

Lessons not learned: How did we arrive at the need for the Hackitt Review?

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ABSTRACT

The term 'unprecedented' is often wrongly used in respect of catastrophic events, and while the Grenfell disaster has highlighted significant shortcomings in both our regulation and construction regimes, sadly history tells us that far from being unprecedented, this was a disaster not only waiting to happen, but which has been repeated at intervals throughout history. From the Great Fire of London to the Woolworths Manchester fire, the drivers behind Grenfell are well-known — cost pressures, lack of expertise and ineffective legislation all playing their part, as stated in the Hackitt Review. What is perhaps unprecedented is the extent to which Grenfell has highlighted what can only be described as endemic failings in our modern construction practises that show we have not simply forgotten the lessons history should have taught us, but have knowingly disregarded them. Before looking at the recommendations of

the Hackitt enquiry and the proposed changes to the construction industry, this paper will look at the history of fire safety and the lessons that we were already taught, asking ourselves: 'How did we end up at Grenfell?'

INTRODUCTION

'An Englishman's home is his castle', so the old saying goes — although sat writing this paper working from home during the first COVID-19 lockdown, perhaps that should now include 'and office, and gym'. The term 'castle' engenders a feeling of security: solid walls built to protect the occupants — and indeed, another old saying goes 'as safe as houses'. The Grenfell disaster has, however, again shaken the very core of these old sayings and the legislation that should have protected the occupants is under the spotlight. To this end, an independent review of building regulations and fire safety was announced by the Government in July 2017. Led by Dame Judith Hackitt, DBE, FREng, FICChemE, FCGI, an engineer by background, the review is charged to look more widely to make recommendations that will ensure:

- A sufficiently robust regulatory system for the future;
- Residents feel that the buildings they live in are safe and remain so.

In the summary to the interim report¹ on the review (presented to Parliament in



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December 2017), Dame Judith Hackitt highlighted that as the review had progressed, they found the system of regulation relating to construction, refurbishment and maintenance of our building stock was simply not fit for purpose. Dame Hackitt cites the key reasons for this conclusion as being:

- The regulations are too complex and unclear;
- There is no clarity as to roles and responsibilities;
- There is no differentiation of capability for designers of more complex buildings;
- Compliance and enforcement processes are weak;
- There is no clear path for building user complaints;
- Product testing and quality assurance is unclear.

In the foreword to the final report, Dame Hackitt is even more damning, citing ignorance and indifference as also playing a part in a failed system. She summarises:

‘The above issues have helped to create a cultural issue across the sector, which can be described as a “race to the bottom” caused either through ignorance, indifference, or because the system does not facilitate good practice. There is insufficient focus on delivering the best quality building possible, in order to ensure that residents are safe, and feel safe.’²

There are few in the industry that would disagree with the conclusion, but the industry seems to be caught in an endless loop. The Knowsley Heights fire in 1991 had already highlighted the risks of fire spread up the façade of a tower block behind the rain screen cladding, so how 26 years later did we find ourselves at the Grenfell disaster?

MODERN MIS-WORKING

Today’s buildings tend to have a considerably shorter design life than their counterparts from the past, even as recently as the 1970s, with many developers working on the assumption that in 30 years the site will be redeveloped as demand changes. The need for even great flexibility ‘post-COVID’ as we try to cope with the changing demands is already obvious, while at the same time there are pressures on the speed of construction, increased off-site prefabrication and more specialist works packages and subcontractors being used. Of course, costs and profits are all under pressure and it is a sad fact that corners are often cut as a result. Larger schemes often are awarded simply on cost to begin with (a fact not lost in Dame Hackitt’s Review). As an industry we are still dealing with the effects of the economic crash that started in 2007, both in the ability to fund construction and also in the working methods that were forced upon us, which are now considered to be the norm.

Organisation and coordination of works packages can equally be a problem. Personal experience investigating defects tells me that often interface detailing is neglected, with none of the specialist subcontractors taking responsibility for the junction works. Minor problems with programme timing can mean that works are left incomplete as the responsible party moves on to other things, it not being worth the cost to return to complete works. Even with diligent subcontractors, if they are not notified that the works are ready for the final detailing the item will remain incomplete. In many cases there is fundamental lack of understanding that there is a requirement to detail or assign junction works. Even more critically, changes in one component are not always adequately reflected in necessary changes elsewhere; the evidence suggests this to be true in the Grenfell example.

