

# **Publishable summary**

**October 2023 – September 2024**

## **Real fires project**

**CPD/004/122/039**

**Prepared for the Building Safety Regulator**

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# Quality Management

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# 1. Annual report – publishable summary

## 1.1. What is the contract and how does it operate

The ‘Real Fires’ project is conducted on behalf of the Building Safety Regulator (BSR) for the purposes of informing positions on the effectiveness of the Building Regulations and associated guidance in England. The information collected is focused on building performance; its analysis includes discussion and conjecture which may not be directly relevant to all applications. This summary is provided for the purpose of learning and development.

Incidents are identified through media reports, contact from local fire and rescue services, or other government organisations. Therefore, recorded fires are selective, subject to reporting bias, and based on interest to the Building Regulations. The information and statistics should not be taken to provide a balanced or comprehensive list of all fire incidents.

OFR Consultants (the Supplier), in collaboration with DCCH Experts LLP, were engaged by the BSR (the Client) to deliver the ‘Real Fires’ project in support of fire safety technical policy, which commenced on 22<sup>nd</sup> of October 2021, and ran for three years, until September 2024. The collaborators will be referred to as ‘the investigators’ throughout this summary.

In addition to the reporting and investigation of real fire incidents, recommendations from substantive research projects delivered from the dedicated funding component of the Real Fires project are reported in Section 4. This report reflects the status of ongoing research at the end of the reporting period. Much of this research has progressed in the subsequent year. Results of this research are published separately.

The views and opinions expressed in this report are those of the investigators and do not necessarily reflect the official position, policies, or views of the BSR.

## 1.2. What incidents are recorded and investigated

Incidents are recorded in three different categories, according to features of interest to the contract, and are considered against predetermined criteria defined by the contract:

**Category 3:** Includes incidents happening in England that report minor damage to buildings, do not report injuries or loss of life outside the dwelling of fire origin, incidents in building types not addressed by Approved Document B – e.g. prisons, involve vehicle fires that had an impact on nearby buildings, involve temporary buildings/caravans/derelect buildings/buildings under construction, deliberate fire ignition, and incidents that are reported overseas. These are regarded as incidents of low priority and are not the primary focus of the project but serve to inform trends.

**Category 2 and Category 1:** Incidents that meet one or more of the following parameters will typically be escalated to either Category 2 or Category 1 incidents; these are higher priority incidents, either necessitating a follow-up (typically via telephone and/or email correspondence) with the local fire and rescue service (Category 2) or attendance on site (Category 1). The parameters dictating this escalation are:

- fatal fire incidents with multiple fatalities in dwellings;
- fatal fire incidents in non-domestic premises;
- particular difficulties with fire brigade intervention;
- any incident that meets the description of fire of specific interest as described in the Department for Levelling Up, Housing and Communities (DLUHC – the original procuring department of the contract) statement of requirements;
- all fires relevant to the Building Regulations and/or Approved Document B (ADB);
- fire incidents involving ‘fire engineered’ buildings;
- fires with significant implications regarding the Fire Safety Order (FSO) and/or interactions with the Building Regulations and the FSO; and
- fires of national importance.

Over the course of this annual reporting period (1<sup>st</sup> October 2023 to 30<sup>th</sup> September 2024) the investigators have recorded 175 fire incidents. Of these, they were comprised of the following breakdown of investigation category:

- Category 1 – 1 incident;
- Category 2 – 15 incidents; and
- Category 3 – 159 incidents.

In the reporting period, only one incident was investigated as Category 1. The investigators were able to have initial discussions with the responding fire and rescue service, but a visit to the scene could not be facilitated in an official capacity. An investigator made an independent site visit as a member of the public to observe the scene post incident.

As a reflection of the building type which typically records the highest number of fire incidents each year, fire incidents in residential dwellings reflected the purpose group that was the most commonly the subject of Category 2 incident investigations, in particular residential flats.

