

The Case for a Second Stair *(Plan A is Not Enough)*

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Tall Building Fire Safety Network

8th International Tall
Building High Rise Fire
Safety Conference
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www.tallbuildingfiresafety.com



Context

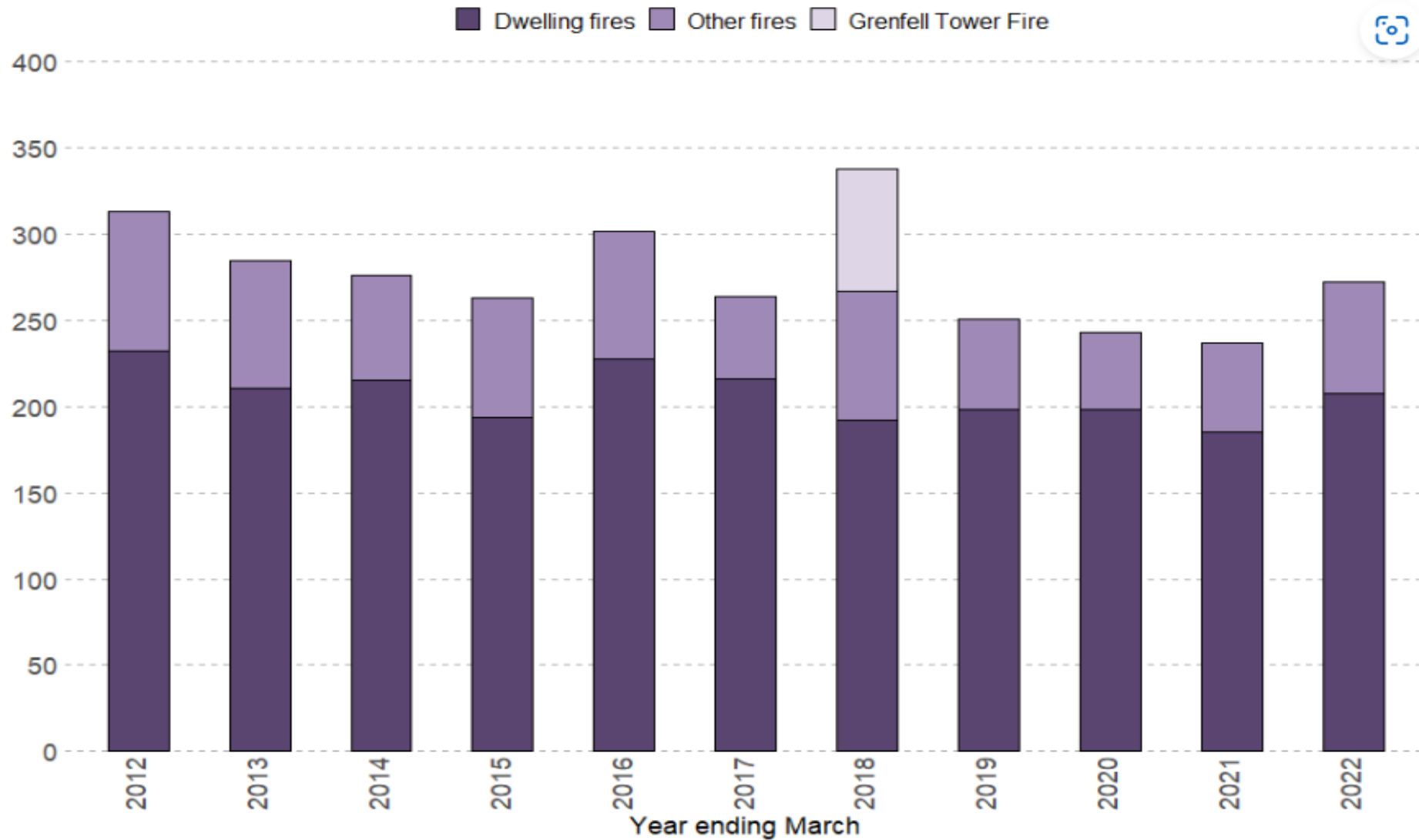
- Our codes and standards for fire safety are largely predicated on fit, mobile adults with predictable behaviour
- Catastrophic fires in high rise buildings are very rare.
Low probability – very high impact
- Rates of fire deaths in the UK have been falling for a number of years
- Numbers of high rise buildings in the UK are increasing