Dame Hackitt calls in the review’s interim report for a ‘golden thread’ to be created³

that tracks not only the changes in the initial design, but also records future alterations. In Greek mythology, Ariadne's golden thread was the means by which Theseus navigated his way safely through the Labyrinth after killing the Minotaur, and the reference is not lost on those having to negotiate the current building safety regulations. The introduction of building information modelling (BIM) should have helped the creation of this 'golden thread', highlighting conflicts, and ensuring responsibility is assigned for certain details, but uptake in the industry has been slow.

Of equal concern is the evidence given to the Grenfell Inquiry by Dr Barbara Lane,⁴ who is a Chartered Fire Safety Engineer and a director of specialist fire engineers Arups, regarding the fundamental suitability of materials. Dr Lane highlights, for example, that the inquiry could find no evidence that the fire stopping materials used at Grenfell had ever undergone fire testing in conjunction with the type of cladding used. Indeed, Dr Lane's report advises test evidence provided to the inquiry demonstrated that the system did not meet the required fire resisting standards. Appendix O to Dr Lane's report raises fundamental questions on the provenance of the BBA certification for the cladding system used, stating:

'In my opinion, the statement on the front page of the 2008 issue of BBA Agrément Certificate 08/4510 is factually incorrect, as I have explained in Section 017. In summary:

- a) Only one of the three panels referenced in the 2008 issue of BBA Agrément Certificate 08/4510 has been demonstrated to achieve National class 0;
- b) The available test evidence shows that a cassette system has never achieved national class 0 despite the cassette fixing system being specifically referenced on the 2008 certificate as a suitable method of fixing.'

Dr Lane goes on to raise concerns with regards the wider nature of the testing undertaken by the BBA, and the lack of evidence with regards the Agrément Certificate having any relationship to compliance with the Building Regulations. The findings are, in short, damning of the systems we rely on to tell us we are acting correctly. While there is already movement for change, history tells us that these lessons have already been learned, and then forgotten.

THE GREAT FIRE(S)

Most property professionals consider that the English Building Regulations trace their history back to the Great Fire of London 1666. While we cannot be sure of the number of buildings destroyed in the conflagration, estimates put the figure at over 13,000 houses.⁵ Notably official deaths recorded in the Bills of Mortality⁶ were only six, far lower than at Grenfell. This point is widely debated, as there was no census to record the population and the fire was hot enough to melt iron, reaching temperatures in excess of 1,250°C, so it is quite possible that there were simply no identifiable human remains found in many cases. Only a handful of buildings within the area of the fire survived (with less than 20 extant today) and most of these were built of brick and stone — the Olde Wine Shades on Martin Lane, a stone's throw from the seat of the Great Fire, being one such example.

This was not the first time London had burned: a significant fire in 1632 destroyed around 40 houses and part of London Bridge, and 'great fires' had occurred in 1133 and 1212, both of which involved the burning of London Bridge. In the 1212 fire, to which Dame Hackitt's interim report briefly refers,⁷ while the bridge had already been rebuilt in stone to prevent a recurrence of the earlier event, the houses constructed on the bridge were of timber, pitch and thatch, and estimates of deaths on London Bridge

alone were as high as 3,000, allegedly due to people becoming trapped as separate fires took hold at each end. Given the comparatively small London population of the time, this figure is as questionable as that recorded for the Great Fire, and fatalities were probably considerably lower.

Nor was this a problem confined to the UK, or indeed more ‘modern’ history. Most schoolchildren will be able to tell you that Nero fiddled while Rome burned, although perhaps not that this was in 64CE, and ‘great fires’ were rife throughout the world in the intervening period. Dame Hackitt acknowledges within the review’s final report that there remains ‘a global issue’⁸ to be addressed.

QUI CUSTODIET?

By the time of the Great Fire of 1666, thatch and timber had already been banned from construction in the City following the 1212 conflagration, but their use had continued unabated as the materials were cheap, and more importantly there were no real means to enforce the ban.

In the aftermath of the Great Fire it was recognised that robust enforcement was required, and the Rebuilding of London Act was passed into law in 1667 (the full title being ‘An Act for Rebuilding the City of London’). Drawn up under the oversight of Sir Matthew Hale, a prominent judge with a reputation for being incorruptible, the Act’s aim was to reduce the risk of fire spread from building to building by regulating the design and restricting the materials that could be used. The Act stated:

‘Be it further enacted by and with the Authoritie aforesaid That all the outsides of all Buildings in and about the said City be henceforth made of Bricke or Stone or of Bricke and Stone together except Doore cases and Window Frames the Brest Summers and other parts of the first Story to the Front, betweene the

Peeres which are to be left to the discretion of the Builder to use substantiall Oaken Timber instead of Bricke or Stone for conveniency of Shoppes, And that the said Doores Brest Summers and Window frames be sufficiently discharged of the burthen of the Fabricke by Archworke of Bricke or Stone either straight or circular.’⁹

Crucially, the Act also prescribed a requirement for ‘Surveyors or Supervisors to see the said Rules and Scantlings well and truly observed’. And those appointed were required to swear an oath that they would enforce the Act’s requirements.

