EXTERNAL FAÇADE REVIEW
MALTINGS CLOSE

GNP Structural Surveys

Carried out by

TRI FIRE

CONSULTANTS - FIRE ENGINEERS - SURVEYORS

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1 Summary & Recommendations

Tri Fire Ltd was commissioned by GNP Structural Surveys to visit Maltings Close to undertake an external façade review and production of an EWS1 form. We visited the premises on 4th November 2021.

Tri Fire Ltd have produced this report based on the intrusive investigations undertaken by GNP Structural Survey as well as our own site visit and visual survey. We have also been provided with the "Fire Safety Review of External Walls and Attachments" report that was completed by International Fire Consultants Limited.

We have produced this report based on intrusive investigations undertaken by Harris Associates and an attending contractor, as well as our own site visit and visual survey. We have also been provided the "EWS Review" report completed by Orsa 16th July 2021.

The aim of the report is to provide a holistic fire safety review of the property, in line with the consolidated guidance 'Advice for Building Owners of Multi-storey, Multi-occupied Residential Buildings' issued by Ministry of Housing, Communities and Local Government (MHCLG) in January 2020.

Our overall view is that the collective effect of the fire safety measures on the site considered holistically, as opposed to each measure in isolation, is that the external wall systems that are present have a detrimental impact on the overall fire safety of the building. The exterior of the development at this time does not comply with the consolidated guidance 'Advice for Building Owners of Multi-storey, Multi-occupied Residential Buildings' issued by Ministry of Housing, Communities and Local Government (MHCLG) in January 2020.

The development is split into 4 separate blocks:

- 1-44 Maltings Close – Block A
- 45-102 Maltings Close – Block B
- 103-158 Maltings Close – Block C
- 159-215 Maltings Close – Block D

Our current RICS EWS1 form rating for the development is B2, meaning:
B2 - I have concluded that an adequate standard of safety is not achieved, and I have identified to the client organisation the remedial and interim measures required
Option B is for buildings where combustible materials are present in the external wall

Façade type 1 – Render

The render is the main cladding type for all 4 blocks on the development. The render is in place over multiple floors and covers party walls with penetrations such as windows, doors and vents all present on the façade.

GNP Structural Surveys identified a 3-4mm render being applied to an 8mm composite board. Mineral wool insulation has been identified on either side of an OSB board which is then in front of the plasterboard inner wall. GNP identified that the mineral wool insulation was both mechanically fixed and was found to be loose in the cavity. Untreated wood-based panels such as plywood, OSB, MDF & Chipboard typically achieve a Euroclass D or E rating and therefore are considered to be combustible. Mineral wool is a non-combustible insulation and typically achieves Euroclass A1 – the highest fire resistance ranking available. A product can be described as non-combustible if it receives a Euroclass A1 rating under BS EN 13501-1. GNP also identified inadequate provision of vertical and horizontal fire barriers at compartment lines. These findings are in line with that found in the IFC report which did not identify any cavity barriers/closers in place at compartment wall/floor levels as well as around windows/doors and service penetrations.

It is likely that the system that has been used for the render façade would significantly assist in external fire spread. IFC identified the composite board being Rockpanel and with it achieving a Euroclass B rating under BS EN 13501-1 however GNP dispute this finding. It is currently unknown who the manufacturer of the composite board is and what fire resistance properties the board achieves. As a result, we must assume that the composite boards are not of limited combustibility or better as described in BS 9991:2015.

The property is a timber framed building with combustible composite boards in place that cover most of the façade. There have been 2 intrusive inspections to the render façade, both of which identified issues regarding the lack of cavity barriers where they were to be expected. As a result of this, we agree with the findings in the GNP and the IFC reports that remedial actions are required. The combustible composite boards need to be replaced with materials that achieve Euroclass A2 or better. The existing mineral wool insulation will need to be assessed during the remedial works to ensure that it is suitable to remain. Cavity barriers should be installed in line with section 4.2 of this report.

Façade type 2 - Rockpanel

The development also consists of large amount of Rockpanel panels that are in place over compartment floors and party wall lines. Similarly with the rendered sections, the panels have windows/doors and other penetrations such as vents.