Probability Impact Grid

Probability	6	12	18	24	30	36
	5	10	15	20	25	30
	4	8	12	16	20	24
	3	6	9	12	15	18
	2	4	6	8	10	12
	1	2	3	4	5	6
	Severity					

2022 UK Fire Statistics



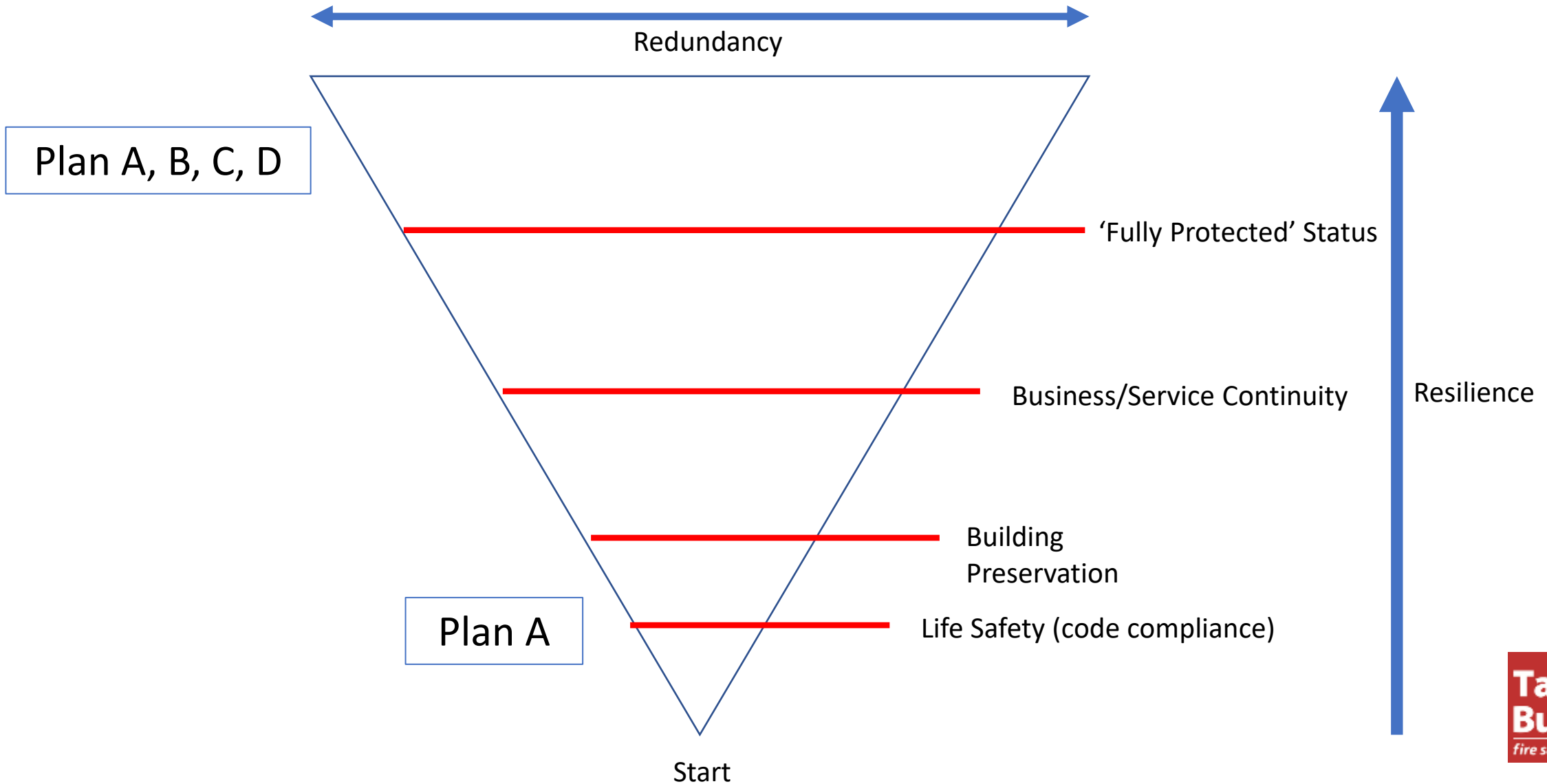
Probability Impact Grid – HRB's (non-linear)

Probability	6	12	18	24	30	36	60	120	300
	5	10	15	20	25	30	50	100	250
	4	8	12	16	20	24	40	80	200
	3	6	9	12	15	18	30	60	150
	2	4	6	8	10	12	20	40	100
	1	2	3	4	5	6	10	20	50
Severity									

Professor Jose Torero -

“foreseeable risk must always be multiplied by the enormity of consequence; especially so when the chance of the event happening was actually increasing - as it was with cladding fires”.