Listed below are the incidents that were followed up as Category 1 and Category 2 investigations. To aid interpretation of the incidents listed below, buildings with a habitable floor up to 18 m above the fire and rescue service access level are described as low-rise, 18 m – 30 m above the fire and rescue service access

level are described as medium-rise, and +30 m above the fire and rescue service access level are described as high-rise. The reader should note that at the end of August 2024 the investigators were directed by the BSR not to make follow-up enquiries with respect to incidents involving existing buildings defined as higher-risk buildings (HRB) by the Building Safety Act 2022 [1]. i.e. buildings with at least two residential units which are at least 18 metres in height or have at least 7 storeys. The Investigators were informed that any such incidents would be subject to investigation by the BSR. This means, that any incidents in residential buildings that meet the criteria for a HRB have not been investigated.

The Category 1 and Category 2 investigations that the consortium has conducted in this reporting period for the BSR are:

**Category 1 Incidents:**

- Car Park fire - Bedfordshire.

**Category 2 Incidents:**

- High-rise office building under construction – Berkshire;
- Semi-detached residential dwelling – Avon;
- Fire in a low-rise hostel – Dorset;
- Fire in a medium-rise residential building – Greater London;
- Multi fatality fire in a high-rise residential building – Spain;
- Fire in a low-rise residential building – Greater London;
- Fire in low-rise industrial buildings – Hampshire;
- Fire in a low-rise residential building – Greater London;
- Fire in low-rise industrial buildings – Essex;
- Fire in a high-rise residential building – Greater London;
- Multi fatality dwelling fire – Greater London;
- Terraced dwelling fire – Greater London;
- Balcony fire in a high-rise, residential building – Greater London;
- Fire in a medium-rise residential building – Berkshire; and
- Fire in a medium-rise residential building undergoing façade remediation – Greater London.

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1 The Building Safety Act 2022. <https://www.legislation.gov.uk/ukpga/2022/30>

## 2. Items identified to the investigators for monitoring by the BSR

This section provides a place for reporting, comment and update on fire safety aspects that have been identified to the investigators by the BSR as being of interest to them and items that the investigators consider should be of interest to the BSR as emerging hazards. The BSR has asked the investigators to look out for and consider the contribution of the fire safety aspects listed within Table 1, should they feature in any of the incidents identified in the reporting period. Item 7 has been identified and added to Table 1 following a review of items following the 2021/2022 reporting period.

*Table 1 – Items of interest*

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
1	Plastic based landscaping and building products	The BSR (DLUHC at the time) brought to the investigator's attention a previous incident (April 2021) that was reported in BRE's final quarterly report (Reporting period 1 <sup>st</sup> April – 30 <sup>th</sup> June 2021. Report dated October 2021). The incident involved the ignition of an extensive run of fence panels reported to have been manufactured from recycled plastic. As the panels became involved, the fire spread rapidly horizontally and developed to a significant size leading to several adjoining properties being affected by the fire that spread from outside to in.	B3 to B5	<p>From the incidents reviewed by the investigators and historically by the previous operators of the Real Fires project, the hazards associated with these incidents reviewed are:</p> <ul style="list-style-type: none"> <li>- Potential for rapid horizontal fire spread;</li> <li>- The vulnerability of the eaves of a property to thermal assault from external fire spread;</li> <li>- The potential for multiple properties to be affected either in a short period or simultaneously; and</li> <li>- The operational demands for the responding fire and rescue service of multiple properties being threatened</li> </ul>	<p>Beyond the incident identified in the previous year's report, the investigators identified no further incidents directly attributed to these types of products.</p> <p><b>The investigators will continue to monitor and report on any future incidents for any characteristics of interest.</b></p>