GNP confirmed with Rockpanel that the panels on site are Rockpanel products and they achieve a Euroclass B rating when tested to BS EN 13501-1, confirming that they are products that would have a "limited" contribution to fire spread. The construction behind the panels is similar to that found in the rendered sections. Mineral wool insulation was found to be located on either side of the OSB board. GNP did not identify vertical cavity barriers where they were to be expecting. Horizontal cavity barriers were identified however GNP noted that the barriers were not continuous. This means that the presence of the barriers would not have the desired impact in a fire as fire and smoke would bypass them and affect multiple floors.

IFC report combined the Render and the Rockpanel sections with the belief that the render had been applied to the Rockpanel panels. The comments regarding missing cavity barriers at compartment floor/walls as well as around the penetrations apply to this section too. This means that the Rockpanel façade would have a significant impact on fire spread which is unacceptable.

We agree with the findings in both reports and that remedial actions are required. The rainscreen panels should be removed and replaced with materials that achieve Euroclass A2 or better. The existing mineral wool insulation should be inspected during the remedial works. Cavity barriers should be installed in line with section 4.2 of this report.

Façade type 3 - Brickwork

The development has brickwork in place on the ground floor of all 4 blocks. Both IFC and GNP identified the following build-up – Brick / 50-90mm cavity / membrane / OSB board / mineral wool insulation / plasterboard. Both reports identified issues regarding cavity barriers being missing around existing aluminium door frames.

The brick is considered to be a non-combustible material as well as the mineral wool insulation. However, with penetrations not being suitably protected, there is a risk of fire spread within the cavity reaching the upper floors. As mentioned in the render and the Rockpanel sections, cavity barriers appear to either be missing or be inadequately installed in all locations inspected. Cavity barriers should be installed in line with section 4.2 of this report.

Balconies

All 4 blocks in this development have vertically aligned stacked and Juliette balconies in place. Timber decking is in place for the stacked balconies with a steel frame and perforated steel sheets to the soffit. Timber is not a material of limited combustibility and whilst the steel perforated soffits are in place, there is still a risk of external fire spread from the balconies. As well as this, multiple balconies at the time of the assessment have artificial grass placed over the top of the existing timber decking.

We agree with the findings in the IFC and the GNP reports and find that the timber decking should be removed and replaced with materials that achieve Euroclass A2. The residents should also be made aware that they should not be storing combustible materials on their balconies.

Additional observations

As part of the visual inspection, the assessor identified 2 façade types that appear to have been missed in the intrusive inspections of both IFC and GNP. The first type appears to be a timber effect panel on the outer wall on the rear elevations of blocks 45-102, 103-158 & 159-215. It is not known what fire resistance the panels achieve and because no intrusive inspections have been carried out, we are unable to comment on its suitability.

The other façade type identified was the spandrel panels placed on all the blocks. As mentioned above, we are unable to comment on its suitability due to the lack of intrusive data available. We recommend both types should have intrusive inspections carried out and confirmed whether they can remain as part of the remedial works.

2 General Building Description

The development consists of 4 purpose-built properties in East London. The blocks are identified as Blocks A-D as mentioned in the summary. Block A is the smallest block with a ground and 3 upper floors. Blocks B-D are the tallest with a ground and 6 upper floors. All blocks have a single protected staircases that access all floors. The blocks are connected externally however they do not share any communal parts.

Automatic smoke ventilation is present in all blocks that are activated by smoke detectors. The alarm panel is by the main entrance to each block. The blocks have fire Safety Folders by the alarm panels. Red Premises Information Boxes are placed by the main entrances however no access was gained to inspect its contents.

A full evacuation procedure is in place, and this is supported by a fire detection and alarm system throughout. It is understood a stay put policy was in place before the findings of the external wall reports were issued. However, due to the concerns with the buildings constructed, an L5 alarm system has been installed within the blocks with heat detectors placed in rooms with a window on to the combustible façade.

It is not believed there are any dangerous substances stored on site. Only small quantities of cleaning products and other low-risk chemicals are likely to be stored, which do not present a hazard in terms of general fire precautions.