While the Act was followed by a succession of local city acts that addressed building construction, this first regulation was simple. It has been speculated that if the Act was still in force, Grenfell would never have happened, but in truth the first act to deal with person safety was ‘The Fires Prevention (Metropolis) Act 1774’, which again centred on the cities of London and Westminster, although included some surrounding boroughs.

Large fires inevitably continued to occur, notably in Newcastle and Gateshead in 1854, albeit which spread rapidly as a result of a large explosion that has never been fully explained (although was thought at the time to be due to the effects of stockpiles of sulphur mixing with nitrate of soda, and possibly carbon soot from the fire itself to form a rudimentary explosive black powder). The Explosives Act was subsequently enacted in 1875, with fire brigades generally taking responsibility for safe storage of explosive materials. Highlighting Dame Hackitt’s concerns of a global problem, however, as I write this paper, a massive explosion in Beirut has left over 130 people dead and thousands injured and homeless, which has been attributed to storage of ammonium nitrate in a warehouse in the port, echoing the 1854 disaster in the UK.

It was not until 1959 (over 300 years after the event that started the process) that the first national Building Regulations came into force in Scotland, and in 1961 the Public Health Act was amended to allow England and Wales to create their first set of Building Regulations in 1964, and which came into force the following year. Yet the Building Regulations were not retrospective, and further tragedy struck in 1968 with a gas explosion resulting in the collapse of Ronan Point tower block at the cost of four lives (and which itself resulted in a review).¹⁰ In 1969 a fire at the Rose and Crown Hotel in Saffron Walden resulted in 11 deaths. On the later occasion and following the report of the Departmental Committee on the Fire Service, chaired by Sir Ronald Holroyd, the Government responded with the Fire Precautions Act in 1971, and the introduction of fire certificates, giving enforcement powers to Her Majesty's Inspectors of Fire Services. The Inspectorate had the power to issue an improvement notice, requiring changes within a set timescale or, if needed, a prohibition notice effectively closing any premises they considered to be unsafe.

While the certification did not cover general domestic premises, it did cover buildings sleeping more than six people and those with sleeping accommodation above the first floor, and the system was straightforward. Often one of the first items any surveyor or estate manager would check during an inspection would be the building's Fire Certificate, and whether there was any correspondence from the Fire Officer, and more particularly any outstanding actions requiring the owner or occupier's attention.

In later years, however, site inspections by the Inspectorate were often on a previously agreed date, giving the occupier opportunity to ensure their housekeeping was in order prior to the visit. Critically the Fire Precautions Act only related to the structure and the fabric, not the building contents.

Our Manchester office overlooks

Piccadilly Gardens, where a little over 40 years ago a fire in the Woolworths building resulted in ten people losing their lives. The building survived, although subsequently was subject to extensive alterations. Having had the opportunity to inspect the building in more recent years, I can confirm that the lower levels still bear the scars of the fire. Bars over the windows of the upper floors were partly held to blame for the loss of life, as they prevented escape via the fire service ladders which could reach the windows easily, but the significant issue was that the flammable polyurethane foam in the furniture on sale in the store burned at temperatures over 700°C (well above the temperature for flashover to occur) and had resulted in toxic black smoke that had obscured the fire exit signage. The furniture was of a type typically present in England's homes at the time, and the fire led to legislative changes banning untreated foam from furniture use in 1988 under the Furniture and Furnishings (Fire Safety) Regulations. Fire precautions, building design and safety certification were all subject to change.¹¹

THE SPEED OF CHANGE

How is it then that polyurethane material that has been controlled in its use in the contents of our building furnishings came to be allowed to form part of the envelopes to those same buildings in the form of Category 3 (polythene cored) Aluminium Composite Materials (ACM) – a material originally intended for making road signs? And how could the same toxic smoke play a part in the Grenfell tragedy? Simply put, as we have seen, legislation struggles to keep pace with the changing nature of the construction industry. In part, the problem was that the legislation has centred on fire spread within a building, not over its external envelope.