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
				by the fire spreading or affected simultaneously where they may not typically have been expected to.	
2	Laminated glass	A fire in a mixed-use high-rise building (investigated as a Category 1 incident in 2022) provided valuable insight into the performance of laminated glass in fire with relevance to balcony balustrades. It is likely the laminate material present in the glass was polyvinyl butyral (PVB), as this has been the most common material used for this type of application. Although the thermal effects of the fire could be considered to be relatively severe, it appears the laminated glass performed as might be expected: the glass shattered but held in place; areas of the laminate burned and/or melted but did not promote fire spread beyond a localised area; the presence of a channel to mount the glass may have mitigated any dripping of laminate to lower levels.	B3 and B4	Following the fire at Grenfell Tower the Building Regulations in England were changed to address fire spread over external walls of high-rise residential buildings. These changes resulted in there being an effective ban on the use of then existing laminated glass products available for balcony balustrades in relevant buildings. The BSR are interested in fires in which laminated glass is present to assess whether this product contributes to the spread of fire. Spread mechanisms may include upward development via flame extension and/or downward spread through the dripping of burning laminate.	<p>Beyond the incident identified in the previous year's report, the investigators identified one further incident that involved what appeared to be a laminated glass balustrade to a balcony of a high rise residential building in Greater London.</p> <p>At the time of writing, a separate research project on the fire performance of balconies, spandrels and laminated glass on behalf of BSR has now concluded.</p> <p><b>The investigators will continue to monitor and report on any future incidents for any characteristics of interest.</b></p>

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
3	Retrospective installation of spray foam roof insulants	<p>The BSR (DLUHC at the time) have identified a trend of retrofitting dwellinghouses with spray applied roof insulation. Whilst potentially not building work in the context of the regulations, there is a concern that such products may worsen the fire performance of roofs, specifically with respect to Regulation B4(2).</p> <p>No previous incidents have been identified that have involved the retrofitting of spray foam insulation.</p> <p>NB: This topic is subject to a research project that has been reported on separately.</p>	B3 and B4	<p>The BSR relayed their observations that suppliers in industry were incentivising the use of retrofitted spray applied closed- and open-cell polymeric insulation to roof spaces, with the intent of improving thermal performance. As a retrofit, such works may be undertaken without needing to seek Building Regulations approval, as such activities may not constitute 'building work'. However, there is a concern that such a retrofit could constitute a worsening of the existing fire safety performance. This could be due to a change in the penetration performance of the roof (from outside-to-in) or through the introduction of additional (permanent) fire loading in the roof space.</p>	<p>No incidents directly attributed to these types of products were identified.</p> <p><b>The investigators will continue to monitor and report on any future incidents for any characteristics of interest.</b></p>
4	Industrial and storage buildings	<p>The BSR (DLUHC at the time) have a research stream focussed on fire resistance and compartmentation, led by BRE.</p> <p>Industrial buildings can often sit at, or sometimes beyond, the compart-</p>	B3 and B5	<p>The observation that most of the incidents effectively resulted in a total loss of the premises is not unexpected. The reasons for the extent of the losses observed are considered to be a reality of the</p>	<p>Twenty incidents have been recorded in industrial and storage buildings in the reporting period of which two were investigated as Category 2.</p>

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		<p>ment limit recommendations in ADB, where multiple storeys are present. However, from what the Real fires project investigators can deduce from the information available, none of the incidents exhibited unusual characteristics for single storey premises with respect to fire behaviour or building design. Most of the incidents effectively resulted in a total loss of the premises.</p> <p>The current guidance in Approved Document B places no compartment size limits on single storey buildings considered to be of the 'industrial' purpose group, but single storey buildings considered to be of the 'storage' purpose group are recommended to be compartmented when the floor area exceeds 20,000 m<sup>2</sup>.</p> <p>Storage buildings also have similar spatial and structural features to industrial buildings and any incidents identified have been grouped under this item also.</p>		<p>guidance in ADB on building subdivision for such uses and the general adoption of simultaneous evacuation strategies continuing to achieve life safety objectives.</p> <p>Approved Document B does not address property protection objectives directly and fire and rescue service intervention is often challenging due to:</p> <ul style="list-style-type: none"> <li>- The potential for the seat of the fire to be remote from the building perimeter;</li> <li>- The potential for there to be multiple mezzanine or storage levels within a so called 'single storey building'. This can increase the complexity of the design, potentially impacting the scale of any loss and affect the ability of the responding fire and rescue service to offensively fight a fire.</li> <li>- The use of any hardstanding around such premises for storage of materials and products that impairs fire</li> </ul>	<p><b>The investigators will continue to monitor and report on any future incidents for any characteristics of interest.</b></p>