There are no communal cooking areas known. It is likely that the flat has its own kitchen where suitable fire detection will be in place.

The blocks have no sprinklers, because of this, there are no active fire protection systems that would contain the fire from the façade.

Housekeeping was not reviewed as part of this assessment however the communal areas, the balconies and the areas in close proximity such as refuse areas must be monitored.

Good fire service access is available to the site from the Twelvetrees Crescent.

The occupation of the property is general needs, with some social housing, so we have reasonably assumed that the occupants are a typical cross section of the public. It was not reported that any residents are especially vulnerable or at risk; the premises do not provide sheltered or extra care housing support.

There is seen to be a medium risk of external ignition, as there is car parking immediately next to the building.

The premises is located within 1.4 miles from Poplar Fire Station. A second station in Stratford is 2.1 miles from the property. As such, a swift response to any emergency call would be anticipated. Due to the size of the development, it is likely that multiple stations are likely to be utilised.

3 Occupancy Characteristics

The occupation of the property is general needs housing, so we have reasonably assumed that the occupants are a typical cross section of the general public. It was not reported that any residents are especially vulnerable or at risk; the premises do not provide sheltered or extra care housing support.

In general, the building is designed as Long-term Residential Premises. When referring to the table below, the occupancy characteristic for these premises would be occupants who are asleep and familiar with the building and given the occupancy characteristic of (Ci) in accordance with BS 9999:20172.

Occupancy characteristic	Description	Examples
A	Occupants who are awake and familiar with the building	Office and industrial premises
B	Occupants who are awake and unfamiliar with the building	Shops, exhibitions, museums, leisure centres, other assembly buildings, etc.
C	Occupants who are likely to be asleep:	
Ci	• Long-term occupancy	Individual flats without 24-hour maintenance and management control on site
Cii	• Long-term managed occupancy	Serviced flats, halls of residence, sleeping areas or boarding schools
Ciii	• Short-term occupancy	Hotels
D	Occupants receiving medical care	Hospitals, residential care facilities
E	Occupants in transit	Railway stations, airports

4 Next Steps & Interim Measures

This report has confirmed remedial action is to be undertaken relating to the external fabric of the property. An action plan should be developed for the remedial works, and these actions should be undertaken within a reasonable timescale; this should be considered in line with the overall fire risk assessment for the property.

Interim measures are already in place. The development now operates a simultaneous evacuation procedure as well as an L5 alarm system in place with heat detectors placed in the rooms that have an opening onto the combustible façade.

Due to the height of the property and the potential funding available to cover costs for the remedial works, we recommend a height verification survey. To access government funding, one of the requirements is only buildings over 18m measured at its highest habitable floor level can apply.

4.1 Additional Observations

No access was gained to the Red Premises Information Box to assess its contents. The recommendations from the Grenfell inquiry phase 1 is to provide a PEEP for all persons who are unable to self-evacuate. The need to identify people with impairments who may require assistance to evacuate in an emergency should take place with letters/emails/in-person communication.

Suitable Personal Emergency Evacuation Plans should be created as required, formally documented and a copy should also be placed in the premises information (red box). Upon the findings of the discussion with tenants, suitable compensatory measures should be provided where required. It may also be appropriate to discuss any concerns with the local fire and rescue service.

The recommendations from the Grenfell inquiry phase 1 was also to ensure that the availability of plans of high-rise residential buildings to local fire and rescue services and to ensure that premises information boxes in high-rise residential buildings are provided. It is recommended to place building plans and PEEPs in them for the fire and rescue service to access.

Multiple flats were found to be fitted with a security barrier to the entrance door. This should be removed to ensure safe egress is available, and to allow fire service entry in an emergency.

The fire stopping throughout the service cupboards appeared to be adequate. It was noted that the fire stopping was completed by R&B Decorators & Refurbishment in June 2020.

There was excessive waste noted in the external bin store underneath Block A. Ensure that the waste is collected regularly, and this area is suitably managed at all times. This is especially important as the bin store is placed below combustible cladding.

It was noted that the ground and first floors of Block B is undergoing renovation and no access was given to these areas.