As part of the commitment to carbon reduction, we are now retrofitting our older buildings with insulation material, while

finding new ways to build lighter structures and reduce construction time (and costs) with innovative materials. History tells us that a number of these materials will come to be considered deleterious, or problematic, but it is largely a waiting game until we see defects resulting from their use, or indeed from combinations of materials.

While the initial concerns at Grenfell centred around the Category 3 ACM material, subsequent cladding testing has moved away from single material destruction to system evaluation and has highlighted that some ACM systems could be considered safe. Indeed, the British Board of Agrément certified the Grenfell cladding a 'Class O' for the purposes of UK Building Regulations; however, Dame Hackitt's reports highlight the testing regimes are not as robust as they should be. As a case in point, the cladding that had been installed at Knowsley Heights was considered by the Building Research Establishment (BRE) as low risk. Critically at Knowsley, while there was a lack of fire breaks in the void between the original elevation and the cladding, the tower block retained metal-framed windows and the fire never penetrated to the interior. The subsequent enquiry resulted in a requirement for cladding to be of a minimum combustibility class A2¹² and the requirement for fire breaks to be included. Both of these requirements were followed in the Grenfell works.

Research undertaken by the University of Central Lancashire (UCLan)¹³ concluded the combination of ACM panelling and polyisocyanurate (PIR) insulation materials used at Grenfell was the most flammable and toxic available at the time, with the ACM forcing rapid ignition of the PIR material. It must be remembered that the Loss Prevention Certification Board (LPCB) has previously favoured PIR insulation over polyurethane (PUR) for its better fire-resisting characteristics, and the material is widely used in construction in the UK. The deadly combination of heat and toxic

smoke, while not identical to that of the Woolworths Manchester fire, certainly evidences a number of worrying parallels.

Recent testing has identified that low combustibility materials such as high-pressure laminate (HPL) can be equally, if not more, problematic in case of fire. In this respect the main concern relates to rapid spread of flame and/or heat. This problem was encountered by Greater Manchester Fire Service in October 2016, almost eight months before the Grenfell disaster, when an arson attack on a car in the underground car park resulted in a fire that spread through the wooden decking above the area and up the entire height of the building (almost 20m) in less than ten minutes. In this case, as at Knowsley Heights, the building was successfully evacuated and no lives were lost.

While both ACM and HPL allow rapid spread of flame over an elevation and into a building at 'weak points' such as window openings, the mechanisms of fire spread differ. With HPL there is, at least in the early stages of the fire, less damage to the SFS frame as the fire is restricted to surface spread rather than engulfing the panel, while with ACM the whole panel burns, there is a high peak heat release, as well as a more general rapid heat release (resulting in damage to the concealed steel frame system) as opposed to that of HPL panelling, and of course the ACM core can become molten and contribute to furthering the fire.

Legislation failed to reflect the changes in construction and materials that had started to become popular from the 1950s through to the 1970s and beyond. Our previous example of Woolworths is in fact a good example of the problems faced when trying to keep pace with changing building requirements and offers us a potential foretelling of future problems. Following the near total destruction of Woolworths distribution warehouse in Rochdale in 1971, it was found the sprinkler system was faulty, and it was only the presence of a massive reservoir on the site

that meant fire hoses remained operational and there was no loss of life.

IPOS CUSTODES

In many respects the independent review findings, while directed to the construction or renovation and maintenance of high-rise residences, are true of the wider construction industry and we must again ask ourselves how we reached this position, given these are broadly the issues identified by Sir Matthew Hale over 350 years earlier in the aftermath of the Great Fire.

In its interim report, Dame Hackitt's review concluded:

- Regulation and guidance in respect of construction was too complex and unclear, particularly in relation to high-rise buildings — this despite the revisions brought about by the Regulatory Reform (Fire Safety) Order 2005 (RRFSO);
- There was poor definition of roles and responsibilities in respect of design, construction and maintenance;
- There was a lack of suitable assessment of competency in respect of suitability and understanding of complex design scenarios;
- There was a lack of suitable enforcement sanctions which could result in designs not being executed on site;
- There was a lack of a suitable reporting mechanism for residents' concerns;
- The product testing system was not suitably clear;
- The establishment of specialist inspectors, however, must be accompanied by the powers to enforce the regulations, and inevitably with a degree of liability.

Indeed, by the millennium there were around 70 pieces of legislation in England and Wales that dealt with fire safety, and in an attempt to simplify the position the Government introduced the RRFSO. At the same time

Scottish law was reviewed under the Fire (Scotland) Act 2005 and strengthened under the Fire Safety (Scotland) Regulations 2006. Northern Ireland legislation was amended under the Fire and Rescue Services (Northern Ireland) Order 2006, which is to all intents and purposes identical to Scottish law. While the Scottish and Northern Irish legislation broadly follows the same principles as England and Wales in requiring risk assessments, there are some key differences in who is responsible, so it is important to know which legislation applies in order to ascertain responsibility.