Designing for Code Compliance



Reasons for a Second Stair (Providing a Plan B)

Disability or Vulnerability

Disability Facts and Figures¹

- 14.6 million = 18% of the UK population
- 83% become disabled during their lifetime
- 21% of working adults
- 9% of children
- 42% of pension age adults

English Housing Survey²

- 54% of households of social renters had one disabled member or someone who has a long-term illness

¹Scope Disability Facts and Figures

²MHCLG English Housing Survey 2019 – 2020

Disproportionate

- Fifteen of the 37 disabled residents living in Grenfell Tower died in the fire, that is 41% of the disabled residents
- 25% of all the children who lived in the Tower died that night
- Almost half of the people who died in the Grenfell Tower fire were disabled people or children.

Hoarding

- Hoarding behaviour affects 2 - 5% of the population ...
- ... but only 5% of those with hoarding issues come to the attention of statutory agencies

What is hoarding disorder?





Ignoring Stay Put

LFB Incident Database Date	Location	Nos of residents self-evacuated prior to arrival of FRS
12/04/2022	Aldgate	30
28/03/2022	Croydon	30
23/03/2022	Shepherd's Bush	26
07/03/2022	Whitechapel	70
06/03/2022	Farnborough	15
13/02/2022	Enfield	15
07/02/2022	Camden	11
04/02/2022	St John's Wood	10
31/01/2022	Purley	100
26/01/2022	Stratford	100
24/01/2022	Dagenham	100
21/01/2022	Roehampton	10
27/12/2021	Hounslow	50
29/11/2021	Sutton	18
20/11/2021	Battersea	10
28/10/2021	Vauxhall	120
26/10/2021	Isleworth	12
18/10/2021	Stratford	40
12/10/2021	Battersea	50
29/09/2021	Erith	40
23/09/2021	Limehouse	50
18/09/2021	Shoreditch	20
24/08/2021	Enfield	50
19/08/2021	Walthamstow	31
02/08/2021	Catford	50
02/08/2021	Tottenham	10
15/07/2021	Colindale	Everyone out
15/07/2021	Elephant & Castle	200
13/06/2021	New Barnet	10
24/05/2021	New Southgate	25
07/05/2021	Poplar	67
29/04/2021	Knightsbridge	10
26/04/2021	Thornton Heath	20
18/04/2021	Islington	50

LFB Incident Database Incidents where significant people had evacuated prior to the arrival of the FRS.

No reports of injuries or deaths as a result of the unplanned evacuation.

Non-availability of Lifts

- The Firefighting lift control at Grenfell did not work (clogged with builders rubble)
- *“we plan for none of the building systems to work when we arrive”* US Fire Chief (HOT Conference 2022)



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Journal of Building Engineering

