

# Grenfell Tower: What does it mean for high rise building in London?



The Grenfell Tower fire is one of those events so shocking that it lodges in the nation's psyche. Like the King's Cross fire or the Hillsborough disaster, it will have after-effects; political, legislative and social. Some of these are foreseeable, some are not.

Grenfell has already filled editorial columns and sent tremors through Number 10. Blame has quickly been apportioned and culprits cast. Both may shift as the enquiries and inquests proceed.

During what will be a long process, there will be changes to the rules telling us how we must build things and with what materials. Fire regulations, construction methods and design dominate the terms of reference of the first formal enquiry into the disaster. At the end of the investigations, it is unlikely that there will be one, single explanation that accounts for what went so badly wrong on that terrible night.

## The Grenfell Tower Refurb

Early indications suggested that the cladding and insulation applied during a refurbishment of the block, had played a significant part in the spread of what experts described as a fire of unique acceleration and intensity.

Built in 1974, Grenfell Tower is managed by the Kensington and Chelsea Tenant Management Organisation, a not for profit set up in 1996 to run the borough's housing stock. Its directors include a number of RBKC councillors.

The TMO spent £8.5million refurbishing the block in 2015. The work was delivered by a single main contractor who employed a number of specialist sub-contractors. This is standard practice on large-scale, public sector refurbishment projects. It is a procurement model that can offer cost savings but it has its critics.

The RIBA, perhaps unsurprisingly, believes that this procurement model has a distinct downside. It saves cash but at too high a cost: by jettisoning the project-long oversight provided by the more traditional architect or engineer led model, both workmanship and material integrity may suffer.\*



## The Cladding

Cladding was implicated in the 2009 Lakanal House fire in which six people died. It has also been blamed in at least three serious fires in Dubai in the last five years.

Very quickly blame for the alarmingly fast spread of the Grenfell fire (it spread from its point of origin on the fourth floor to engulf two-thirds of the 24 story building just 76 mins later \*\*) was placed on the external cladding. Installation of new aluminium composite panels was a significant part of the refurbishment of the block.

The Government responded to concerns about the safety of this type of cladding, by requesting that other owners of tower blocks with similar composite cladding should submit samples for free fire-safety testing by BRE.

The initial tranche of fire tests received criticism from fire safety experts and the LGA for focusing on the performance of the cladding in isolation. In response, new whole-system fire tests are currently being conducted on samples comprising cladding + insulation + fire breaks. These tests far better replicate the type of stresses the materials would face in situ during a real fire.

As of the end of July, the results of the first tranche of tests were stark. Of the 82 cladding systems tested (cladding + insulation + fire breaks), 80 had failed the tests. 37 of the samples had come from buildings that were privately owned. \*\*\*

## Building Regulations

Fire and safety in residential building is governed by two main sets of rules: Building Regulations Approved Document B for England And Wales and BS9999. AD B is more commonly known as Part B. It covers both new builds and refurbs and when read in conjunction with all other relevant standards and codes of practice it includes everything that anyone building or designing a tall building needs to know, from cladding materials and sprinklers, to insulation and evacuation routes.

Fire regulations are complicated and the responsibilities are spread across agencies and among different individuals. At least some of the recent confusion among ministers and the media about the legality or otherwise of the Grenfell cladding comes from the fact that while building regulations are compulsory, the guidance for achieving compliance allows some flexibility. This means that final sign-off by building control and the local fire authority is critical. Without issuance of relevant safety certificates, a build scheme cannot legally be occupied.

Since 2006 it has been recommended that new residential buildings over 18m high have sprinkler systems fitted. But this requirement is not retrospective so that tall buildings built before that date that are being refurbished, need not adhere to the sprinkler rule. Hence Grenfell Tower – built in 1974 – did not need to have sprinklers retro-fitted as part of its 2015 refurb.

And when it comes to cladding, compliance can be met in one of three ways:

- Using materials that are non or of limited combustibility
- Using materials not individually tested for combustibility but that have been tested together as a system
- Assessing materials by a desk top study that considers construction and associated risks.

Would retro-fitting sprinklers to Grenfell Tower have saved lives? This will doubtless be one of the key questions explored at the public enquiry. It was recommended by the Coroner at the inquest into the six deaths caused by the Lakanal House fire – until Grenfell, London's worst tower block fire.

Indeed, after the 2013 Lakanal inquest, the All Party Parliamentary Fire Safety & Rescue Group looked at tower blocks across the UK and recommended to Government that building regulations should be updated and that 4000 tower blocks should be retro-fitted with sprinklers. Their recommendations were never implemented.

## What Grenfell means for developers

### In the Short-term:

- Increased public scrutiny – for developers and their teams currently working on high profile tall buildings there is an increased degree of scrutiny from the press and the public. Developers with projects in planning and pre-planning are especially in the sightlines. They should be prepared to explain in layman's terms how their buildings meet and indeed exceed current safety standards in terms of sprinkler systems, integrated fire alarms, and different construction materials from those used at Grenfell.
- Several London architecture practices are currently reviewing their tall building projects to ensure fire safety considerations are adhering to “a caution forward approach”: where there was one staircase planned, would two be preferable? Others are working with contractors to review due diligence arrangements and ensure that all materials entering the supply chain are exactly as advertised.
- When partnering with HAs, it is worth bearing in mind that “post-Grenfell”, at least one of the G15 wishes to house residents with disabilities on the ground and lower floors of tall buildings only. As this restricts design flexibility, it may impact on cost.
- Fire safety consultants are, perhaps unsurprisingly, extremely busy.