Concentrating on the RRFSO for the purposes of this paper, the Order has two key principles: first, those who are in charge of a commercial premises are liable for the safety of the occupants; and secondly, that they must provide evidence that they have undertaken risk assessments to that effect. Some 15 years on, however, personal experience is that often risk assessments are not available for inspection on site, and when they are, they are frequently generic and not fit for purpose. There appears to be little, if any, enforcement of the system — a point emphasised in the Hackitt Review — unless, of course, there is a fire in a premises when prosecutions may follow, if the responsible party can be identified. This is sadly how we arrived at the need for the independent review in July 2017.

While instigated as a result of Grenfell, the review was not charged with looking at the mechanisms of the disaster; that role is being undertaken separately by the inquiry being chaired by Sir Martin Moore-Bick, which delivered its Stage 1 report in June 2017.¹⁴ Stage 2 of the inquiry is ongoing currently, having been delayed as a result of COVID-19; however, it has already clearly established the key elements that contributed to the disaster, including:

- The fire most likely spread into the cladding by deformation of a PVCu window jamb;

- The PVC core of the cladding panels likely acted as fuel for the fire, which in turn dripped onto lower areas, setting additional fire fronts;
- Wall penetrations, such as extract fans, were not adequately fire stopped;
- The PIR insulation material furthered the speed of fire spread;
- Fire doors were not fully effective.

One of the key findings of the Stage 1 Inquiry, as we saw earlier in Dr Lane's evidence, was that the cladding simply did not comply with the current building regulations, promoting rather than preventing fire spread.¹⁵ This would never have been the intention of the project team or indeed the inspectors who were approving the works.

From the 1980s the Building Regulations had undergone significant change, in theory to encourage modern methods of construction, but also to help speed up a process that was to a large extent overloaded. In 1984 the Building Act introduced the ability to appoint 'approved inspectors' rather than having to solely use the local authority building inspectors. Originally directly under central government control, the power to certify approved inspectors was later passed to the Construction Industry Council. The prescriptive requirements of the UK Building Regulations, which echoed the Great Fire's requirements and which ran to some 306 pages, were replaced in 1985 with a performance-based system of just 24 pages. At this time it was deemed that the regulations were too restrictive in terms of innovation and the performance method would allow the regulations to better track industry changes without the need for regular updating. The changes meant that there was no longer a single method of compliance with the regulations, but that they could be interpreted, and alternative solutions found. Clearly at Grenfell the interpretation of the regulations failed.

In August 2019, the case of *Lessees and*

*Management Company of Herons Court v NHBC Building Control Services*¹⁶ looked at the liability owing by approved inspectors under the Defective Premises Act (DPA). Under section one of the DPA there is a duty on anyone 'taking on work for or in connection with the provision of a dwelling' to ensure the dwelling is fit for habitation. The case went to appeal; however, it was concluded by the Court that the DPA simply did not apply to the approved inspectorate as they had no statutory power to make changes to the design or works, their role being solely to check compliance against a given set of criteria.

This is perhaps not so surprising, as in 1991 in *Murphy v Brentwood District Council*¹⁷ the appeal court overturned the ruling of the House of Lords in *Anns v Merton LBC* (1977).¹⁸ In *Murphy v Brentwood* the appeal court concluded that while the Council had the right to inspect the construction, it was not obligated to do so, nor was it liable for its inspectors failing to identify inadequately constructed footings to Mr Murphy's property. Essentially, therefore, we are in a position that while legislation calls for certification of a property to the given standards, there is no liability on those issuing the certificate to ensure the construction is indeed correct.

Unquestionably most building control surveyors are both diligent and competent, the training available being the equal of other construction professionals; both the CIOB and RICS, for example, offer qualification routes. Like other construction professionals, inspectors are required to undertake continuing professional development to keep themselves abreast of changes in the regulations. It is, however, the case that, as in my own field of building surveying, many are general practitioners who are most familiar with relatively small construction projects. Dame Hackitt has highlighted the need to both recognise those within the inspectorate that already have specialist knowledge,

and to promote the further specialisation required to deal with increasingly complex large buildings.