journal homepage: www.elsevier.com/locate/job

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BUILDING ENGINEERING

Check for updates

Assessing lift maintenance performance of high-rise residential buildings

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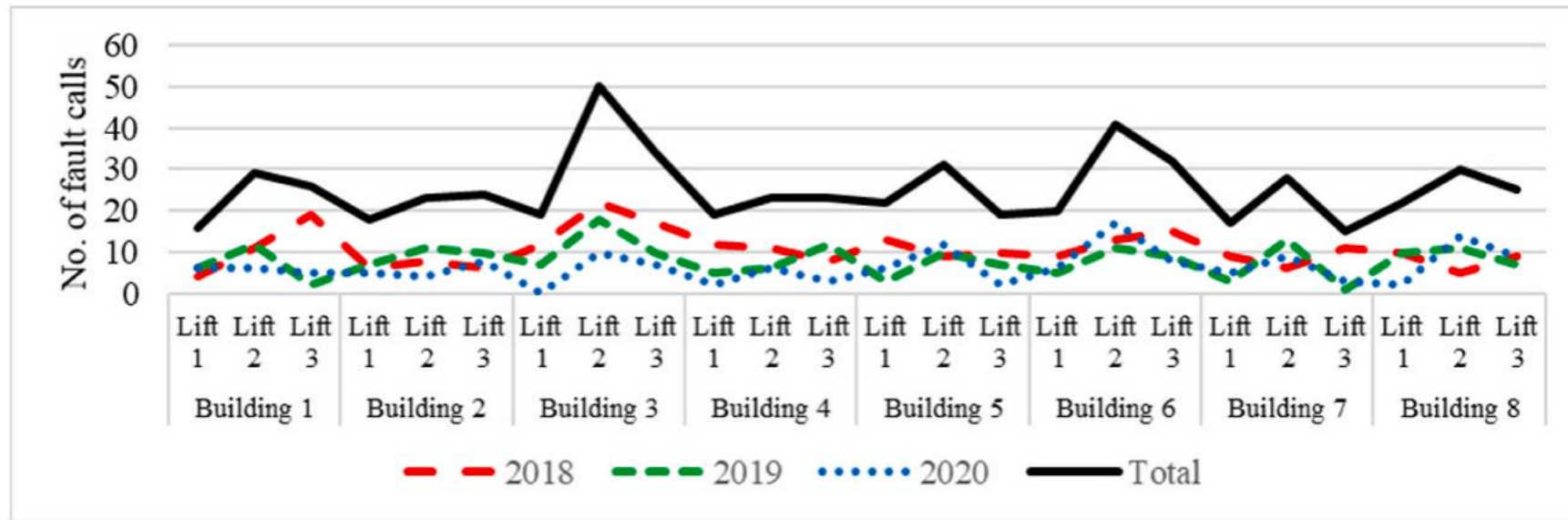


Fig. 3. Distribution of monthly number of fault calls over the 3-year period.

Build Quality

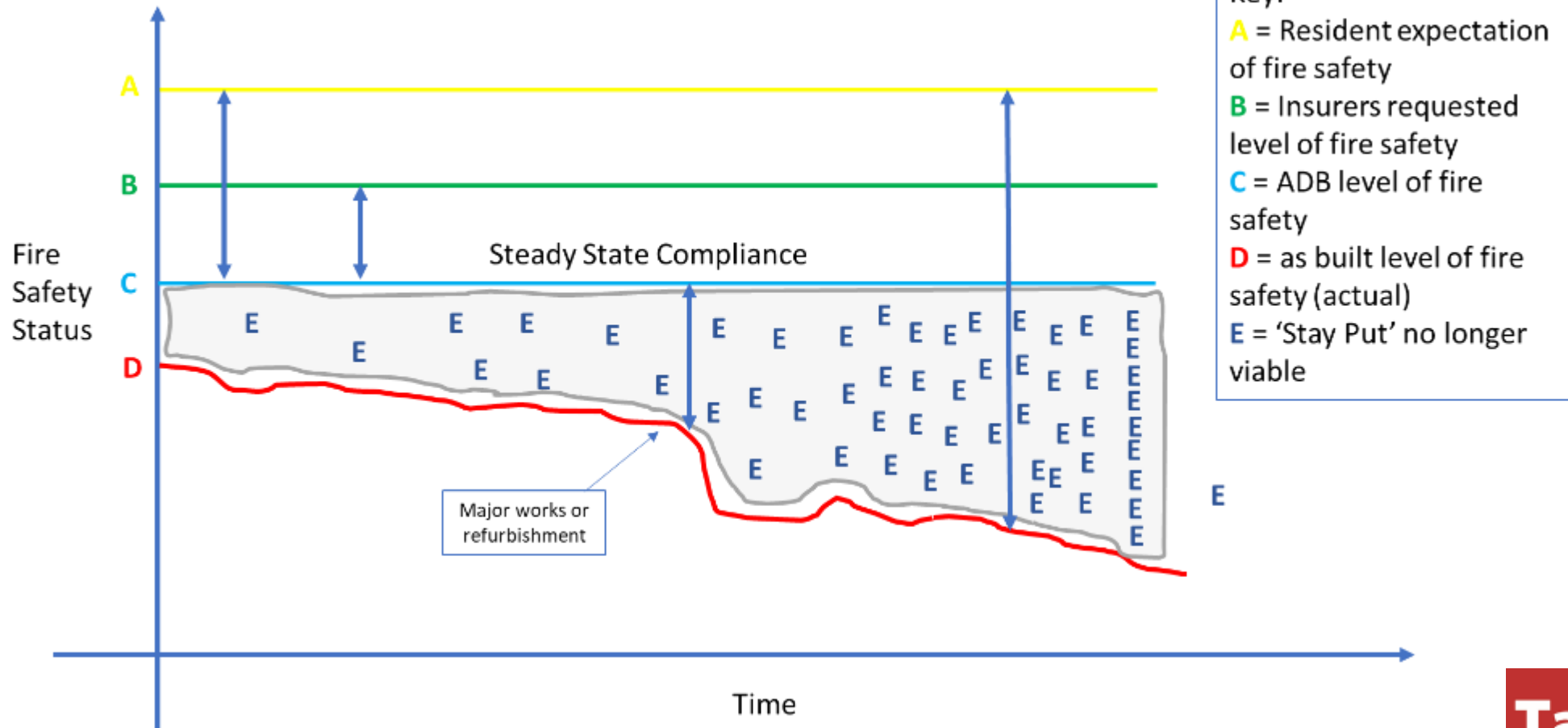
I planned to post several pictures here of poor-quality work.

