

New Civil Engineer

Grenfell | Refurbishment faults 'fuelled fire'

16 April, 2018 By [Rob Horgan](#)



The deaths of 71 people in the Grenfell Tower disaster would have been avoided had the building not been refurbished, according to a fire report.

A BRE Global report, leaked to the *Evening Standard*, concluded that the fire would have had “little opportunity” to spread from the flat it started in, had it not been for the recladding and other works carried out between 2014 and 2016.

The 210-page report also identified flaws with the cavity barriers, window frames, door closers and flammable insulation as causing a disastrous chimney-like effect between inner and outer layers of the 24-storey building.

“Grenfell Tower, as originally built, appears to have been designed on the premise of providing very high levels of passive fire protection,” the report added.

“The original facade of Grenfell Tower, comprising exposed concrete and, given its age, likely timber or metal frame windows, would not have provided a medium for fire spread up the external surface.

“In BRE’s opinion [...] there would have been little opportunity for a fire in a flat of Grenfell Tower to spread to any neighbouring flats.”

A number of cavity barriers were found to be of ‘insufficient size’, installed ‘upside down’ or ‘back to front’.

The BRE Global report concluded that the deficiencies in the cavity barriers 'provided a route for fire spread'. They were 'designed to close a gap of 25mm', but the actual gap 'measured up to 50mm'.

The window frames were also found to be 'significantly narrower' than they were supposed to be, again creating 'a direct route for fire spread around the window frame into the cavity of the facade [...] and from the facade back into flats.'

New Civil Engineer technical editor emeritus Dave Parker believes the report confirms the *New Civil Engineer's* stance that cladding alone would not have spread the fire at such a rate.

"The evidence of major deficiencies apart from the cladding itself supports the line we have taken from the beginning - that the speed and extent of the flame spread to an unprecedented four facades could not be down to the cladding alone," he said.

"The comments on the external insulation ignore the obvious evidence from post fire images - much of the insulation has simply charred, not burned. This was confirmed by the first large scale test carried out by BRE.

"I suspect there will be many more internal faults reported eventually. And I believe it wasn't a case of the cladding setting fire to the flats, rather it was the flats that set fire to the cladding."

Fathi Tarada, managing director at fire engineering specialist Mosen told *New Civil Engineer* that the nature of the faults with the windows and cavity barriers would have made it 'almost impossible' to spot in subsequent fire inspections.

"There may well have been a fire assessment undertaken after the refurbishment, however these defects would have been hidden," he said. "These are the kind of defects that should never happen in the first place and that goes back to the design stage."

New Civil Engineer has reached out to Rydon, the construction company that refurbished Grenfell Tower, but the firm has yet to comment on the leaked report.

Readers' comments (3)

- [Philip Alexander](#) 17 April, 2018 8:22 am

I agree with Fathi that the problems go back to the design stage, but more importantly it is evident from your synopsis of the BRE report that the installation of various components associated with the cladding and windows was seriously flawed and this comes down to QUALITY CONTROL during construction.

As Fathi says, it's impossible to tell during a post construction fire safety inspection/audit whether there are hidden problems.

Therefore it highlights the absolute requirement that there should be proper construction supervision during the Works by professionally qualified people.

71 people died because the profession has encouraged the use of Quality Assurance instead of Quality Control and clients are no longer prepared to pay for adequate supervision, believing that contractors, sub contractors and sub sub contractors will "do the right thing" and install everything in accordance with the design, drawings and specification.

Best of luck with that when margins are so tight and there are unscrupulous contractors. RIP those 71 souls who perished due to cost savings by client and contractors.

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- [Alistair Muir](#) 17 April, 2018 10:05 am

I suggest that the H&S coordinator role which should have been a real, important role for an experienced professional, has been turned into a QA box ticking process at minimum cost.

As Philip has said, RIP those 71 souls who perished due to cost savings by client and contractors.

- [David Higgins](#) 17 April, 2018 9:49 pm

Self regulation never works the desire to save money is always too strong. Good construction quality control, supervision by experienced supervisors is essential. This disaster should be a real wake up call for the whole construction industry.
