Independent Review on Building Regulations and Fire Safety
Written evidence from the Association of British Insurers

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Executive Summary

As an industry that is relied on to provide cover for people's homes, businesses and personal possessions, insurers have an integral interest in fit-for-purpose building regulations that effectively protect lives and property from the risk of fire. The ABI has long called for a comprehensive review of building regulations to ensure robust procedures are in place that enable a competitive property insurance market to continue. It is a tragedy that this review has only come about as a result of the devastating loss of life of so many residents at Grenfell Tower.

This review marks a seminal opportunity to recommend substantial change that will fundamentally improve fire safety in England's buildings, but also and as a consequence, improving the risk profile of these buildings, increasing competitiveness amongst insurers in this market and benefiting customers through associated effects on premiums. This review is both vital and urgent given the last comprehensive review of 'Approved Document B' (ADB), the regulations in England covering fire safety matters, concluded in 2006. Since then, the use of modern methods of construction has substantially altered how buildings are designed and constructed. The tragic events at Grenfell appear to be a symptom of a systematic failure of current building control and enforcement regimes. As a result, a fundamental change in the regulatory philosophy around building regulations for fire safety is required.

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The ABI's response to the Independent Review's Call for Evidence outlines a number of areas that require serious review in order to better protect properties from fire risk, thereby:

- Improving the safety of residents and firefighters in buildings;
- Enabling the continued existence of a competitive and potentially enhanced insurance market across a wide range of building types.

The key areas in which the ABI suggests action is required are as follows:

- **Counteracting the increased level of combustible material in building design and construction and improving the robustness of the building control's testing regime on the performance of building materials, to include:**
    a. An end to the use of materials of 'limited combustibility' on the envelope of buildings, requiring only 'non-combustible' materials.
    b. A reformed testing regime that finds proof of non-combustibility, rather than accepting the use of 'limited combustibility' in certain circumstances.

c. A reformed testing regime that replicates 'real-world' build conditions rather than 'perfect build' scenarios, so that the non-combustibility of materials is considered fit for purpose
d. A reformed testing regime that eliminates the use of construction and material that are so susceptible to minor deviation that they can only be demonstrated to be safe and compliant 'on-plan'. This only serves to create uncertainty about the fire performance of a building.
e. The apparent incongruous nature of energy performance / sustainability and fire safety within current regulations with a view to considering an overall resilience score for buildings that includes performance against fire.
f. A whole of building fire performance test evaluation, where major refurbishments take place, to ensure that the overall fire performance of the building is not reduced.

- **Improving mandatory passive and active fire protection measures, to include:**
  g. Mandatory installation of sprinklers for all new build schools, new build care homes and warehouses over 2000m2.
  h. A review of sprinkler protection for other buildings, including a suitable performance standard for sprinklers in high-rise or multi-occupancy buildings that takes into account wider risks to property.
  i. Consideration of the link between current, commonly used fire alarm systems, the extent of false alarms and the effect on fire service response, detection and evacuation procedures.
  j. Close consideration of the implications of the repeal of the Local Building Acts on passive and active fire protections, and the re-introduction of provisions from these Acts that are not currently incorporated within Building Regulations.

- **A detailed review and assessment of the understanding and clarification of roles and responsibilities of <u>all those involved</u> in the fire safety of a building, to include:**
  k. Explicit guidance that ensures in the light of reviewed regulations all responsibilities are clearly understood.
  l. Recommendations to ensure effective enforcement at all levels of fire safety, including design, implementation, supervision, control and authorisation.
  m. Clarity within the regulatory framework of a 'Responsible Person' including relevant qualifications and training that is expected to ensure competency.
  n. Improving understanding of the purpose of fire safety provisions in Building Regulations across persons and sectors who are impacted.
  o. Close consideration of the role and qualifications of fire engineers in relation to the fire safety of buildings, including the levels to which buildings can be 'value-engineered' down to a level that may significantly reduce the overall resilience of a building.

As an industry, we will also play our part to better understand issues around the fire performance of external cladding systems, the use of automatic sprinkler systems in high-rise residential buildings and the potential for high-integrity alarm systems to improve detection, response and evacuation. The ABI has commissioned specific technical research on each of these areas from the Fire Protection Association and will look to share the findings, when complete, with the Review Team, the Public Inquiry and any future Government reviews.

Finally, we suggest that the Review makes a recommendation that future Governments commit to a schedule for regular and comprehensive review points of Building Regulations for fire safety in the future, at least every three years.

1. About the Association of British Insurers and Fire Protection Association

1.1. The Association of British Insurers is the voice of the UK's world leading insurance and long-term savings industry. A productive, inclusive and thriving sector, we are an industry that provides peace of mind to households and businesses across the UK and powers the growth of local and regional economies by enabling trade, risk taking, investment and innovation.

1.2. The ABI works closely with the Fire Protection Association (FPA), who provide technical expertise and research for the insurance industry on fire protection. Where statutory requirements are considered inadequate by insurers for business and property protection, the FPA develops and maintains a number of key insurer standards for the implementation of active and passive fire protection requirements, together with a substantial library of risk control documents.

1.3. The insurance industry has a long history of providing cover for the many varied types of buildings in the UK. This goes back to the foundation of the insurance industry following the Great Fire of London 350 years ago. It is vital that the competitiveness of this market, and the associated benefits to UK home and business-owners, is allowed to continue through proper, fit-for-purpose fire safety regulation.

2. The cost of fire measured in UK property claims

2.1. The cost of fire insurance claims in the UK is significant. In 2016, insurer's paid out £1.27bn for property fire claims (£388m from domestic claims, and £885m from commercial and industrial).