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
				<p>and rescue service access; and</p> <ul style="list-style-type: none"> <li>- The general absence of 'persons reported' scenarios in such incidents means that the motivation for the responding fire and rescue service to commit to entering such premises is diminished, with their focus often on containment to the building of origin.</li> </ul>	
5	Lithium based battery incidents	<p>The BSR (DLUHC at the time) have identified lithium-based batteries as a potential hazard to buildings occupants and the responding fire and rescue service. The investigators have recorded several fires that involve rechargeable lithium-based batteries in the reporting period which reflect an emerging trend in the increase of incidents as the number of appliances using lithium-based batteries increases. Nowadays many consumer items contain lithium-based batteries.</p> <p>Incidents where a lithium-based battery has been attributed as the cause of the fire are often</p>	B1, B3 and B5	<p>From the incidents reviewed by the investigators, the hazards associated are:</p> <ul style="list-style-type: none"> <li>- The failure of a lithium-based battery is often a rapid and potentially a violent exothermic event that can result in the rapid deterioration of conditions in the vicinity of the battery that has failed;</li> <li>- Lithium-based battery power devices such as e-scooters are typically stored in the entrance hall of dwellings or common areas in residential buildings. This presents the</li> </ul>	<p>Forty-four incidents have been recorded in the reporting period where the cause of the fire was attributed to lithium-based batteries (including incidents attributed to batteries associated with e-bikes and e-scooters). Out of these, two incidents were escalated to Category 2 for further investigation.</p> <p><b>The investigators will continue to monitor and report on any future incidents for any characteristics of interest.</b></p>

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
		<p>characterised by the sudden, rapid and energetic discharge of hot, toxic and flammable gases. These can ignite, resulting in a flame projecting from the battery pack or the rapid failure of the pack where components of the battery pack may be ejected, potentially aiding the spread of the fire.</p> <p>The rapid development of such incidents often results in occupants requiring assistance to leave a property or indeed rescue where their means of escape is rapidly obstructed by the resulting fire.</p> <p>Although fires involving these items is not currently explicitly addressed by the Building Regulations, or the guidance in the two volumes of ADB, there is considerable debate across the industry relating to the parking of alternative fuel vehicles (lithium-based battery based electric vehicles, hydrogen fuel cells, etc...) in locations in the vicinity of buildings. Various stakeholders are producing guidance and standards related to this aspect reliant on varying levels of scientific rigor. Where there may be more</p>		<p>potential for a rapidly developing fire to immediately affect what is often the most familiar and only means of escape for occupants;</p> <ul style="list-style-type: none"> <li>- Some incidents have involved the lithium-based battery device being charged in a communal area of flat type accommodation. In the event of a battery failure, this results in the common area being directly affected by the fire and combustion products; and</li> <li>- The less predictable fire behaviour of lithium-based batteries can be a hazard to occupants and the responding fire and rescue service, both if the fire originated in a lithium-based battery or has spread to involve a piece of equipment that uses a lithium-based battery.</li> </ul> <p>With the increased use of lithium-based batteries, it is predictable</p>	

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		<p>impact on regulation and building design is the proposal to include battery based (including lithium-based batteries) energy storage systems into buildings. An example is the use of a battery pack connected to a solar energy recovery system.</p> <p>The investigators are aware that the Office for Product and Safety Standards (OPSS) are acting in response to lithium-based batteries and accessories from a product standards enforcement perspective.</p>		<p>that more fires are being observed in which they are involved. At this stage it is difficult to ascertain whether their involvement is disproportionate to the number of batteries in service, or whether the media has a focus on reporting these fires.</p>	
6	External fires spreading to dwellings	<p>The investigators have noted several incidents where a fire has started externally within the grounds of a property, whether it be in vegetation surrounding a dwelling or in an outbuilding, that by virtue of it not being permanently occupied, heated, or being under 30 m<sup>2</sup> would not require Building Regulation approval. Unless contained to the external area, these incidents can involve the spread of fire to multiple buildings and rapid external fire spread in the open. The investigators have also recorded one fire event in the Southeast of England (2022) that was</p>	B3, B4, and B5	<p>This item has been observed to be characterised by a fire that is reported to have originated externally that has gone on to spread to involve multiple adjacent dwellings, often simultaneously.</p> <p>The propensity for this type of fire to occur was seemingly exacerbated by the record high temperatures witnessed in mid July 2022, combined with limited rainfall. This indicates that the potential for such incidents will depend on weather patterns, but</p>	<p>Four incidents were recorded in the reporting period where a fire started externally and spread to involve a dwelling. This year has seen fewer incidents that the investigators attribute to the generally wetter and less hot conditions than the summer of 2022.</p> <p><b>The investigators will continue to monitor and report on any future incidents for any characteristics of interest.</b></p>