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#### In the Long-term:

- London has a systemic shortage of housing and a population estimated to reach 10 million by 2030. Given the reluctance to build on the Green Belt, tall buildings will continue to be a necessity in the capital. In 2016 New London Architecture estimated that there were 270 very high buildings in the development pipeline. Tall buildings remain one of the solutions to London's housing needs.
- Building regulations will surely change after Grenfell. It is highly likely that older buildings will have to retrofit sprinkler systems. It is also conceivable that the balance in materials between environmental sustainability and fire safety will swing back towards fire safety and that some of the cheaper materials currently deemed suitable for insulation will be banned.
- So too construction methods. The Association of British Insurers reported to Government in May this year that while the number of fires had fallen, "the costs linked with each one had almost tripled in 10 years as fires became more severe due to changing construction methods." Given successive governments push for faster construction methods, this has interesting implications. Insurers' premiums can change building practice as effectively as legislation. In the 1990s insurers curbed a trend for use of cheap flammable panels in warehouse building by prohibitively raising premiums.
- For residential developers of quality buildings, there is nothing to fear from upping the standards required under the building regulations. Private developers of tall buildings in London already build an extremely safe product, it is in their interest to do so. The better the homes they build, the happier their customers will be.

#### Immediate Responses to the Grenfell fire

**Police investigation** – ongoing criminal investigation. The police have recently reiterated that the investigation is considering a raft of potential charges, including corporate manslaughter.

**Public enquiry** – led by Sir Martin Moore-Bick. The areas that the enquiry will formally consider have now been set:

- (a) *the immediate cause or causes of the fire and the means by which it spread to the whole of the building;*
- (b) *the design and construction of the building and the decisions relating to its modification, refurbishment and management;*
- (c) *the scope and adequacy of building regulations, fire regulations and other legislation, guidance and industry practice relating to the design, construction, equipping and management of high-rise residential buildings;*
- (d) *whether such regulations, legislation, guidance and industry practice were complied with in the case of Grenfell Tower and the fire safety measures adopted in relation to it;*
- (e) *the arrangements made by the local authority or other responsible bodies for receiving and acting upon information either obtained from local residents or available from other sources (including information derived from fires in other buildings) relating to the risk of fire at Grenfell Tower, and the action taken in response to such information;*
- (f) *the fire prevention and fire safety measures in place at Grenfell Tower on 14 June 2017;*
- (g) *the response of the London Fire Brigade to the fire; and*
- (h) *the response of central and local government in the days immediately following the fire.*

**London Fire Brigade Review** – the Mayor of London has asked Fire commissioner Dany Cotton to review the Brigade's "ability to respond to the needs of London". Given the many number of high rise buildings in the capital, their age and the refurbishments that many have undergone, does the Brigade have the right equipment for the job? There was criticism that at Grenfell the LFB lacked enough breathing equipment and had to call-in an automated tall ladder.

**Review into Building Regulations & Fire Safety** – led by Dame Judith Hackitt, the review will report to Communities Secretary Sajid Javid and to Home Secretary Amber Rudd. An interim report is due by end of year 2017, the final report by Spring 2018.

Under pressure from Grenfell residents, the media and the Government, the **Leader & Deputy Leader of Royal Borough of Kensington & Chelsea resigned**. The authority's response to the Grenfell fire was widely panned and the Council's CEO quit on June 20.

**Camden Council** evacuated hundreds of residents from their homes as it began emergency removal of aluminium composite cladding systems – of the same type used on Grenfell Tower – from five blocks on the Chalcots estate.

**Croydon Council** became the first local authority in London to commit to retro-fit sprinkler systems – to 25 of its tallest tower blocks.

Technical Advice - with thanks to: Simon Evans, Technical Director, SPPARC Architects and James Lane, BEng(Hons) CEng FIFireE, Director & Head of Fire Engineering, BB7.

\* RIBA statement of 23.6.17. <https://www.ribaj.com/intelligence/fire-safety-grenfell-tower>  
RIBA also raised this issue in its written submission to the consultation for the Grenfell public enquiry.

\*\* Daily Express Timed Photo composite 10:09, Sat, Jun 17, 2017

\*\*\* BBC Newsnight, July 27th see also <http://www.bbc.co.uk/news/uk-40735851>

#### Machines for Living

- The British have an ambivalent relationship with high-rise living. Unlike high-rise dwellers in New York or Singapore (image below), who come from all across the demographic spectrum, urban Brits who make their home in tall buildings are most likely to be either very poor or very rich.



- The two decades after the Second World War, saw a public sector housing boom that produced a rapid expansion of high rise building in British cities. This peaked in the late '60s when 426,000 new homes were built.
- It is these tower blocks, many of them poorly designed, cheaply built and badly maintained, culminating with the Ronan Point explosion of 1968, that killed 4 people, that dented public faith in the tower block. Subsequent poor management and under investment in social housing – along with the social problems with which they became linked – have coloured the British popular understanding of high-rise living.
- Coupled with Britain's recent, cross-party history of spending reductions and privatisation in public housing (introduction of RTB in 1980) and industry deregulation, the Grenfell fire is already seen by some as symptomatic of what has gone wrong with housing in Britain.

#### Skyscraper as metaphor

- From Fritz Lang's "Metropolis" to JG Ballard's "High Rise", the skyscraper's genesis in early C20th Chicago and New York means it has an association with rich men and is an easy metaphor in art for hubris & capitalist excess.