2.2. If we consider domestic property claims, the average amount paid out on a fire claim has increased from £5,550 in 2006, to nearly £15,000 in 2016 (in real terms). The number of fire claims has decreased from 71,000 in 2006 to 26,000 ten years later, but the marked increase in the average cost of claims clearly highlights that when fires do occur, the cost of damage is significantly higher, signifying that when fires occur, they are more destructive and cause more widespread damage.

> *"the marked increase in the average cost of claims clearly highlights that when fires do occur, the cost of damage is significantly higher."*

2.3. Further details of ABI fire claims data are included in Annex A.

3. Insurers' approach to managing fire risks

3.1. When an insurer is considering offering cover on a property, they will estimate the maximum level of damage that could reasonably occur to the property as a result of a

single incident, taking into account all factors likely to increase or lessen the extent of the loss. It is essentially the worst-case scenario for a property, and is known as the Estimated Maximum Loss (EML). Fire is one of the few perils that consistently meets an insurer's EML expectation, meaning understanding fire risk is of central importance to the decisions of a property underwriter on whether to offer cover and at what price. It is also fundamental to the considerations property insurers must give to effectively managing their overall exposure. The danger of such total or major losses, means the protection of property, including the building itself, often requires additional risk mitigation measures to be required by individual insurers. While risk appetite will vary from insurer to insurer, stronger statutory requirements that improve fire safety, through fundamental changes to building regulations, will likely mean a more attractive range of risks to a greater number of insurers in the market.

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3.2. For the majority of large commercial buildings, including high-rise residential blocks which are generally insured on a commercial basis (usually through a Local Authority or management company), most insurers will have a team of specialists who work with the customer on risk management of the building. This typically involves an onsite assessment to understand the current levels of property protection, construction materials and type, maintenance regimes, building use, common areas, use of fire doors amongst other areas. However, this is an non-invasive assessment, meaning insurers are usually unable to enter and assess individual flats within a block, and will not remove material from a building, such as an insulation panel to test its construction if it is not known.

3.3. Where a property owner is unaware of material within panel construction, and the information is unavailable through building documentation, the insurer may assume the minimum level of protection and highest risk level. There is also a reasonable level of reliance that a building has been built in accordance with building control requirements, where it is not feasible for an insurer to check details. Following the onsite assessment, a detailed report is often provided to the building owner, which outlines the building construction, occupation, and the EML that could arise from an insured peril. This information will then be used by underwriters to assist them with risk selection and pricing. As part of a risk assessment, many insurers provide 'fire surveys' that will help identify vulnerable building areas and where improvements may be necessary to help the building owner protect their assets. Any fire safety management strategy for a building and the surrounding area should consider practical passive, active and managerial control measures. Some insurers offer training courses for customers to train nominated staff on the requirements of the Fire Safety Order and how to complete a fire risk assessment.

4. Factors affecting risk appetite

4.1. Insurers will require buildings to be constructed in line with current Building Regulations and health and safety legislation. However, an open and competitive insurance market cannot be relied upon as a mechanism to impose additional building control conditions. This should sit firmly in the domain of Government policy, regulation and compliance.

> *"an open and competitive insurance market cannot be relied upon as a mechanism to impose additional building control conditions."*

4.2. Following the tragic events at Grenfell Tower, insurers are likely to take a closer interest in the risks posed, particularly for high-rise, multi-occupancy buildings. This may involve a more detailed underwriting process before the insurer determines the terms of cover it is willing to offer, particularly if the building is of non-standard construction. Risk management responsibilities are taken seriously by insurers, and increasingly owners of multi-occupancy buildings, or their brokers, are likely to be asked about construction materials and other relevant information about their building in relation to fire risks. Risk mitigation that can be relied upon by insurers to demonstrably reduce or limit the risk of damage are more likely to be taken into account favourably when determining policy coverage or premium levels.

4.3. Some relevant factors specific to the risk in question that insurers will take into account include (this is not an exhaustive list):

- A building's previous claims history;
- Site location, spread of buildings and exposure from the surrounds;
- Detail on construction (including the envelope of the building) and occupation, focusing on features affecting fire risk;
- Flammable liquids and hazardous materials use and storage;
- Overview of building services and potential fire risks;
- Fire extinguishing appliances, automatic fire detection, fire-fighting water supplies and any sprinkler protection or gas extinguishing systems;
- Fire brigade attendance and access;
- Management procedure including risk assessment, fire safety training, housekeeping and control of contractors;
- Security against arson.

4.4. It is important to remember that factors considered by insurers may not be limited to the specific risk that is being insured. For example, if an insurer seeks to change the terms of cover or premium level for a certain risk, this could also be a result of:

- Changes in regulatory requirements on the insurer[1];

[1] Prudential regulation means insurers must manage their exposure effectively with due regard to solvency requirements.

- An increasingly or decreasingly competitive market;
- Commercial decisions an insurer takes to manage its own exposure in a particular market;
- Changes in the terms or conditions of reinsurance agreements (insurers will transfer portions of risk portfolios to reinsurers in order to manage their exposure and limit large losses).

5. Removal of the Local Building Acts

5.1. Following the Great Fire of London 351 years ago, authorities developed strict regulations which set out to prevent a re-occurrence of the great fire - in 1667 Parliament passed the Rebuilding of London Act. Part of this Act required buildings to be built out of brick and or stone with stone, slate or tiled roofs instead of the timber and thatched constructions that were destroyed in the fire.