Not sure this helps the debate against a reality of poor design, construction, commissioning, etc

See following diagram.

'Mind the Gap'

The HRB Fire Safety 'Reality Gap'

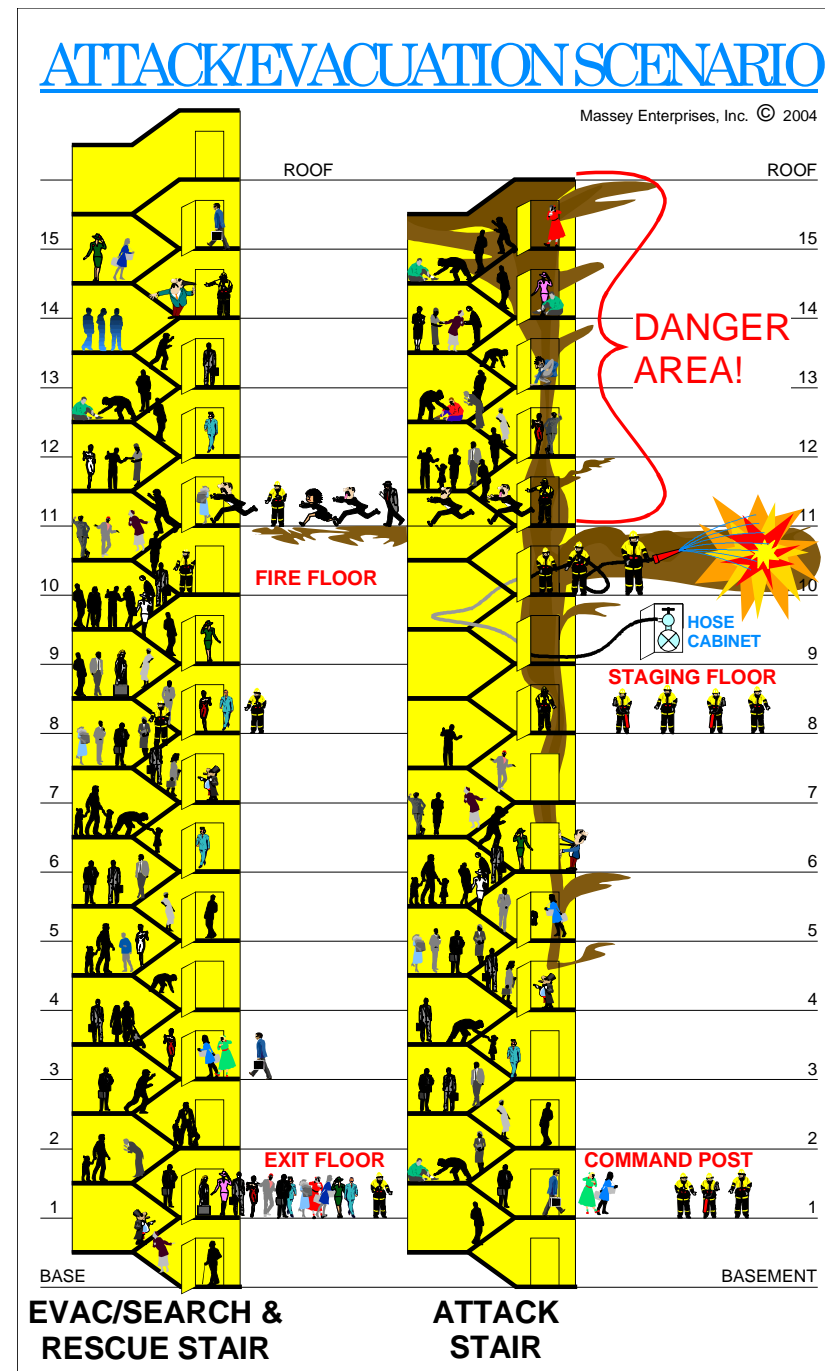


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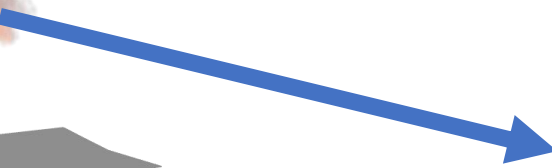