Multiple doors did not close fully onto their rebates. As well as this, an inspection took place for flat 110 and it appeared that the door did not have a self-closing device present. It is recommended that a full fire door survey is completed that will identify the doors, the defects and the recommended remedial actions. This should be completed by a competent person.

An AOV was found to be open outside flats 86-88 on the 4th floor in Block B. This should be investigated and repaired/replaced by a competent person in a timely manner. All AOVs should be inspected to ensure compliance.

There was a fault on the alarm panel in Block C. The fault stated, "flat 137 head missing". This should also be investigated and repaired as soon as possible by a competent person.

The zone plans all appeared to be missing a second floor. The zone areas on the plans appeared to be correct however none of the plans identify a second floor. This should be clarified and replaced if necessary.

4.2 Cavity Barriers

The following guidance is given in relation to the provision of cavity barriers. This should be used as the basis for a specification for remedial works.

Definitions

Cavity - A space enclosed by elements of a building (including a suspended ceiling) or contained within an element, but that is not a room, cupboard, circulation space, protected shaft, or space within a flue, chute, duct, pipe or conduit.

Cavity barrier - A construction within a cavity, other than a smoke curtain, to perform either of the following functions.

a. Close a cavity to stop smoke or flame entering.
b. Restrict the movement of smoke or flame within a cavity.

Provision of cavity barriers

To reduce the potential for fire spread, cavity barriers should be provided for both of the following.

a. To divide cavities.
b. To close the edges of cavities.

Cavity barriers should be provided at all of the following locations.

- At the edges of cavities, including around openings (such as windows, doors and exit/entry points for services).
- At the junction between an external cavity wall and every compartment floor and compartment wall.

Construction and fixings for cavity barriers

Cavity barriers should be tightly fitted to a rigid construction and mechanically fixed in position. Cavity barriers should be fixed so their performance is unlikely to be made ineffective by any of the following.

- Movement of the building due to subsidence, shrinkage or temperature change, and movement of the external envelope due to wind.
- During a fire, collapse of services penetrating the cavity barriers, either by the failure of the supporting system or through degradation of the service itself (e.g. by melting or burning).

Cavity Barriers Around Openings

Cavity barriers provided around openings may be formed by the window or door frame, if the frame is constructed of steel or timber of the minimum thickness in (a) or (b) below, as appropriate. Cavity barriers provided around openings, may be formed of any of the following.

a. Steel, a minimum of 0.5mm thick.
b. Timber, a minimum of 38mm thick.
c. Polythene-sleeved mineral wool, or mineral wool slab, under compression when installed in the cavity.
d. Calcium silicate, cement-based or gypsum-based boards, a minimum of 12mm thick.

The above do not necessarily achieve the performance specified below:
Cavity barriers, tested from each side separately, should provide a minimum of both of the following: a. 30 minutes' integrity (E 30) b. 15 minutes' insulation (I 15).