5.2. In 2013 Government repealed section 20 and 21 of the London Buildings (Amendment) Act 1939 in an effort to cut costs and deregulate, with the last mandated requirement for Property Protection, the Local Acts, being repealed in April 2015. This was done against the advice of those dealing with the consequences of fire including the Chief Fire Officers, Fire Brigades Union, as well as insurers. Many fire professionals have suggested that had the Local Building Acts not been repealed, tower blocks over 30m in height, such as Grenfell, would go through more rigorous assessments for fire risk, including a higher level of fire resistance for external walls - "*One of the things that the London Building Act specified is that the outside of all buildings had to be fireproof*"[2]. The review must consider closely the impacts of the removal of these Acts and whether to re-introduce those provisions that are not incorporated within Building Regulations.

6. Use of combustible materials

6.1. Modern building construction has introduced large quantities of combustible material into the built environment, by way of structure, cladding and insulation. Fire safety has traditionally been achieved using good fire performing materials, such as bricks and mortar or reinforced concrete. The current ADB was developed on the assumption that buildings would be built out of these more resilient materials, and therefore must be updated to fully consider the increase in the quantity of combustible material within and on buildings, as well as the more modern construction practices that are now being used.

[2] Quote from Sam Webb, fire expert and architect June 2017.
https://www.constructionnews.co.uk/best-practice/health-and-safety/london-building-act-would-have-averted-grenfell-disaster/10020920.article?v=1

6.2. As noted in the ABI's response to the Government's Housing White Paper (May 2017)[3] before the Grenfell fire: *"For high rise construction….external cladding, made from combustible material can often cause significant fire spread upwards and between buildings, which is a particular concern for areas of high building density."* Information released to date suggests that the Grenfell fire was started by a faulty fridge, however the cause of the fire is still being fully investigated. It is believed that the external cladding system installed as part of a recent refurbishment of Grenfell Tower contributed to the rapid spread of fire. Regardless of whether fault lay with a lack of adherence to current regulations or not, the insurance industry is seriously concerned that current regulations allow for a far greater amount of combustible material to be used in the refurbishment of tall buildings than would have been considered the norm when the building was designed.

6.3. ADB regularly refers to the term 'limited combustibility'. This term is extremely unhelpful and is at odds with international best practice. We strongly advise that the review considers whether the term 'limited combustibility' is fit for purpose. Furthermore, the review should make recommendations that ensure the use of combustible materials is not permitted, especially in key vulnerable parts of buildings, and that testing regimes require and must find proof of non-combustibility, rather than accepting the use of limited combustibility in certain circumstances[4].

> *"the review should make recommendations that ensure the use of combustible materials is not permitted, especially in key vulnerable parts of buildings, and that testing regimes require and must find proof of non-combustibility"*

7. Reform of the testing regime

7.1. Key failings in meeting the Building Regulations often relate to in-exactness in construction (in both 'traditional' building methods and more modern approaches such as modular construction) and inappropriate (deliberate or accidental) adjustment of the materials/specification of the building during construction or occupation. There should be a duty on Building Regulations and associated guidance to not support construction and material combinations that are so susceptible to minor deviation that they can only really be demonstrated to be safe and compliant 'on-plan'. A reformed testing regime would eliminate the use of such construction and materials, which only serve to create uncertainty about the fire performance of a building.

7.2. An example of this relates to the recent large-scale panel tests commissioned by DCLG following the Grenfell fire to assess the use of Aluminium Composite Material

[3] https://www.abi.org.uk/globalassets/files/subject/public/home-insurance/abi-submission--dclg-housing-white-paper.pdf

[4] Since 2005 Scottish building regulations have stated that cladding and insulation on high rise domestic buildings should be made of non-combustible materials.

Polyethene (ACM PE) panels, which largely failed. ACM panels are a type of flat panel that consists of two thin aluminium sheets held together with a core (often combustible) filler. The aluminium sheets should, when perfectly installed, protect the combustible interior from a fire. Insurers are doubtful the current testing regime accurately reflects how ACM panels are installed on the external envelope of a building in reality[5]. The tests replicate a 'perfect build' scenario that do not consider any breach of the aluminium barrier due to vents, ducts, wear and tear or poor installation.

7.3. ABI members have commissioned the FPA to complete an in-depth study into the current test regime, with the aim to understand whether there are shortcomings with current test methods, and assess the benefits of a test specification that requires complete non-combustibility of the major components of cladding systems. When complete we will look to share the results with the review team, the Public Inquiry and any future Government reviews.

"Insurers are doubtful the current testing regime accurately reflects how ACM panels are installed on the external envelope of a building in reality"

8. Refurbished buildings

8.1. When major refurbishments of buildings take place, it is vital that the fire performance of the building is not reduced or compromised. Building fire safety design involves evaluating the likelihood and consequence for risk of potential fire events that may impact the fire safety objectives of a particular building (as set out by regulations, the building owner or user and often also the insurer). This is usually a system of fire protection measures working in a co-ordinated way to meet fire safety objectives. This can include passive fire protection, which aims to contain a fire to a certain area of a building, thus preventing fire spread and enabling easier evacuation and firefighting. When a building is refurbished this can have the effect of compromising this protection. For example, sub-dividing buildings to limit fire spread is invalid if other new measures reduce the ability for the fire to be restricted, such as the installation of combustible material on the outside of a building, enabling a fire to spread across the external envelope of a building and ingress at various openings (windows, vents etc).

8.2. A full and whole of building test is required where major refurbishments are considered, with complete information about the original construction's fire performance. This test should not permit any reduction in the overall fire performance of the building.

[5] Guidance to the Building Standards system in Scotland does not recognise the use of "comparative desk top studies" to assess the fire performance of the cladding system, whereas England does.