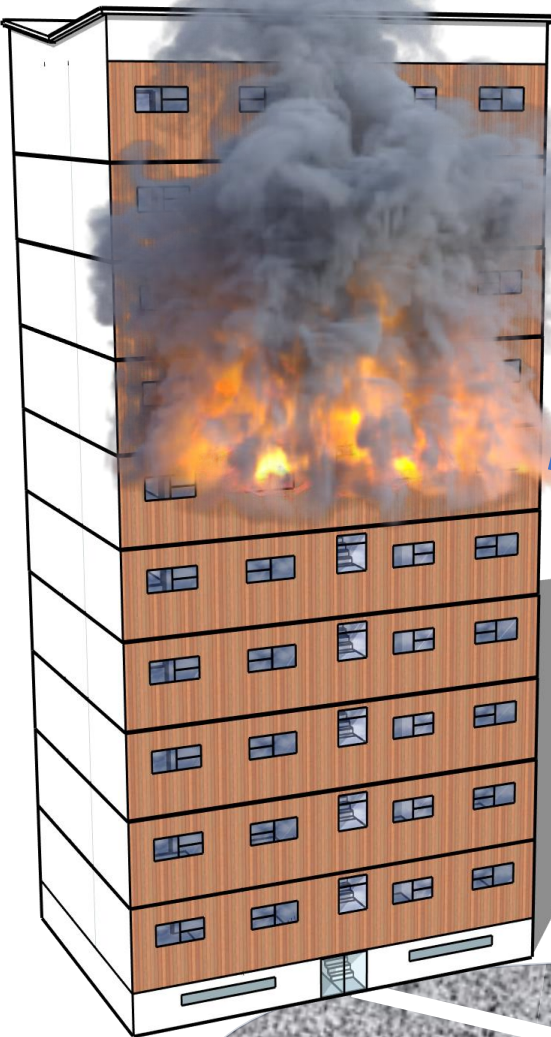
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Best Practice SOP for High Rise Firefighting

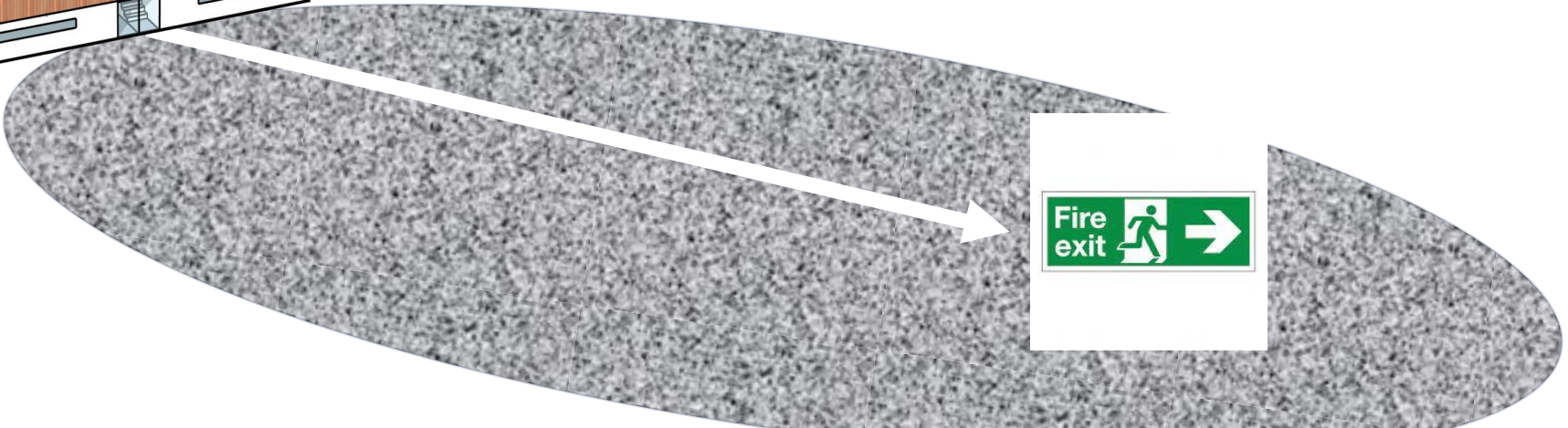
– Based on Two
Staircases



Hazard Zone & MOE Plan B?