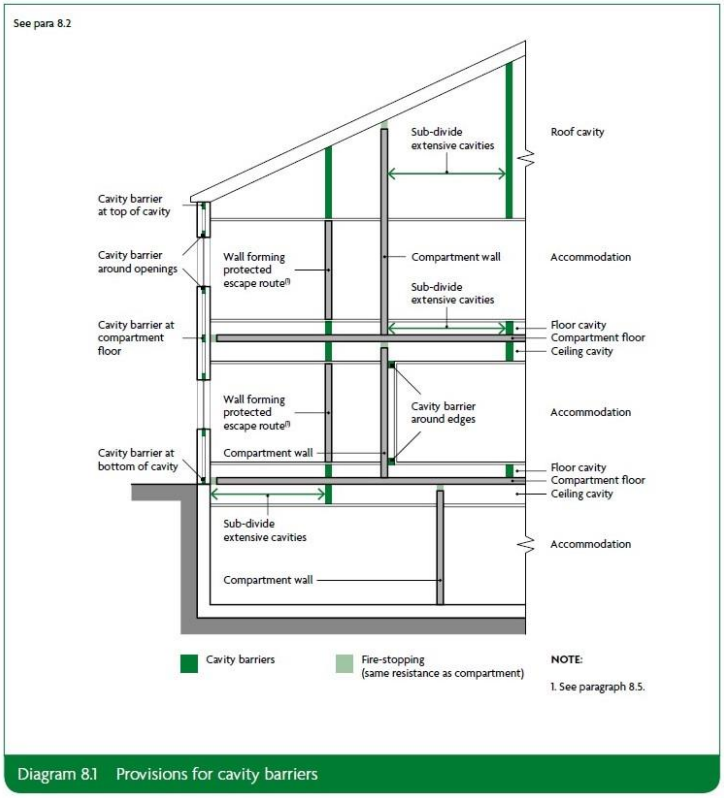
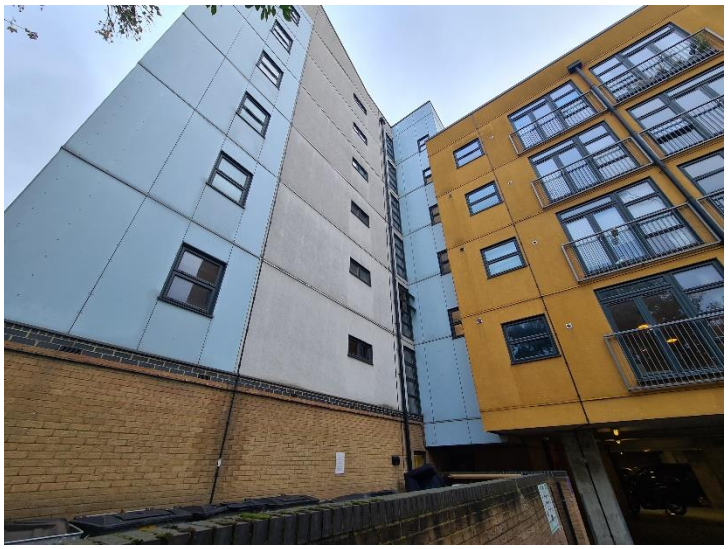