While highlighting that the nature of competition between local authority and approved inspectors has led to an overall improvement in the standard of service provided, the review went on to raise serious concerns with regard to the potential for private firms to in effect tout for business by supporting developers' interpretations of the regulations, while offering minimal intervention — the claim being that this is the price to pay for long-term business. The claim is refuted by the Association of Consultant Approved Inspectors, the body that represents over 90 per cent of the approved inspectorate bodies. Part of the proposal is to remove the ability of approved inspectors to certify high-rise or complex buildings, leaving this role in the hands of local authority building control working with the new HSE Regulator. In his *PBC Today*¹⁹ article from August 2018, Paul Wilkins, then chair of the The Association of Consultant Approved Inspectors (ACAI), highlighted that the proposal to remove the ability of the approved inspectorate to certify high-rise buildings would significantly reduce system capacity, stifle dynamism and result in both delays and increased costs. That said, there is already evidence that the inability of approved inspectors to obtain suitable insurance to undertake work on high-rise buildings may in any event lead to this position, whether or not it is enforced by regulation, and a number of companies such as Aedis Regulatory Services have already ceased trading as a result.

A SHOT IN THE DARK

While regulation regarding construction is essential, the review has also highlighted inadequacy in the methods available to handle tenant complaints. While most social landlords operate a complaints procedure,

and the Housing Act 1996 requires them to be members of the Housing Ombudsman Scheme, the latter has little if any enforcement power. The service does not, however, deal with resolution of the initial problem, merely complaints about how members have acted. Often the original problem therefore goes unresolved, and indeed the Grenfell inquiry has seen evidence of repeated concerns being raised by the residents in the years before the disaster. Positive action has already been taken in this respect with the introduction of the Homes (Fitness for Human Habitation) Act (HFHH) in December 2018. The Act took much of its principle from the existing Housing Health and Safety Rating System (HHSRS) that was introduced under the Housing Act 2004, as well as the Landlord and Tenant Act 1985. Indeed, the HFHH did not introduce any new liability.

The HHSRS is primarily targeted at privately rented properties, which are widely considered in the industry to have the lowest standards. But over ten years since the HHSRS came into force in 2006, knowledge of the system was concerningly limited. The HFHH came into force in March 2019, and applies to social and private residential tenancies in England, with a 29-point risk assessment system at its core coupled with the requirements of section 10 of the Landlord and Tenant Act 1985.

The HHSRS risk assessment recognises that fire is only part of the risks facing occupants and looks at the following:

1. Damp and mould growth;
2. Excess cold;
3. Excess heat;
4. Asbestos and MMF;
5. Biocides;
6. Carbon monoxide and fuel combustion products;
7. Lead;
8. Radiation;
9. Un-combusted fuel gas;

10. Volatile organic compounds;
11. Crowding and space;
12. Entry by intruders;
13. Lighting;
14. Noise;
15. Domestic hygiene, pests and refuse;
16. Food safety;
17. Personal hygiene, sanitation and drainage;
18. Water supply;
19. Falls associated with baths;
20. Falls on the level surfaces;
21. Falls associated with stairs and steps;
22. Falls between levels;
23. Electrical hazards;
24. Fire;
25. Flames, hot surfaces and materials;
26. Collision and entrapment;
27. Explosions;
28. Ergonomics;
29. Structural collapse and falling elements.

The risks themselves are further weighted to reflect the potential harm that could befall an occupant, and properties are given an overall rating. Guidance was also already available in the form of the DCLG publication 'A Decent Home: Definition and guidance for implementation [June 2006]'. The system is enforceable via local authority environmental health, and legal action may be brought for specific performance of a landlord's obligations.

Further, following the Hackitt Review's final report in May 2018, in March 2020 a new Fire Safety Bill was officially introduced to the Commons, following the intent stated in the preceding Queen's Speech, and it quickly proceeded to a second reading. The Bill broadly follows the recommendations of the independent review and seeks to clarify the scope of the RRFSo to ensure that it 'includes the external walls of the building, including cladding' as well as 'fire doors for domestic premises of multiple occupancy'. The Bill also looks to remove the short-fall in the enforcement powers to ensure

compliance with regulations. One of the key points raised during the second reading was the independent review's requirement for 'specialist knowledge and the expertise of the fire risk assessor'.