Wind Direction



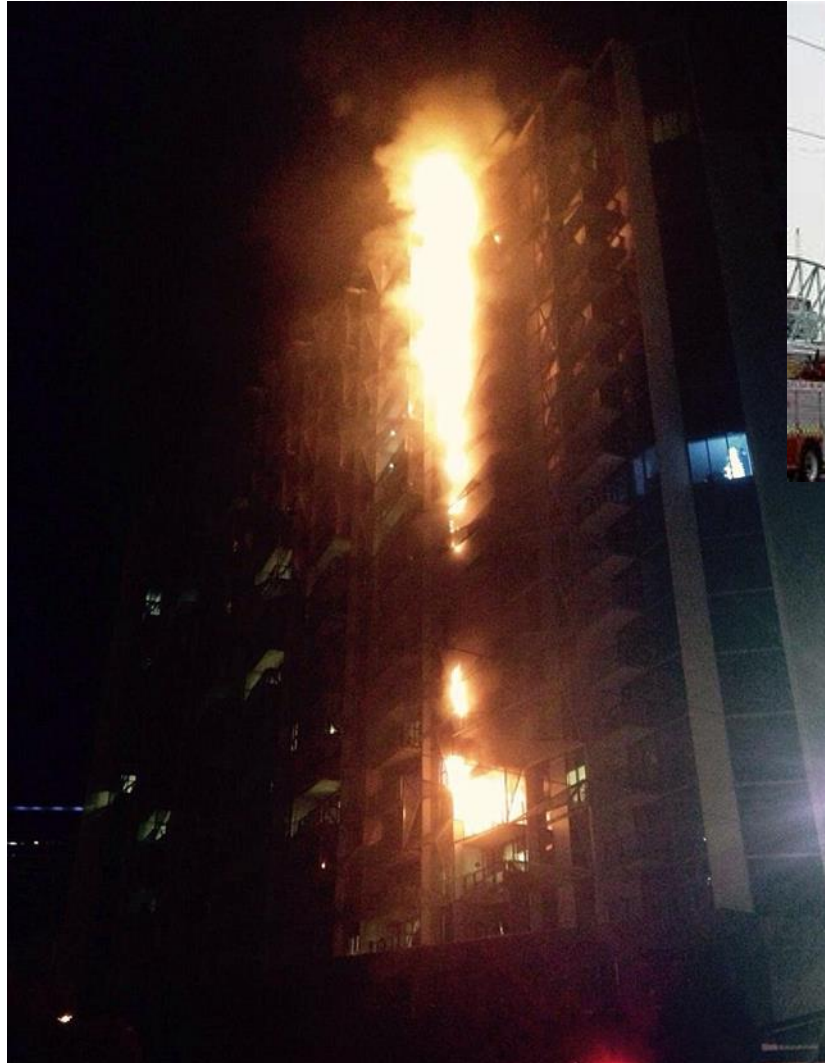






Cramming

‘Overcrowded conditions at the infamous Lacrosse building are set to be investigated following reports that apartments were being crammed with half a dozen people in an apparent breach of the occupancy permit’.



Ten beds found crammed inside some apartments in fire-ravaged tower

Smoke Control

The most misunderstood system in the building . .



Final Thoughts . . .

- Our codes and standards are based on occupants who can escape without any problems – we **MUST** consider vulnerable people in design
- Tall Building Fire Strategies must **NOT** be so complex that they cannot be managed for the lifetime of the building (25 years)
- Code compliance is based on minimum standards, keep your insurer happy (and save money) and your building will be safer
- Do **NOT** charge electric cars underground – the Fire Service cannot fire those fires
- Think International and share best practice with colleagues



**“Misfortune,
not logic is the
teacher of the fool”**

Democritus

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We deliver Tall Building Fire Safety Management Training.