Diagram 8.1 Provisions for cavity barriers

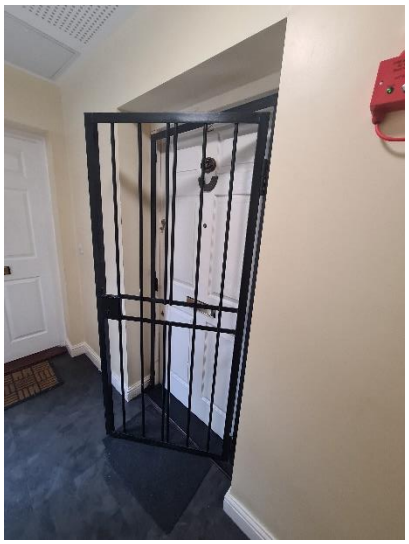
5 Photos

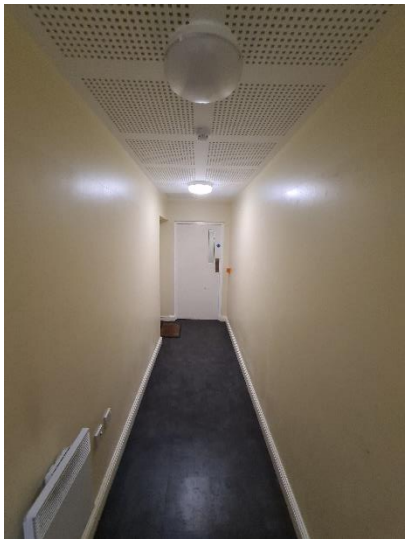
  	General view of Block A

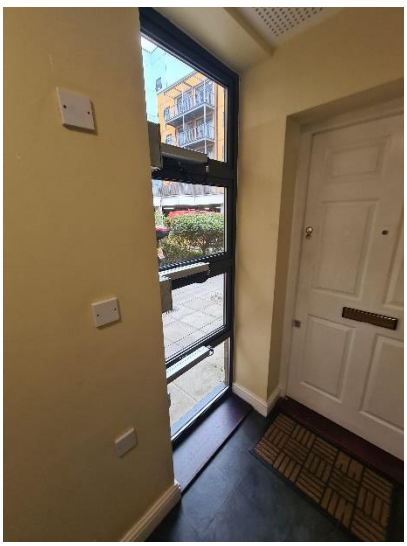
  	General view of Block B

General view of Block C

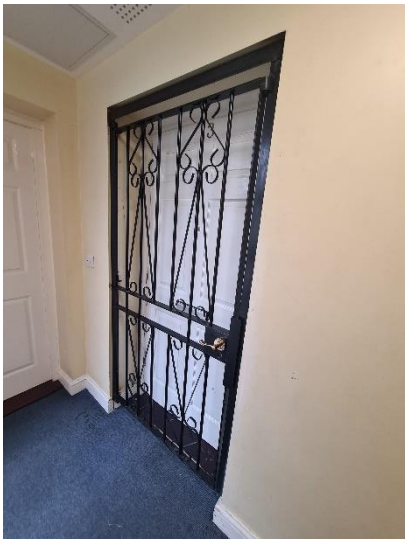
  	General view of Block D

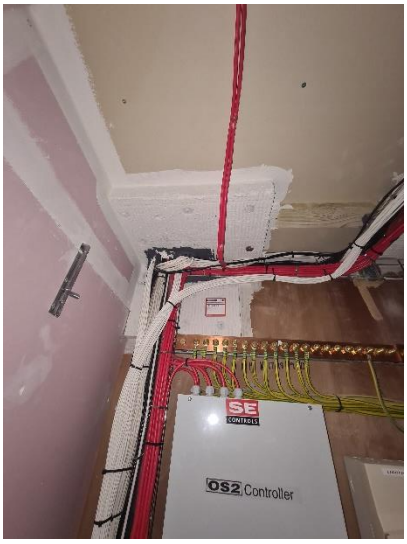


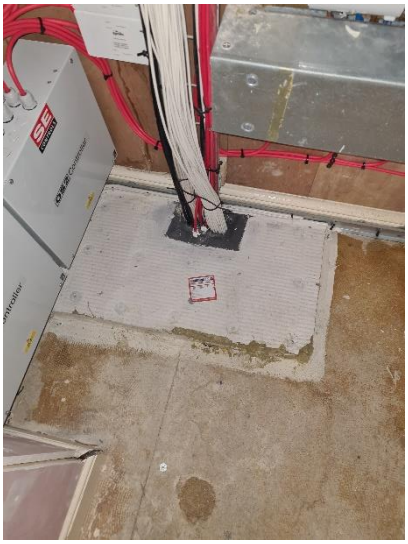


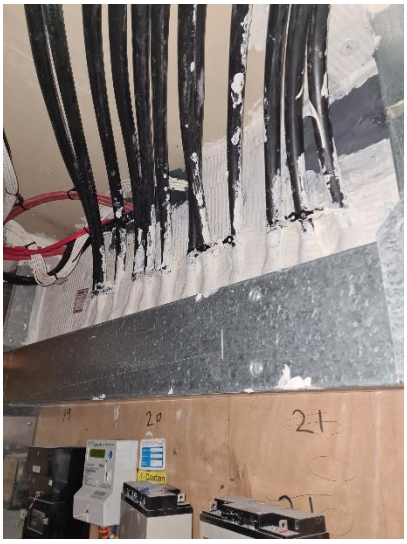


General photos internally









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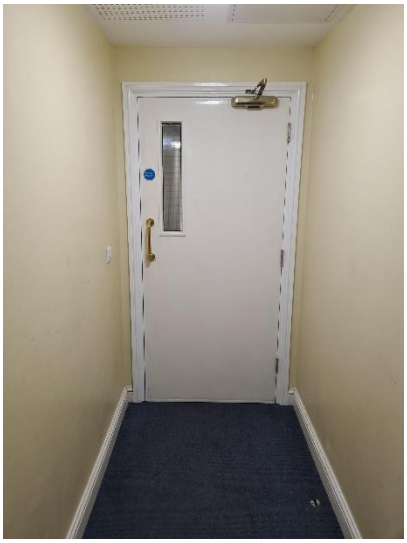