The Draft Bill will undoubtedly undergo changes before it is finalised, but at the time of writing the key points are:

- A new national regulator for building safety to be created, based within the Health and Safety Executive. The regulator will have three main functions:
 - oversee the safety and standard of all buildings;
 - directly assure the safety of higher-risk buildings; and
 - improve the competence of people responsible for managing and overseeing building work;
- Creation of the roll of Accountable Person who is responsible for keeping residents safe in high-rise buildings (those 18 metres and above);
- Creation of the role of Building Safety Manager to oversee day-to-day running of an applicable building;
- Requirement for Building Assurance Certificates: when a subject building is first occupied it will need to be registered with the Building Safety Regulator and obtain a Building Assurance Certificate;
- Transfer of liability for rectification of historic works from Leaseholders, who will not have to pay unaffordable costs for historic repairs;
- Creation of a building safety charge, and powers are included in the Bill to limit the costs that can be re-charged to leaseholders;
- New governmental powers for the regulation of construction materials and products;
- Creation of residents' panels;
- Guarantees of access to information, and complaints handling;
- Creation of a New Homes Ombudsman;
- Revised regulation of building inspectors.

Critically there will be a new regulator created within the HSE that will have enforcement powers and have three main functions:

- To oversee the safety and standard of all buildings;
- Directly assure the safety of higher-risk buildings; and
- Improve the competence of people responsible for managing and overseeing building work.

It is currently envisaged that the new regulator will have responsibility for ensuring the existence of the ‘golden thread’ of information.

There have already been concerns raised with regard to the cost of the new measures, although Dame Hackitt has already considered this within her review. We touched on BIM earlier; there have been many claims as to the savings it can achieve, and in March 2018 PricewaterhouseCoopers (PwC) produced a report in this respect.²⁰ PwC give a lower figure than the Hackitt Review’s 5 per cent anecdotal saving, putting the average cost savings at between 2 and 2.3 per cent; however, it is still clear evidence that there are construction cost savings that are significant given the sums of monies involved in large-scale construction projects. That there are further cost in use savings is unquestionable, although these are more difficult to measure simply due to lack of hard evidence.

In support of the other changes being made, in May 2020 Part B of the English Approved Documents to the Building Regulations has been amended, coming into force on 26th November, 2020, although it does include a short transitional period.²¹ One key aspect of the new Part B is the trigger height for sprinkler installations in buildings being significantly reduced from 30m to 11m. The new document also includes a requirement for improved signage in residential blocks over 11m, both in

respect of general wayfinding and individual flats. The requirement for sprinklers is for this to primarily be in individual flats, and this recognises the pattern of fire spread in Grenfell. It is notable, however, that the new regulation does not require that sprinklers be installed to the common parts ‘when these areas are fire sterile’. It will be interesting to see how the latter statement is interpreted and enforced given the nature of the fire spread into the common parts in Grenfell. Minor amendments have also been made with regard to the definition of boundaries in section 11.

The first line of Table B4 within the approved document has been significantly revised to reflect the requirement for sprinklers down to 11m, now simply stating that development above 11m without sprinklers is ‘not permitted’. In itself this sounds a simple solution; however, increasing demands on our aging (and, let us not forget, private) water infrastructure are such that water pressure is already a problem in some areas, and it will not be possible to provide direct mains-fed sprinkler systems in some areas, leading to a requirement to store water, which brings its own set of design and maintenance requirements. Earlier in this paper I highlighted the Woolworths Rochdale fire and the fact that the sprinkler system failed to operate correctly due to lack of maintenance. Will we be looking back at a future date on another disaster in a residential block where the sprinklers have not worked?

The impact will be further felt with regard to future conversion of offices to residential, which may well become a growing trend in the post-COVID world as employers realise they can reduce their carbon footprint by increasing working from home.

It is worth at this point noting that in the battle to keep our buildings safe, it is not just fire safety legislation that struggles to keep pace with changing construction methods. Just as the construction industry has started to get to grips with the problems

in respect of the external cladding systems, it has now been identified that magnesium oxide (MgO) sheathing boarding can cause significant structural problems due to some versions being hygroscopic. Essentially, where the boarding is manufactured from magnesium chloride, the resulting chloride salts and free chloride ions in the boarding are prone to absorb moisture from the air, and in the UK, weather conditions are prime for the material to then sweat out the water with the chloride salts. The resulting chloride solution can be highly corrosive to adjoining metals and can be catastrophic in terms of the wider building structure. In the cases reported in Canada, Denmark and Australia, buildings have required extensive remedial works to structural elements.

It is only a matter of time before similar cases are confirmed in the UK. The NHBC, Premier Warranty and LABC Warranty have already taken steps to stop cover applying to any new building using the boarding, and building owners already reeling from the implications of certain cladding systems may well have to resurvey their buildings. Legislation regarding the use of MgO boarding will no doubt be forthcoming, but it does highlight the problem the legislature has, as by its nature it is playing 'catch-up'. It also highlights the concerns raised by Dame Hackitt with regard to the testing and certifying of materials for use.

