



Is Fire Engineering (Structural) Dead ?



About these slides...

Knowledge or lack of it (competence)

- a. Complexities of this subject / peoples understanding of it.

Fire Engineers and the Regulators.

Communication

- b. A fire engineer's ability to communicate in writing (which can be very poor).

It is not just written style.

It is also the methods used (seems to too many).



Also want to mention other things...

How can I summarise all these things

- a. Snapshot of current and historical issues that threaten this subject area.
- b. Focus is on current issues generally (as there are many !).
- c. Possible solutions going forward.



To provide some background context

I have devised a little story which is completely relevant

May seem bizarre at first - but just stick with it.



The Neurosurgeon, the Doctor and the Hospital cleaner



Neurosurgeon



Doctor



Hospital cleaner



The Neurosurgeon, the Doctor and the Hospital cleaner



Neurosurgeon

15 years of training.



Doctor

5 years of training.



Hospital cleaner

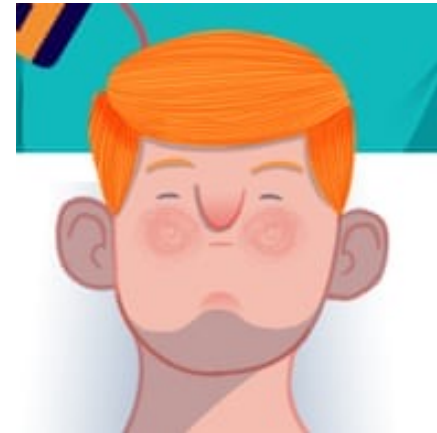
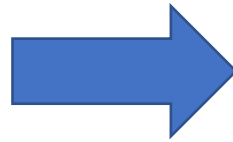
12 weeks training.



Neurosurgeon explains operation to patient



Neurosurgeon



Patient



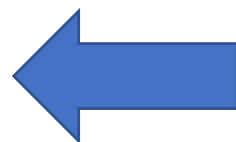
I will but first I need approval from the doctor
Don't worry, it is just the way the system works



Doctor to the Neurosurgeon



Neurosurgeon



Doctor

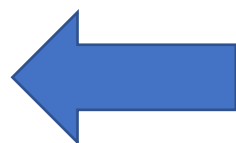
All sounds OK to me



Doctor to the Neurosurgeon



Neurosurgeon



Doctor



Hospital cleaner

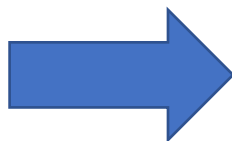
But as you know, I need to run past hospital cleaner for comment
Its just the way the system works



Cleaner says, “Nah don’t like it - operation carries a risk !!”



Hospital cleaner



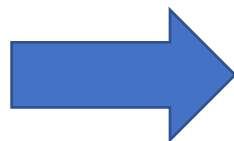
Doctor



Cleaner says, “and if you proceed, I may not clean up afterwards”



Hospital cleaner



Doctor



Doctor to surgeon, “cleaner thinks the operation carries a risk”



Doctor



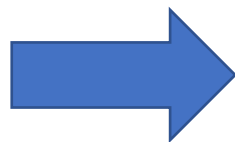
Neurosurgeon



Doctor says, “and if we proceed, he is threatening to not clean up”



Doctor



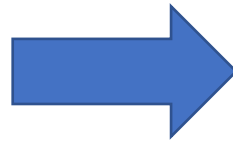
Neurosurgeon



Neurosurgeon says, “well you are the one who approves things” !!



Neurosurgeon



Doctor



Neurosurgeon says, “if you are happy – please just approve it”?



Neurosurgeon



Doctor



The operation is delayed for a period....