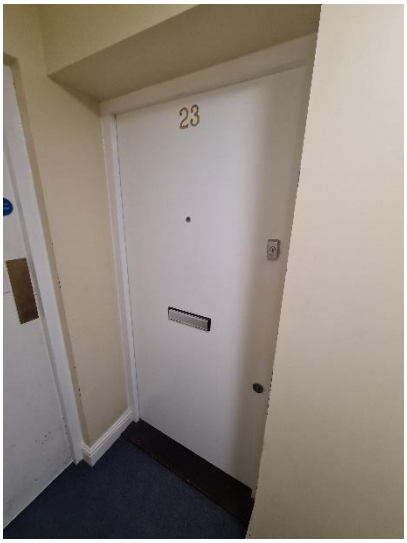

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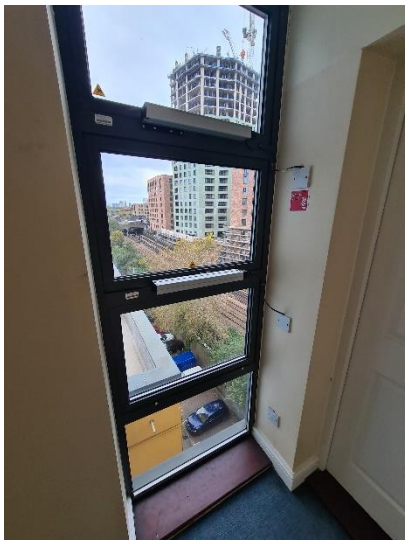

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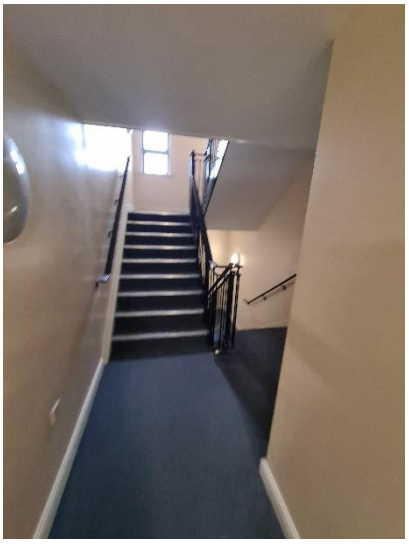
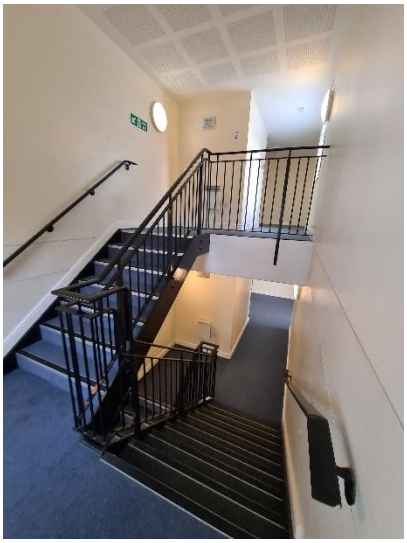
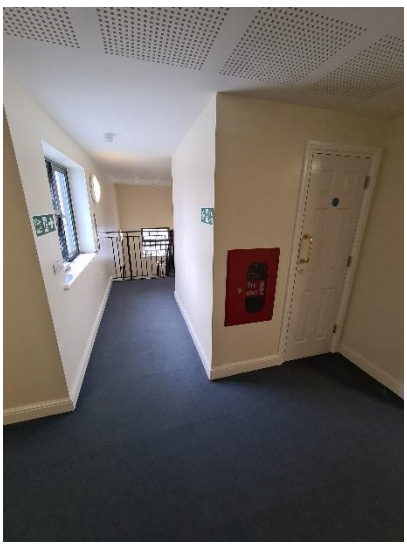






General photos internally

6 Standards and Legislation

6.1 Regulatory Reform (Fire Safety) Order 2005

The Regulatory Reform (Fire Safety) Order 2005 is the applicable legislation relating to fire safety in non-domestic premises. Under the Fire Safety Order the 'responsible person' is required to undertake a fire risk assessment of their premises, and to ensure appropriate fire safety provisions are in place. Whilst the legislation is not applicable to domestic premises, the common areas of blocks of flats does fall within the scope of the Fire Safety Order. On 19th March 2020 the Government introduced a proposed Fire Safety Bill, which will amend the Fire Safety Order to clarify that the responsible person for multi-occupied, residential buildings must manage and reduce the risk of fire for the structure and external walls of the building, including cladding, balconies and windows.