9. Use of sprinklers

9.1. Sprinklers often help to enable the quick and safe evacuation of those affected, limit any damage to a localised area and control the fire, enabling the fire and rescue services to extinguish it. Today, automatic sprinkler systems are used more than any other fixed fire protection system and tens of millions are fitted around the world each year. The benefits of sprinkler installation are clear:

- In the UK, no-one has ever died from a fire in a fully sprinklered building[6].
- Losses from fires in buildings protected with sprinklers are estimated to be a tenth of those in buildings without sprinkler protection.
- Their use means consequential losses and inconvenience can drastically reduce, which helps those affected by fire to get back to normal more quickly.
- Alongside the reduced risk to life, there is an abundance of evidence, including social, environmental, and economical, which highlights the importance of improving the fire protection for buildings that are vulnerable to fire.

9.2. Insurer risk management teams often advise customers on the installation of sprinkler systems in areas of high risk to make the customer's property safer. This also enables insurance cover to be secured, where otherwise that cover might be inaccessible or unaffordable. We are aware that some insurers offer a significant reduction in premiums, in some cases of up to 50%, to recognise the risk mitigation effects of having sprinklers installed. Clearly any reduction will depend on a range of factors, including the type of building, and significant reductions are more prevalent in commercial premises.

9.3. Following Grenfell Tower, we have seen a number of Local Authorities confirming that they will retrofit sprinkler systems into high rise multi-occupancy buildings. With this surge in demand, there is a need to consider the relative performance of automatic fire sprinkler systems in high-rise multi-occupancy buildings. The current British Standard for sprinkler system performance only applies to the slowing of fire growth for a limited period of time to allow evacuation from an individual dwelling. Insurers would prefer a higher standard of protection, covering the whole building or at least protection of several dwellings simultaneously. The ABI has commissioned research from the Fire Protection Association to develop a standard for use of sprinkler systems within these types of buildings. We will look to share the findings of this research with the independent review when complete.

[6] Business case for sprinklers, Chief Fire Officers Association

10. Mandating sprinklers in certain properties

10.1. In 2016, the ABI campaigned for the introduction of mandatory sprinklers for new build schools[7], new build care homes and new build warehouses over 2000m2[8]. In Scotland, legislation introduced in 2005 requires all newly built care and residential homes to be fitted with sprinkler protection. In order to protect the most vulnerable individuals in our society, the review should recommend adopting the same approach for all newly built care homes and schools in England.

10.2. Sprinkler systems are not only proven to drastically improve the safety of individuals, they also help reduce the amount of damage done to the contents and structure of the property, enabling the vital services provided by schools and care homes to be back up and running following a fire as quickly as possible.

> *"Sprinkler systems are not only proven to drastically improve the safety of individuals, they also help reduce the amount of damage done to the contents and structure of the property"*

10.3. Fires in commercial warehouses, which can contain millions of units of stock, can have a devastating impact on the economy and result in millions of pounds worth of cost and damage alongside causing a significant number of firefighter deaths[9]. ADB currently only recommends that warehouses in England and Wales should have a sprinkler system installed if they are larger than 20,000m^2, however there are no mandatory requirements for smaller warehouses. As a result of this, of the 620 warehouse fires each year around 95 per cent of these warehouses are not protected by sprinklers.

10.4. Research from the Building Research Establishment concluded that sprinklers are a cost-effective investment for warehouses with a floor area of over 2000m2[10]. Internationally, we are also behind the curve, with other European countries requiring or recommending sprinklers in warehouses in excess of much smaller areas –– Austria 1,800m2; the Netherlands 1000m2; Spain 2000m2; and Norway 800m2. Across Europe and in competitor economies, current regulation and guidance mean that these markets are far better prepared for, and able to recover from, fires that threaten business and the wider economy.

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[7] https://www.abi.org.uk/news/news-articles/2016/08/government-warned-against-abandoning-school-sprinkler-guidance/

[8] https://www.abi.org.uk/news/news-articles/2016/07/compulsory-sprinklers-needed-for-warehouses/

[9] In 2007 four firefighters died in a warehouse fire in Atherstone, which is the most firefighters lost in a single incident in the UK since 7 firefighters died whilst fighting a fire at a warehouse in Glasgow in 1972

[10] BRE Global – An Environmental Impact and Cost Benefit Analysis for Fire Sprinklers in Warehouse Buildings, December 2013 (published Jan 2014)

10.5. In July 2016 the ABI wrote[11] to the Secretary of State for Communities and Local Government, Rt Hon Sajid Javid MP, to raise the industry's concerns about the fire safety regulations for commercial warehouses, schools and care homes. We recommended at the time, and it remains our view, that the Government must revise fire safety regulations to require all new commercial warehouses over 2,000m^2 to be fitted with sprinkler systems.

11. Evacuation and detection

11.1. As we have noted in this response, Building Regulations have traditionally been focussed on the requirement of 'evacuation before collapse'. However, for a range of reasons, stay-put evacuation policies are being used which, if not properly justified in terms of the building's compartmentation strategy and resilience to fire, could be more harmful than beneficial. A possible driver for the stay-put policy might additionally be the incredibly unreliable performance of automatic fire detection systems. Automatically generated fire alarm signals are 95% likely to be false [12](not stemming from fire or smoke – shower steam etc.) or unwanted (smoke based, but not something requiring a Fire and Rescue Service response (burnt toast or cigarette smoke). A stay-put policy might reduce the inconvenience associated with false and unwanted alarms, but does not alter the core issue of poor alarm performance. There are few areas of life-safety where there is such tolerance to poor supporting system performance.

11.2. High integrity fire alarms that have the ability to differentiate between real and false alarms are available. As a result, the ABI has commissioned the Fire Protection Association to develop a test specification to qualify this equipment, with the aim that if it is rolled out will lead to better Fire and Rescue response to real fires and quicker containment of fire spread. Subsequently it may then be possible to review the requirements for buildings intending to have stay-put policies. We will look to share the findings of this research with the review team, the public inquiry and any future Government reviews, when complete.