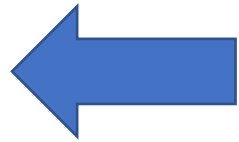
Neurosurgeon



Doctor tries to find a solution with the cleaner



Hospital cleaner



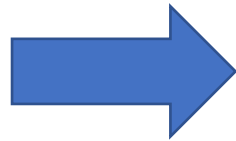
Doctor



Cleaner suggests a 3rd party review



Hospital cleaner



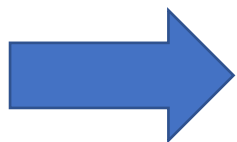
Doctor



Doctor agrees



Hospital cleaner



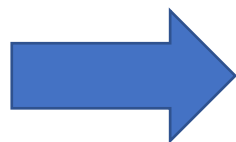
Doctor



We are having a 3rd party review



Doctor



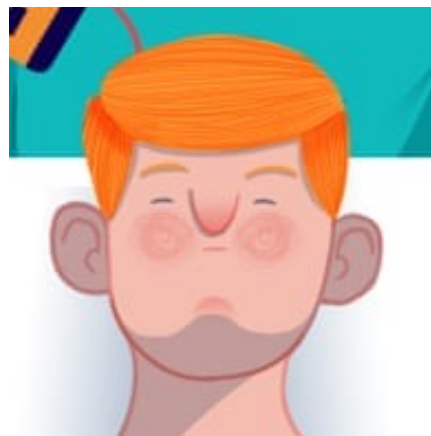
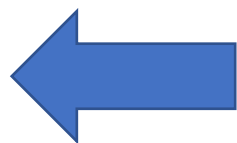
Neurosurgeon



Patient asks, “Who is paying for that” ?



Doctor



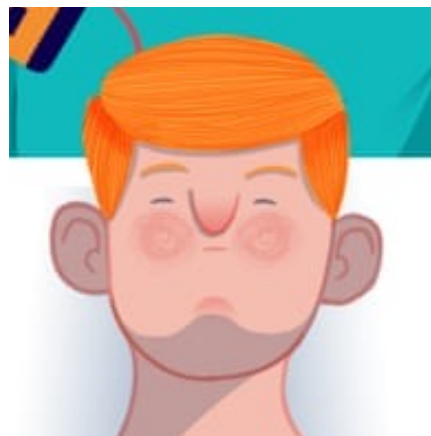
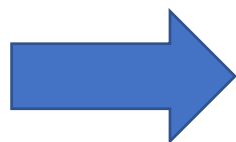
Patient



Doctor replies, “it would normally be you who pays”!



Doctor



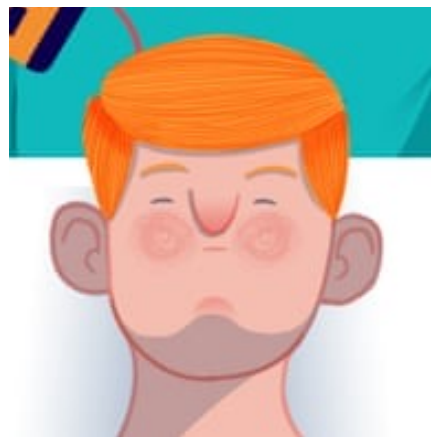
Patient



The patient replies, “OK, well I hope it’s not expensive”



Doctor



Patient



Enter the retired hospital cleaner



40 years experience – and has met many Neurosurgeons in his time



Also set up company called “Neurosurgery Reviews Ltd”



Retired cleaner

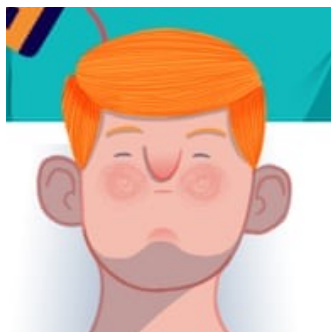




Doctor says to patient – “we have found a reviewer who is cheap” ?



Doctor



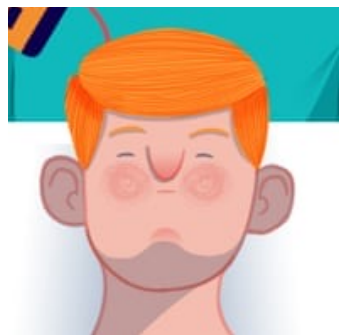
Patient.



Patient to Doctor – “That is tremendous - thankyou”



Doctor



Patient.



Retired hospital cleaner reviews the Neurosurgeons proposals



Retired cleaner



He doesn't like them



Retired cleaner



Says to hospital cleaner, “I agree with you – proposals carry a risk”.



Retired cleaner



Hospital cleaner



Hospital cleaner now feels empowered



Hospital cleaner



Hospital cleaner



Empowered cleaner says to the Doctor, “I was correct all along”



Hospital cleaner



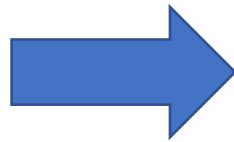
Doctor



Doctor to the Neurosurgeon, “sorry but the review is not positive”



Doctor



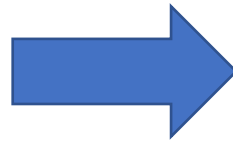
Neurosurgeon



Neurosurgeon says, “well its you who makes the decision” !!