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
		<p>described as a fire in the open that started in low level vegetation, crossing the rural-urban interface, resulting in multiple properties being fire affected in a short period of time. The fire seemingly bypassed the space separation and compartmentation provisions that would be considered the primary ADB mitigation measures against building-to-building fire spread. It is of note that a number of these types of incidents are originating and developing in proximity to permanent buildings in a suburban or urban setting and are not happening exclusively because of a rural fire crossing the rural-urban interface.</p> <p>Based on qualitative observation, the investigators consider the prevalence of home offices and lightweight structures erected by homeowners for people to meet externally during the pandemic may have led to proliferation of combustible structures being erected in domestic gardens. This serves to increase the fire load and ignition sources external to a property. This has resulted in</p>		<p>the general trend of a warming climate and reduced summer rainfall will increase the likelihood of similar incidents.</p> <p>These incidents highlight how:</p> <ul style="list-style-type: none"> <li>- As outbuildings and denser vegetation tend to be positioned in proximity to a property boundary, their involvement in a fire can also place them close to similar features on neighbouring land, and in proximity to adjoining dwellings.</li> <li>- A fire starting externally in the grounds of a dwelling, can develop to an extent that it can break into the dwelling, e.g., via openings in the external wall, such as by open windows, soffit vents and timber in the eaves and soffits of roofs;</li> <li>- With sufficient fire load and (un)favourable weather, an external fire can overcome the mitigation measures recommended by both volumes of ADB, that</li> </ul>	

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
		incidents in most parts of England where a fire originating externally has spread to several dwellings simultaneously.		<p>generally serve to mitigate building to building fire spread across a relevant boundary; and</p> <ul style="list-style-type: none"> <li>- Responding fire and rescue services can be faced with the challenge of an extensive seat of fire externally, that can move rapidly if uncontained and affect multiple properties (both attached and detached structures).</li> </ul>	
7	Exposure conditions to internal and external load-bearing walls	Both a CROSS-UK report (1116) on the topic of light-gauge-steel walls and the investigators' observations from past incidents, (two residential building fires in Greater London in 2022 and 2023 respectively) highlighted a potential incompatibility between the exposure condition adopted in classification testing, how that exposure is represented in ADB, and the reality of how a load-bearing wall may present in a building.	B3	<p>In the case of internal load-bearing walls, these may be non-separating elements, such as those dividing rooms within a flat. These could conceivably become exposed to fire on two-sides simultaneously, with ADB guidance noting that these need only demonstrate fire resistance from each side separately.</p> <p>In the case of external walls, ambiguity exists as to whether external walls form part of the structural frame, a load-bearing wall, an external wall, or all such</p>	<p>Beyond the incidents identified in the previous year's reports, the investigators identified no further incident that exposed the incompatibility between the exposure conditions adopted in the classification testing and how that exposure is represented in ADB.</p> <p>The BSR has commissioned OFR to conduct research into the matter that is structured into the three work packages. The first work package (WP1) concluded in July 2023. The two remaining</p>