12. Roles and responsibilities in the fire safety of buildings

12.1. Insurers require buildings to be constructed in line with Building Regulations and health and safety legislation. However, insurance is not the primary mechanism to ensure that buildings are kept safe or to enforce compliance with all relevant building controls and regulations. The current regulations are too complicated for many of those who have a role in their application. The ABI recommends that as part of this review a detailed assessment of the roles and responsibilities of all those involved in the fire safety of a building is completed. This should include those involved in planning and design, procurement, construction, refurbishment and on-going management and

[11] https://www.abi.org.uk/globalassets/files/subject/public/home-insurance/abi-submission--dclg-housing-white-paper.pdf
[12] Reducing false fire alarms – a study of selected European Countries, Siemens 2014

maintenance of existing buildings. Clarity of responsibilities relating to fire safety, and how these interlink with the responsibilities of others involved from concept to completion, will help to avoid the potential for gaps in compliance with regulation.[13]

12.2. The current version of ADB, given that it was last reviewed in 2006, fails to recognise that a range of modern methods of construction are now an integral part of the build process. Previous inquiries into major fires, for example the Lakanal House Inquiry, have found that the document is too confusing and technical for many of those who have a role in ensuring compliance. 11 year old regulations do not reflect modern building methods and are too confusing for those who have to enforce them. This should be addressed urgently, through a review that makes responsibilities easier to understand, and which makes ADB more relevant to the modern build techniques that have developed in the last decade.

"11 year old regulations do not reflect modern building methods and are too confusing for those who have to enforce them."

13. Compliance and enforcement

13.1. Given the reliance on building regulations, the insurance industry requires greater reassurance that they deliver against their intended purpose. Confidence would be enhanced by more effective enforcement procedures, particularly at the local level, that are designed to ensure full compliance with building regulation requirements. The review should not just review ADB, but also consider whether sufficient resource exists for effective building control enforcement, to check that buildings are actually built to the appropriate standard. The number of fire safety inspectors has fallen by nearly two-thirds since 2010[14].

13.2. This shrinkage of Local Authority building control departments significantly reduces their ability to be rigorous in the monitoring and inspection of new or altered buildings. The lack of a robust compliance and enforcement process has the potential to undermine insurers' trust in the whole building control process. This has been most starkly brought to light by the cladding test failures from a range of existing building stock across England, post-Grenfell.

[13] The review may want to consider some of the fundamental changes that took place following the tragic events at Bradford FC in 1985 and Hillsborough stadium in 1989. The Taylor Report in 1990, set out recommendations for change to improve the safety of football stadia. The report resulted in the 'Government's Guide to Safety at Sports Ground' known as the 'Green Guide' being developed, which clearly sets out detailed guidance and individual chapters clarifying the responsibilities for stadium safety, from ground management and stewarding, technical specialists including engineers and architects and the relevant authorities involved. This had a significant impact on making football stadia more attractive risks for insurers at a time of significant concern for underwriters.

[14] Fire and Rescue Service Matters: Cuts to Fire Safety Inspectors Put the Public at Risk – Fire Brigades Unions, October 2017

13.3. The review should make recommendations for effective enforcement at all levels of fire safety, including design, implementation, supervision, control and authorisation, from both technical and legal perspectives. Given the cladding test failures, this should include the design/construction of external envelopes of buildings and the responsibilities of architects, engineers and manufacturers in overseeing the design and materials used in construction, particularly if this is delegated to contractors/sub-contractors. This should also consider the responsibilities of those involved in overseeing construction standards and workmanship on-site.

14. Competency

14.1. The Regulatory Reform (Fire Safety) Order (RRO) 2005 replaced previous fire safety legislation when it came into force in October 2006. It clearly assigned responsibility for fire safety to a 'Responsible Person'. By assigning responsibility to a single individual, (often the building owner or person or company in charge of the overall management of the building) accountability and responsibility is clearer. As the London Fire Brigade's independent review of the RRO[15] states, 'the levels of awareness of the RRO and its provisions among "responsible persons" under the RRO is not as high as it should be'. Throughout the regulatory framework the term 'Responsible Person' is used extensively without any associated reference to qualifications of what makes a person competent other than common phraseology in terms of 'training', 'experience' and 'other qualities'. A person's contribution may only be judged to have been 'competent' or 'incompetent' based on the outcome of a fire occurring and/or enforcement activity / prosecution – a reactive, rather than predictive, approach. This requires an overhaul.

14.2. Fire is thankfully a rare event, but as such can mask many 'incompetent' decisions for many years. Should exposure of systemic 'incompetency' be revealed following an event by an individual or organisation, the legacy problems could have substantial life-safety, societal, and property / business loss implications. It is imperative that there are robust and specific competency tests for all roles determined within the building regulations to qualify competent people with the appropriate standard and skills for the specified role. While the implications for this to improving life safety are obvious, it would also allow insurers to have a greater level of assurance that a building is fit for purpose with the appropriate fire protection measures and management.

15. Broadening understanding of the purpose of Building Regulations

15.1. The building regulations and associated ADB, are designed with the intention of ensuring that those occupying a building on fire, can safely evacuate it, prior to the structural integrity failing and it collapsing. It is our belief that this limited objective of

[15] Evaluation on the Effectiveness of the Regulatory Reform (Fire Safety) Order 2005, London Fire and Emergency Planning Authority, November 2015.

