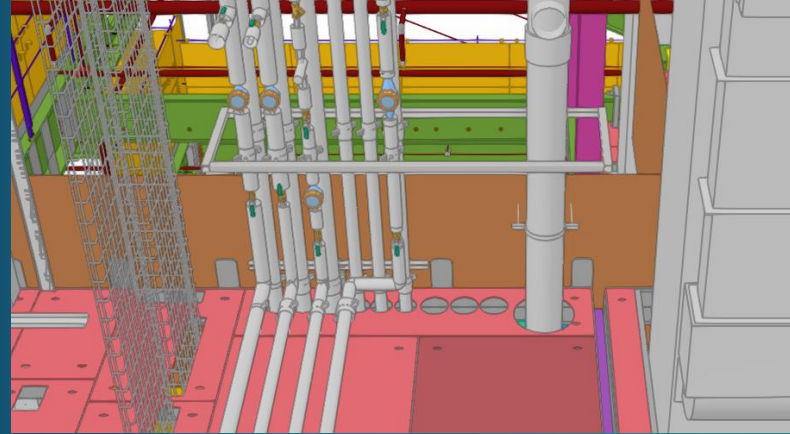


L153
Published 2015

The Construction (Design and Management) Regulations 2015 (CDM 2015) came into force on 6 April 2015, replacing CDM 2007. This publication provides guidance on the legal requirements for CDM 2015 and is available to help anyone with duties under the Regulations. It describes:

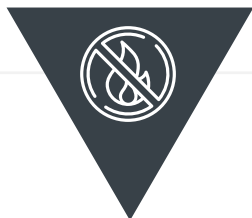
- the law that applies to the whole construction process on all construction projects, from concept to completion; and
- what each dutyholder must or should do to comply with the law to ensure projects are carried out in a way that secures health and safety.

HSE Books



SUMMARY for Risers

High Risk Buildings



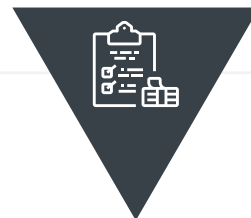
Riba design stage 1 –
Recognise the risk

Gateway 1



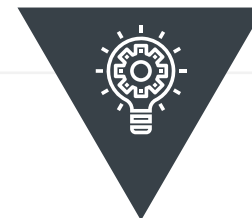
Remove the fuel,
specify use non-
combustible
materials

Gateway 2



Check Euro class
A1 material used

Gateway 3



Use change
control to verify
suitability of
proposed
substitutions

**WE DON'T WANT ANOTHER MAJOR FIRE
AND LOSS OF LIFE**



THANK YOU

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