Item	Fire safety aspect	Summary of incident(s) involving the item	Building regulation requirement	Hazards associated with the item	Prevalence of item in the reporting period
				<p>definitions. This means guidance for external walls can be interpreted from one extreme of fire resistance from 'inside only' through to another of 'each exposed face'. Evidence from real fires, such a fire affecting a low-rises residential building in Greater London, suggests that buildings are being constructed where external walls only achieve fire resistance from inside to out. These are then affixed with non-fire-resisting cladding and cavity barriers to openings. Such structures are, therefore, vulnerable to fires originating outside of the envelope, such as on balconies, or those that project from openings and impinge on the façade.</p>	<p>work packages (WP2a and WP2b) are anticipated to conclude in October 2024.</p> <p>The findings from WP2a were presented at the 13<sup>th</sup> International Conference on Structures in Fire - Experimental study of the loadbearing performance of light gauge steel frame (LSF) walls exposed to fire on two sides</p> <p>The Paper presented at the conference is available via Research Gate:  <a href="https://www.researchgate.net/publication/381561600_Experimental_study_of_the_loadbearing_performance_of_light_gauge_steel_frame_LSF_walls_exposed_to_fire_on_two_sides">https://www.researchgate.net/publication/381561600_Experimental_study_of_the_loadbearing_performance_of_light_gauge_steel_frame_LSF_walls_exposed_to_fire_on_two_sides</a></p> <p><b>The investigators will continue to monitor and report on any future incidents for any characteristics of interest.</b></p>

### 3. Recommendations to BSR from fire incidents

Table 2 sets out the recommendation made by the investigators to the BSR from analysing the incidents that occurred in the reporting period. The recommendation is presented in the purpose group within which the incident occurred.

This should not be taken to mean that the recommendation only relates to that purpose group. Judgement will need to be exercised by the reader as to the full extent to which the recommendation may apply to other purpose groups. Actors within the industry should be aware of the matters raised and consider how they affect the design, operation, management of buildings under their control, and fire and rescue service response.

*Table 2 – Recommendations made to the BSR*

Item	Building regulation requirement	Issue/Observation	Recommendation
<b>Purpose Group(s): Storage and other non-residential 7(b)</b>			
1	B3(1)	The collapse of a multi-storey car park raises questions as to the appropriateness of ADB guidance for open-sided car parks. Evidence suggests that the affected car park achieved more than the min 15 min fire resistance expected of an open-sided car park, yet structural collapse still occurred causing extensive losses and disruption. It is speculated that this event could have been more significant had the guidance in ADB been followed and further reductions in structural fire resistance adopted.	The investigators recommended that research should be commissioned to review the ADB fire resistance recommendations for open-sided car parks.

## 4.Recommendations to BSR from commissioned research

The completion of several research projects in the reporting period has resulted in recommendations for technical policy and guidance. These are summarised in Table 3.

*Table 3 – Recommendations arising from research projects*

Item	Building Regulation Requirement	Issue/Observation	Recommendation
1	B4	Generalisation of timber cladding performance according to thickness when adopted as an external wall cladding.	At the end of the reporting period, the investigators recommended that footnote (3) to Table 12.1 of ADB should be removed, leaving the external surface classifications presented only in terms of Euroclasses.
2	B4	The Test 4 method in BS EN 13501-5 potentially presents challenges in terms of mitigating fire spread across a boundary or over compartment walls. This is because the provisions in ADB focus on the “roof covering”, yet the test method applies to a broader system; and the test provides no quantitative measure of penetration. Thus, the inclusion of thick combustible insulation can give the perception of improved fire performance.	At the end of the reporting period, the investigators recommended that further research is warranted to consider: (a) the relationship between ADB provisions for “roof coverings” and tested systems; and (b) if refinement of the Test 4 method is necessary to include quantitative indicators of penetration, particularly where thick layers of charring insulation may be used.
3	B3	Instances in a building can exist where load-bearing walls are exposed to fire on two sides simultaneously, e.g. external walls with flames emerging from openings or non-separating structural walls. Tests have shown this can substantially reduce the fire resistance achieved for lightweight framing systems compared to single sided exposure. ADB guidance is ambiguous regarding the exposure conditions of such walls, referencing test data for exposure that is either internal only or each side separately.	At the end of the reporting period, the investigators recommended that Table B3 should be modified to make clear that walls should be designed for the exposure they are likely to experience. This could be via a modification to entry 1, removing emphasis on the “structural frame, beam or column” and moving towards “structural elements” Subsequently, entry 2 could be removed. Entry 5 could be rationalised to remove any emphasis on the load-bearing criterion.