'evacuation before collapse' is not well understood by key industry sectors (Business, Public Services providers, homeowners and occupiers). This lack of understanding prevents those who are in a position to ask for more, from doing so, and leaves key resilience decisions to disengaged third parties (such as the architect, specifier[16], supplier or contractor) who do not benefit from improved decision making. This review must re-assess the intention of the building regulations to not just focus on life safety, but also improve property protection to ensure a resilient and sustainable built environment for the future. As part of this, an objective for the Government must be to commit to improving building owners and occupiers' awareness and understanding of the purpose of building regulations through simple, easy to understand, language and guidance.

"This review must re-assess the intention of the building regulations to not just focus on life safety, but also improve property protection to ensure a resilient and sustainable built environment for the future"

16. Broadening understanding of how the resilience of buildings is understood

16.1. A high proportion of building owners and those living in buildings do not understand the materials and construction methods used when building their property. This is particularly relevant with 'non-standard' builds, which are becoming increasingly common as modern methods of construction and innovation lead the way with new developments. The lack of understanding that the building regulations do not incorporate property protection within their remit, means that there is often an assumption with owners and tenants that properties are more resilient than they actually are. The building regulations promote 'sustainability' within new build properties, which can be incongruous with the fire protection of the same property. The increase in 'sustainable materials' such as timber frame, insulation and cladding, may provide a more 'energy efficient' property, but it may also mean that property is less resilient to fire.

16.2. The Government requires energy performance certificates when building, selling or renting a property, so individuals are able to assess buildings on this rating. However, there is a distinct lack of awareness of a building's overall fire resilience via the materials and methods used in construction. An individual may choose between two similar properties and use the energy rating as the deciding factor, with an inherent lack of awareness that the property could be less resilient in other ways, which they may only discover when it is too late. A scoring method for overall resilience that includes protection from fire, akin to the BREEAM sustainability scheme[17], would seem an

[16] A Specifier is anyone who makes or influences the decision to use a specific building product or service. Specifiers can include the architect, surveyors, engineers, contractors, interior designers, facilities managers, related professions and the client.
[17] Building Research Establishment Environmental Assessment Method - http://www.breeam.com/

appropriate method of redressing this balance and supporting those who would like to choose higher levels of property protection.

17. Fire engineering

17.1. ADB is a guidance document to assist those constructing and managing a building to comply with building regulations. However, compliance to building regulations can also be demonstrated by adopting 'fire engineered' solutions, where the fire risk can be calculated and offset by various other measures e.g. drop-down smoke curtains, sprinkler systems and fire shutters, which will aim to isolate and contain a fire in a certain area when detected. The review should consider very closely the role of fire engineers and make recommendations on where their techniques may contribute to undermining fire safety and property protection.

17.2. The discipline of fire engineering is a tool for the creation of modern complex buildings where some elements of building regulations, and associated approved documents, have not been developed to meet the design objective of the building. However, given the limited mandated objective of 'evacuation-before-collapse' this allows for buildings (and their modification) to be 'value-engineered' down to a level that can significantly reduce the overall resilience of the building to reduce costs. The increasing trend for value engineering is particularly worrying for insurers. Clarification is required on the extent of the fire engineer's brief, and their ability to alter the requirement of established standards upon which their designs depend. An example might be where an engineered solution relies on sprinklers, but the fire-engineer determines that the full demands of the standard for sprinklers are not required; such as water supply duration. A building which has been constructed or refurbished with the bare minimum fire protection measures is not an attractive risk for insurers to provide cover for, particularly when the likelihood of a fire reaching the Estimated Maximum Loss is considered high due to the lack of additional measures to protect the property from fire.

> *"A building which has been constructed or refurbished with the bare minimum fire protection measures is not an attractive risk for insurers to provide cover for"*

17.3. There is no official qualification to determine whether someone is a 'fire engineer'. As well as considering the role of fire engineering in the building control process, the review should make recommendations to ensure fire engineers are appropriately qualified to make decisions that are integral to the overall fire performance of a building.

18. Scheduled review periods

18.1. It has been over ten years since the last review of Building Regulations for fire safety, and as such ADB is not fit for the prescription of new building and refurbishment methods and materials that are used in current construction. It is imperative that there is cross-party consensus on developing a schedule for regular and comprehensive

review points in the future to keep pace with new technologies and modern construction. Discussions with international counterparts have found it incomprehensible that England has not reviewed the regulations for such a significant amount of time – Australia, for example has a scheduled detail review of their regulations every 3 years.