Neurosurgeon



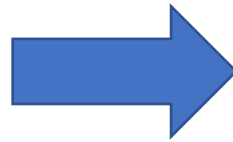
Doctor



Neurosurgeon says, “if you are happy - just approve it” !!



Neurosurgeon



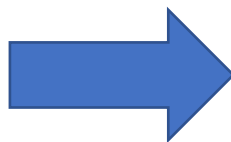
Doctor



Doctor says, “Hmmm…….I am not sure what to do now”



Doctor



Neurosurgeon



Empowered cleaner thinks “I have seen and heard similar many times”



12 weeks training.



Writes books about Neurosurgery



12 weeks training.



Also takes to LinkedIn - Subject “Neurosurgeons are risky”



12 weeks training.





Conclusion -

- a. Everything is delayed.
- b. Nobody can agree.
- c. A long verbal battle occurs which hits social media.
- c. Patient is left frustrated and lacks confidence in entire system.



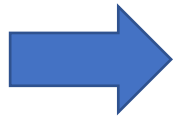
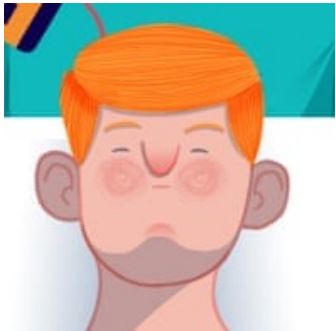
Ultimately, “the cleaner gets his way”



12 weeks training.



Frustrated patient tells Neurosurgeon to do as the Cleaner says



Patient.

Neurosurgeon



Unfortunately, this is now:

A typical day in the life of a fire engineer



The Neurosurgeon, the Doctor and the Hospital cleaner



Neurosurgeon

Fire Engineer
(specialist)



Doctor

Building Control
(general practice).



Hospital cleaner

Fire Service
(cleaning up).



The situation was bad before Grenfell – it got a lot worse since
good to see so many people



I spoke with a leading academic recently

- a. Craig,....."everyone knows this is the case".
- b. Not for academics to sort - fire engineers need to come together and address.

Hmmm...Interesting because fire engineers can't agree on anything.



Design team meetings (structural engineers)



Table 2.1 — Load combinations and values of γ_f for the ultimate limit state

Load combination	Load type					
	Dead		Imposed		Earth ^a and water ^b pressure	Wind
	Adverse	Beneficial	Adverse	Beneficial		
1. Dead and imposed (and earth and water pressure)	1.4	1.0	1.6	0	1.2 ^c 1.0 ^d	—
2. Dead and wind (and earth and water pressure)	1.4	1.0	—	—	1.2 ^c 1.0 ^d	1.4
3. Dead and imposed and wind (and earth and water pressure)	1.2	1.2	1.2	1.2	1.2 ^c 1.0 ^d	1.2

^a The earth pressure is that obtained from BS 8002 including an appropriate mobilisation factor. The more onerous of the two factored conditions should be taken.
^b The value of 1.2 may be used where the maximum credible level of the water can be clearly defined. If this is not feasible, a factor of 1.4 should be used.
^c Unplanned excavation in accordance with BS 8002, 3.2.2.2 not included in the calculation.
^d Unplanned excavation in accordance with BS 8002, 3.2.2.2 included in the calculation.

For load combinations 1 and 2 in Table 2.1, the "adverse" partial factor is applied to any loads that tend to produce a more critical design condition while the "beneficial" factor is applied to any loads that tend to produce a less critical design condition at the section considered. For load combinations 2 and 3, see 3.1.4.2 for minimum horizontal load.



Design team meetings (fire engineers)





OFR letter

its

Comments

Images

Reactions



Simon Lay · 2nd

OFR Consultants

2w · 🌐

+ Follow

We wrote a letter to the government the other day...

...see more

A letter to the Secretary of State · 9 pages

The Rt Hon Michael Gove MP
Secretary of State
Department for Levelling Up, Housing and Communities
Fry Building
2 Marsham Street
London
SW1P 4DF

18 August 2023

Dear Secretary of State,

Provision for means of escape in high-rise residential buildings in England

As experts with a significant interest in ensuring appropriate and sufficient standards of building safety for residents of high-rise residential buildings, we are writing to you to set out our concerns in relation to the pursuit of a second stair requirement as a matter of policy by the Government.

The co-signatories of this letter include; leading experts in the field of fire safety engineering

requirements do not reflect towards equitable egress and evacuating.