CONCLUSION

It is clear from the history of fire legislation that, following disasters, the problems identified as the causes have been addressed with legislation and regulation, only for this to be watered down or abandoned completely over subsequent years. Innovation, simplification and cost savings have all historically been used to drive relaxation of regulations, while the reactionary approach to legislation has in turn driven forward a confusing embarrassment of standards that even the

most experienced professional can struggle to follow and correctly apply.

The Hackitt Review has, however, taken a long look at how the events at Grenfell unfolded and the recommendation for a complete review has been widely accepted by the industry as essential. While there are concerns raised about costs, I suspect the new systems will rapidly become a badge of honour, much as 'BREEAM Excellent' has, and the 'new way of working' will be quickly accepted, simply because it has to if we are to avoid repeating the same mistakes.

Far from hobbling innovation, improved materials testing regimes will merely speed the pace at which inappropriate materials are identified. The key will be to ensure that in 20 or 30 years' time we do not find ourselves having another disaster review following relaxation of the regulations.

REFERENCES AND NOTES

- (1) Hackett, Dame J. (December 2017), 'Building a Safer Future: Independent Review of Building Regulations and Fire Safety: Interim Report'.
- (2) Hackett, Dame J. (May 2018), 'Building a Safer Future: Independent Review of Building Regulations and Fire Safety: Final Report'.
- (3) *Ibid.*, note 1, p. 10.
- (4) Lane, Dr. B. (November 2018), 'Phase 1 Report'. Grenfell Tower fire safety investigation. The fire protection measures in place on the night of the fire, and conclusions as to: the extent to which they failed to control the spread of fire and smoke; the extent to which they contributed to the speed at which the fire spread.
- (5) *The Encyclopaedia Britannica*, 'Great Fire of London', available at www.britannica.com/event/Great-Fire-of-London (accessed 26th August, 2020).
- (6) The weekly mortality Statistics for the Cities of London and Westminster and the Borough of Southwark were published continuously from 1603 until the early

1800s when they were superseded by the Registrar General's weekly returns for the Metropolis which commenced in January 1840 following the Births and Deaths Registration Act 1836.

- (7) *Ibid.*, note 1, p. 31.
- (8) *Ibid.*, note 2, p. 5.
- (9) Charles II, '1666: An Act for rebuilding the City of London'.
- (10) Griffiths, H., Pugsley, A. and Saunders, O. (1968), 'Report of the inquiry into the collapse of flats at Ronan Point, Canning Town', Her Majesty's Stationery Office.
- (11) Further specialist legislation was also introduced following the Bradford City Stadium Fire in 1985 and the King's Cross fire in 1985.
- (12) Approved Document B (Fire safety) – Volume 1.
- (13) McKenna, S. T., Jones, N., Peck, G., Dickens, K., Pawelec, W., Oradei, S., Harris, S., Stec, A. S. and Hull, T. R., (2018), 'Fire behaviour of modern facade materials – understanding the Grenfell Tower fire', *Journal of Hazardous Materials*, Vol. 368, pp. 115–123, available at <https://doi.org/10.1016/j.jhazmat.2018.12.077> (accessed 9th October, 2020).
- (14) Grenfell Tower Inquiry (June 2017), 'Phase 1 Report: Report of the Public Inquiry into the Fire at Grenfell Tower', Vols. 1–4.
- (15) Grenfell Tower Inquiry (June 2017), 'Phase 1 Report: Overview Report of the Public Inquiry into the Fire at Grenfell Tower', S2.16.
- (16) *The Lessees and Management Company of Herons Court v NHBC Building Control Services Ltd.*, Citation: (2019) EWCA Civ 1423.
- (17) *Murphy v Brentwood District Council* (1991) UKHL 2, (1991) 1 AC 398.
- (18) *Anns v Merton LBC* (1978) AC 728.
- (19) Wilkins, P. (August 2018), 'The Hackitt Review: Where it went wrong on approved inspectors', PBC Today, available at <https://www.pbctoday.co.uk/news/building-control-news/approved-inspectors/44788/> (accessed 9th October, 2020).
- (20) PwC (March 2018), 'BIM Level 2 Benefits Measurement Application of PwC's BIM Level 2 Benefits Measurement Methodology to Public Sector Capital Assets', available at https://www.cdobb.cam.ac.uk/files/pwc_bmm_application_report_180607_final.pdf (accessed 9th October, 2020).
- (21) Gov.UK, 'Fire safety: Approved Document B', available at <https://www.gov.uk/government/publications/fire-safety-approved-document-b>. (accessed 9th October, 2020).