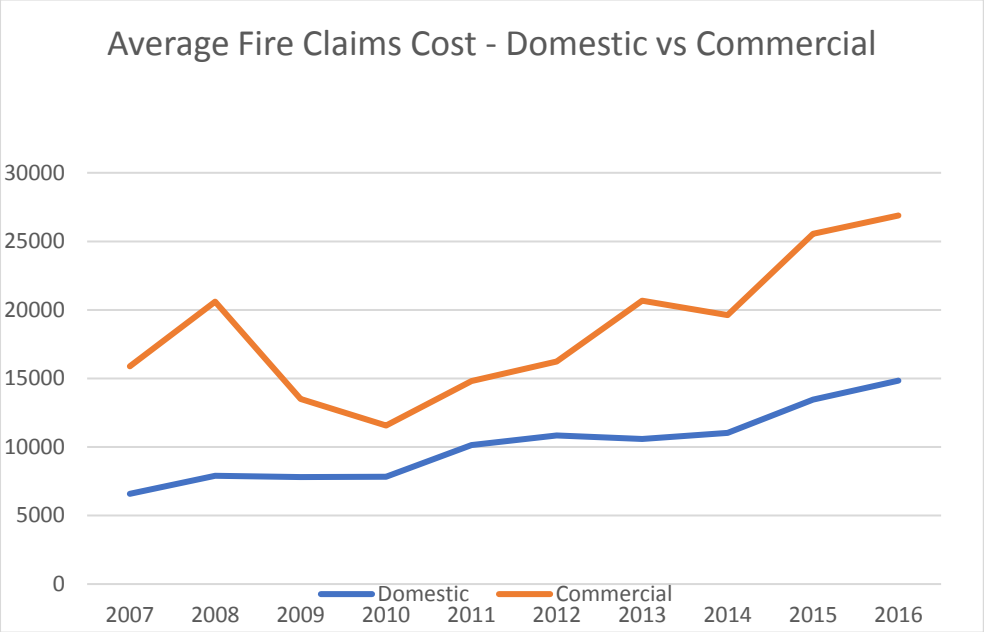
19. International comparisons

19.1. In the immediate aftermath of the Grenfell Tower fire, the Fire Protection Association undertook some research into European comparisons of building regulations. Despite predominant European Union membership of most respondents, there does not appear to be any conformity in terms of key aspects of safety in high rise premises. It would appear that, as with English building regulation and associated codes and standards, requirements have been developed over time to meet local needs and in response to significant events.

19.2. It is clear that the approaches taken in many countries are not only different, but also offer a higher degree of safety in almost all aspects, than those adopted by the English regulations. Annex B provides a summary of simple comparisons of some of the key aspects that should be considered during the independent review process. Annex C provides further technical detail on the specific rules and regulations and should be consulted for further information.

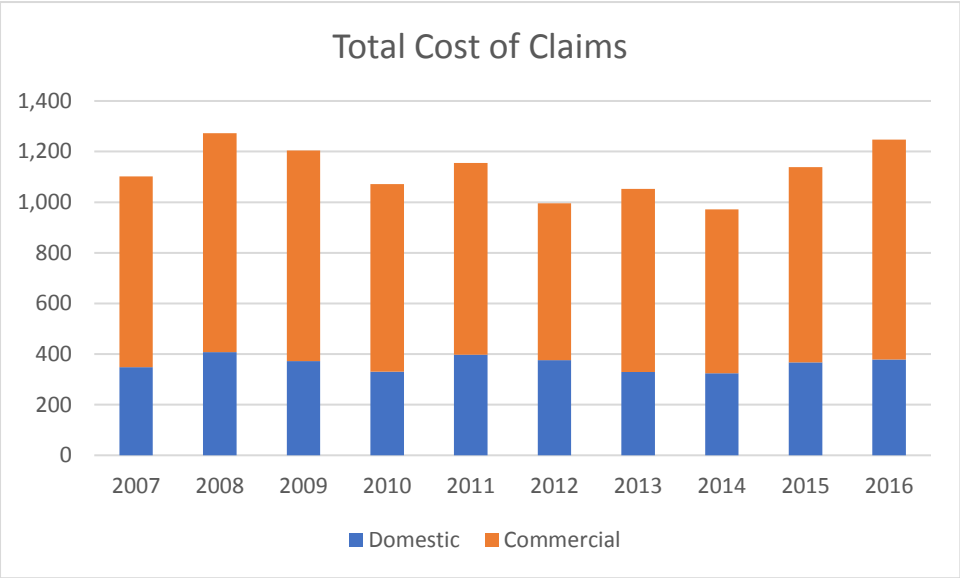
October 2017

Annex A - Fire statistics: Gross incurred claims and number of claims



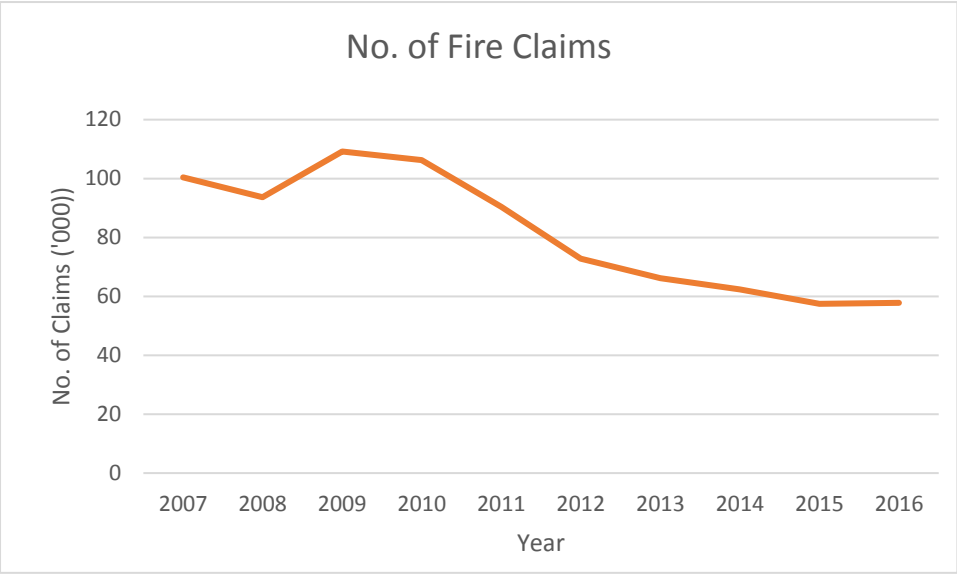
The average of both Domestic and Commercial Fire Claims have been on a generally upward trend for over 10 years (since ABI records began in 2004) increasing by 179.3% (domestic) and 237.1% (commercial) respectively.