## 5. General observations from incidents recorded and investigated in the reporting period

As well as matters that may be of direct relevance to the Building Regulations and the guidance within the two volumes of ADB, the investigation of incidents also highlighted to the investigators aspects of fire safety that are not the primary interest of the project as they are not currently matters directly addressed via the Building Regulations and statutory guidance, but nonetheless, are considered noteworthy.

This section reports on observations that those tasked with managing fire safety in existing buildings, those involved in building design, fire and rescue services, other first responder agencies, residents and fire safety practitioners may find of value and interest. These are set out in Table 4. There is no inference that observations on matters that are considered to be outside the scope of the Building Regulations and/or statutory guidance have been investigated in totality, nor if adopted would be applicable to all situations. Sound professional judgement should still be applied as to the relevance of any of the observations and associated recommendations reported in this section.

*Table 4 – Recommendations from general observations*

Item	Issue/Observation	Recommendation
1	A multi-fatality fire in a high-rise residential building in Spain has indicated that a solar shading device can seemingly present a credible fuel source that can contribute fire spread when formed of materials that appear to have a low reaction fire classification. This may present a hazard where installed on existing buildings prior to the specific guidance provided in more recent versions of Approved Document B.	At the end of the reporting period, the investigators recommended that the hazard of the components of solar shading devices that provide shade or deflect sunlight is highlighted in guidance relating to existing buildings. This could be via the BSR collaborating on how this matter is addressed in the guidance on purpose-built blocks of flats currently under review by the Home Office. See <a href="http://www.gov.uk/government/publications/fire-safety-in-purpose-built-blocks-of-flats">www.gov.uk/government/publications/fire-safety-in-purpose-built-blocks-of-flats</a>
2	A fire occurred in a single stair, low-rise residential building in Greater London that appeared to be exacerbated by the apparent absence of a door closer (also matters related to Item 3 below), that gave rise to the flat entrance door being left wide open when it ought to have swung back into a closed or nearly closed position which would have mitigated the spread of fire and smoke into the stair. For new buildings or buildings undergoing	Not a specific recommendation for the Building Regulations or the Approved Documents, but at the end of the reporting period, the investigators recommended that greater use of self-closing devices, particularly where flat entrance doors open onto a single means of escape in existing buildings is promoted. This could be via the BSR collaborating on how this matter is addressed in the guidance on purpose-built blocks of flats currently under

Item	Issue/Observation	Recommendation
	building work, the Current guidance in ADB recommends that all doorsets, including flat entrance doors should be fitted with self-closing devices.	review by the Home Office. See <a href="http://www.gov.uk/government/publications/fire-safety-in-purpose-built-blocks-of-flats">www.gov.uk/government/publications/fire-safety-in-purpose-built-blocks-of-flats</a>
3	A fire occurred in a single stair, low-rise residential building in Greater London that appeared to be exacerbated by the well-intentioned actions taken by emergency responders and other personnel.	The investigators draw attention back to a recommendation in 2021/2022, that guidance and training should be given on the actions that emergency responders ought to take to avoid compromising compartmentation, particularly around preserving means of escape.
4	Multiple incidents continue to be recorded where a fire is attributed to a Lithium based battery failure. The circumstances of the occurrence are not always known, but their conclusion is often the rapid ejection of heat and smoke that can render the vicinity of the failure impassable to occupants who may wish to escape.	At the end of the reporting period, the investigators recommended that the hazard of lithium-based batteries is elevated from an emerging hazard to a watching brief status.  Although not clearly a specific recommendation for the Building Regulations or the Approved Documents; The investigators recommend that the hazard of lithium-based battery powered equipment in existing buildings is promoted. This could be via the BSR collaborating on how this matter is addressed in the guidance on purpose-built blocks of flats currently under review by the Home Office. See <a href="http://www.gov.uk/government/publications/fire-safety-in-purpose-built-blocks-of-flats">www.gov.uk/government/publications/fire-safety-in-purpose-built-blocks-of-flats</a>