5. Prescription should be used with a preference for Mandating requirements to confidence in safety. We a requirements do not repre

A brief elaboration on each of the with recommendations that we u

A scientific, evidence and expert

High-rise residential buildings in England high-rise residential buildings are fortunately rare¹. In respect of c



OFR letter – I liked this comment

I can't blame the government for lacking confidence in our industry. We don't seem capable of reaching a consensus amongst ourselves regarding how to protect people in high-rise/high-risk residential buildings. I'd rather we focus on what we can change within our own industry and its practices.

Like •  7 | Reply • 6 replies

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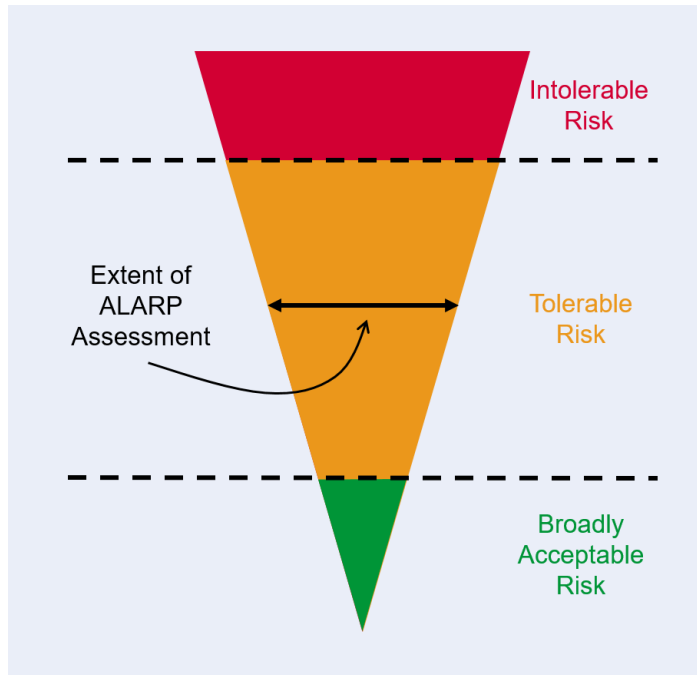
Should individual consultants have to send letters to govt?

Where is the IFE ?

- a. Silent on Grenfell.
- b. Silent on ban on combustible cladding.
- c. Silent on single staircase (residential) debate.
- d. Silent on new need for “safety case reports” for residential buildings.



Reaching consensus amongst ourselves





But it is not what we do...



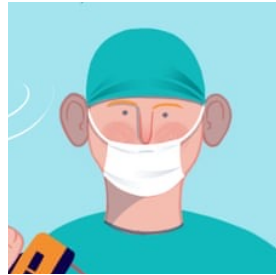
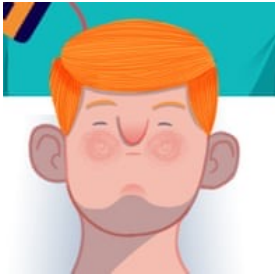
What we do and what I always questioned is the “Deterministic approach”

Onerous assumption x	Onerous assumption x	Onerous assumption x
Onerous assumption x	Onerous assumption x	Onerous assumption x
Onerous assumption x	Onerous assumption x	=

A safety level that is probably high
But nobody knows how high because the likelihood isn't considered
And no consideration of the costs of achieving it.



Summary



We have an approvals system that is “Broken”.

It is open to abuse
and it lacks competence at every level.



Summary

- a. Fire engineers who rarely agree on anything.
- b. No consistent way of dealing with the fire safety problem.
- c. **Note to self** – Timber / Structures / Fire.
- d. In addition to all of this the (IFE) is just “silent”.



Is fire engineering (structural) dead?

- a. It may not be dead (yet) at academic level.
- b. It is really suffering at a practical level.



Is fire engineering (structural) dead?

- a. It is very difficult to get anything technical / complex thru a system that lacks competence.
- b. Client's just want cost certainty.
- c. Client's say – please just keep it simple – I just want approval.



Ways forward

- a. To survive / flourish this discipline needs an alternative to the (IFE).
- b. A new association that develops / promotes / enforces a better way of doing things.



Final comment

- a. Association of fire consultants (2000).
- b. I was only recently told why it fell at the first hurdle.

This may not be true – but it wouldn't surprise me....

- c. They couldn't agree on what a fire engineer does or how they should do it.



Questions