NOMINAL AVERAGE CLAIM	COMMERCIAL	DOMESTIC
2004	£9,626	£4,402
2005	£15,572	£4,746
2006	£14,189	£5,545
2007	£15,891	£6,583
2008	£20,607	£7,900
2009	£13,512	£7,815
2010	£11,564	£7,840
2011	£14,812	£10,133
2012	£16,228	£10,847
2013	£20,670	£10,575
2014	£19,615	£11,032
2015	£25,544	£13,464
2016	£26,885	£14,840



The total cost of claims has remained relatively steady, with a continual increase in commercial claims. In 2016 the total commercial fire claims cost was at an all time high £869m) since records began.

GROSS CLAIMS INCURRED (£M)	COMMERCIAL	DOMESTIC	TOTAL
2004	486	326	**812**
2005	765	358	**1,123**
2006	744	394	**1,138**
2007	753	349	**1,102**
2008	865	408	**1,273**
2009	833	372	**1,204**
2010	741	331	**1,072**
2011	758	398	**1,156**
2012	619	376	**995**
2013	724	330	**1,053**
2014	647	324	**971**
2015	770	370	**1,139**
2016	869	379	**1,247**



The number of fire claims has reduced significantly, from 100,000 in 2007 to 58,000 in 2016.

NUMBER OF CLAIMS (000S)	COMMERCIAL	DOMESTIC	TOTAL
2004	50	74	**125**
2005	49	75	**125**
2006	52	71	**123**
2007	47	53	**100**
2008	42	52	**94**
2009	62	48	**109**
2010	64	42	**106**
2011	51	39	**90**
2012	38	35	**73**
2013	35	31	**66**
2014	33	29	**62**
2015	30	27	**58**
2016	32	26	**58**

Annex B – International comparisons of key aspects of building regulations

Note:
Comparisons include Euroclass classification as specified in the bottom table of Annex C.

Maximum un-sprinklered compartment sizes

- England - the maximum un-sprinklered compartment sizes (dependent upon occupancy) may be up to 20,000m^2.
- Sweden - there are limitations (in large buildings) which are dependent on fire load and level of protection from 1250m^2 to 5000m^2.
- Germany - in high-rise buildings that are used as office and hotel accommodation, an automatic fire suppression system, especially sprinkler, is required to prevent the fire spread on the floor and between the floors for a sufficiently long time. The only exception is in high-rise buildings up to a height of 60m and with use units (compartments) up to 200m² that are separated by fire resistant construction (to 90 minutes), despite other conditions.
- Spain - every building higher than 80m has to be fully sprinklered, regardless of occupancy type. In the specific case of residential public premises, the requirement is more restrictive: every building higher than 28m or larger than 5000m^2 constructed area has to be sprinklered. The maximum size of a fire compartment in residential use (public or private) is 2500m^2. Where the compartment is provided with sprinkler protection, this size can be duplicated (NB presume this means doubled).
- Scotland – sprinklers are required in domestic buildings taller than 18m whereas in England the bar is set at domestic premises over 30m in height
- Norway – requires sprinklers in new apartment buildings, hotels, care homes and hospitals

Requirements for the construction of external walls

- England – requirements depend on the height of the premises.
- Spain - to prevent vertical spread between floors external walls must be at least EI60 (fire resistance integrity and insulation of minimum 60 minutes) in a strip of at least 1m height sited centrally at each compartment floor.
- Austria - for buildings with a fire escape level of no more than 32m and where firefighting from outside the building is possible the external wall at each floor level has to consist of a vertical band of 1.2m and has to fulfil the requirement for E190 (fire resistance integrity and insulation of minimum 90 minutes) and A2. If firefighting from outside the building is not possible, and the external wall does not fulfil the above requirements, sprinkler protection is required to prevent vertical fire spread. For buildings with a fire escape level exceeding 32m there are no specific requirements for the performance of the external walls, however, sprinklers must be installed.
- Germany - load bearing walls must be fire resistant (30 – 90 minutes) and non-combustible; non-load bearing walls must be non-combustible.

Cladding Materials

- England - combustible materials (or materials of limited combustibility) may be used on buildings with no floor higher than 18m above ground.
- Denmark - combustible insulation is not permitted on residential premises higher than 22m (Definition: Regulation in building Code for high rise residential buildings in Denmark is from 22m and up to 45m. Above 45m individual Fire strategy must be worked out).
- Spain - reaction to fire rating of the external cladding must be minimum (B-s3,d2) for every material that represents more than the 10% of the total area of the facade in buildings higher than 18m.
- Sweden - exterior walls are designed so as to ensure (1) separation function is maintained; (2) spread inside wall is limited (exterior walls must only contain materials of minimum class A2-s1, d0); (3) risk of fire spread along façade is limited (Class A2-s1, d0 or lesser standard (at least D-s2, d2) where building is maximum 2 storeys in height, OR cladding only covers ground floor; OR building is a maximum of 8 storeys high and material covers limited part of facade OR building is a maximum of 8 storeys, is fitted with sprinklers and ground floor designed of materials meeting A2-s1, d0).

Requirements where multi storey residential accommodation have a 'stay-put' evacuation policy

- England - 'compartment walls' separating flats from any other part of the building have a fire resilience of 60 minutes or as follows, whichever is less: - <5m high 30 minutes; <18m 60 minutes; <30m 90 minutes; >30m 120 minutes (must be sprinklered)
- France – compartments must have 120 minute fire resilience for loadbearing, integrity and insulation properties
- Austria - stairways and corridors must be equipped with a pressure ventilation system.

Requirements for the provision of automatic fire detection in stairways, corridors and individual residencies

- England - where effective standards of compartmentation between flats cannot be confirmed a 'stay put' policy cannot be adopted and therefore a common areas detection system is likely to be considered necessary.
- Germany - high-rise buildings must have alarm and loudspeaker systems, which can be used to alert persons and give instructions in case of danger.
- France – compulsory in common and private corridors