The Fire Safety Order does not make reference to British Standards although following the recommendations given in a British Standard may be one way of demonstrating compliance with the Fire Safety Order.

6.2 Fire Safety in Purpose Built Blocks of Flats Guidance

This guide is intended to meet the needs of housing providers and enforcing authorities for guidance tailored to purpose-built blocks of flats. The document is a guide to ensuring adequate fire safety in purpose-built blocks of flats, regardless of age. Practical advice is offered on how to assess the risk from fire and how to manage fire safety in such buildings. The document also includes case studies based on the commonly found issues in blocks of flats, with suggested fire safety solutions.

The guide does not introduce new standards or regulations, but builds on existing good practice and guidance currently in place. In particular, it will help landlords, managing agents, enforcing officers and those undertaking fire risk assessments to understand the legislative requirements relating to blocks of flats and to apply them in a consistent and reasonable manner. The document does not set prescriptive standards. Its aim is to provide guidance and recommendations for use when assessing the adequacy of existing fire safety provisions in purpose-built blocks of flats.

It is intended for buildings which have been constructed as purpose-built blocks of flats. It applies to existing blocks only. Fire safety design in new blocks of flats is governed by the Building Regulations 2010 but, once a block is occupied, this guide is applicable.

As the fire risk assessment is concerned with fire safety within the common parts, the flats themselves are outside the scope of the FSO. Accordingly, the scope of the fire risk assessment required by the FSO does not include measures to protect residents from a fire in their own flat.

With regards to compartmentation, the guidance states the following:

The external façades of blocks of flats should not provide potential for extensive firespread. When assessing existing blocks of flats, particular attention should be given to any rainscreen or other external cladding system that has been applied and to façades that have been replaced.

The use of combustible cladding materials and extensive cavities can present a risk, particularly in high-rise blocks. Restrictions are normally applied to the nature of such materials and in particular their surface spread of flame characteristics. Cavity barriers are also required in some circumstances. Assistance from specialists may be required to determine if the external surfaces of walls are satisfactory and whether there is adequate provision of cavity barriers.

6.3 Building Regulations & Approved Document B

The Building Regulation relevant to external facades is B4(1).
'the external walls of a building shall adequately resist the spread of the fire over the walls and from one building to another having regard to the height, use and position of the building.'

Approved Document B is one of a series of documents that give practical guidance about how to meet the requirements of the Building Regulations 2010 for England. These approved documents give guidance on each of the technical parts of the regulations. The approved documents provide guidance for common building situations. Document B relates to fire safety.

Approved Document B Volume 1, 2019 edition, states the following in relation to external fire spread:
The external envelope of a building should not contribute to undue fire spread from one part of a building to another part. This intention can be met by constructing external walls so that both of the following are satisfied.
a. The risk of ignition by an external source to the outside surface of the building and spread of fire over the outside surface is restricted.
b. The materials used to construct external walls, and attachments to them, and how they are assembled do not contribute to the rate of fire spread up the outside of the building.
The extent to which this is necessary depends on the height and use of the building.

6.4 MHCLG Consolidated Guidance

In January 2020 the Governments expert advisory panel issued consolidated guidance 'Advice for Building Owners of Multi-storey, Multi-occupied Residential Buildings'. In support of the Building Safety Programme, the Independent Expert Advisory Panel has issued advice on the measures building owners should take to review ACM and other cladding systems to assess and assure their fire safety, and the potential risks to residents of external fire spread.

The advice represents the Expert Panel's position on the action that building owners should be taking immediately to address the risk of fire spread from unsafe external wall systems, and also covers other issues that have been previously the subject of Advice Notes.

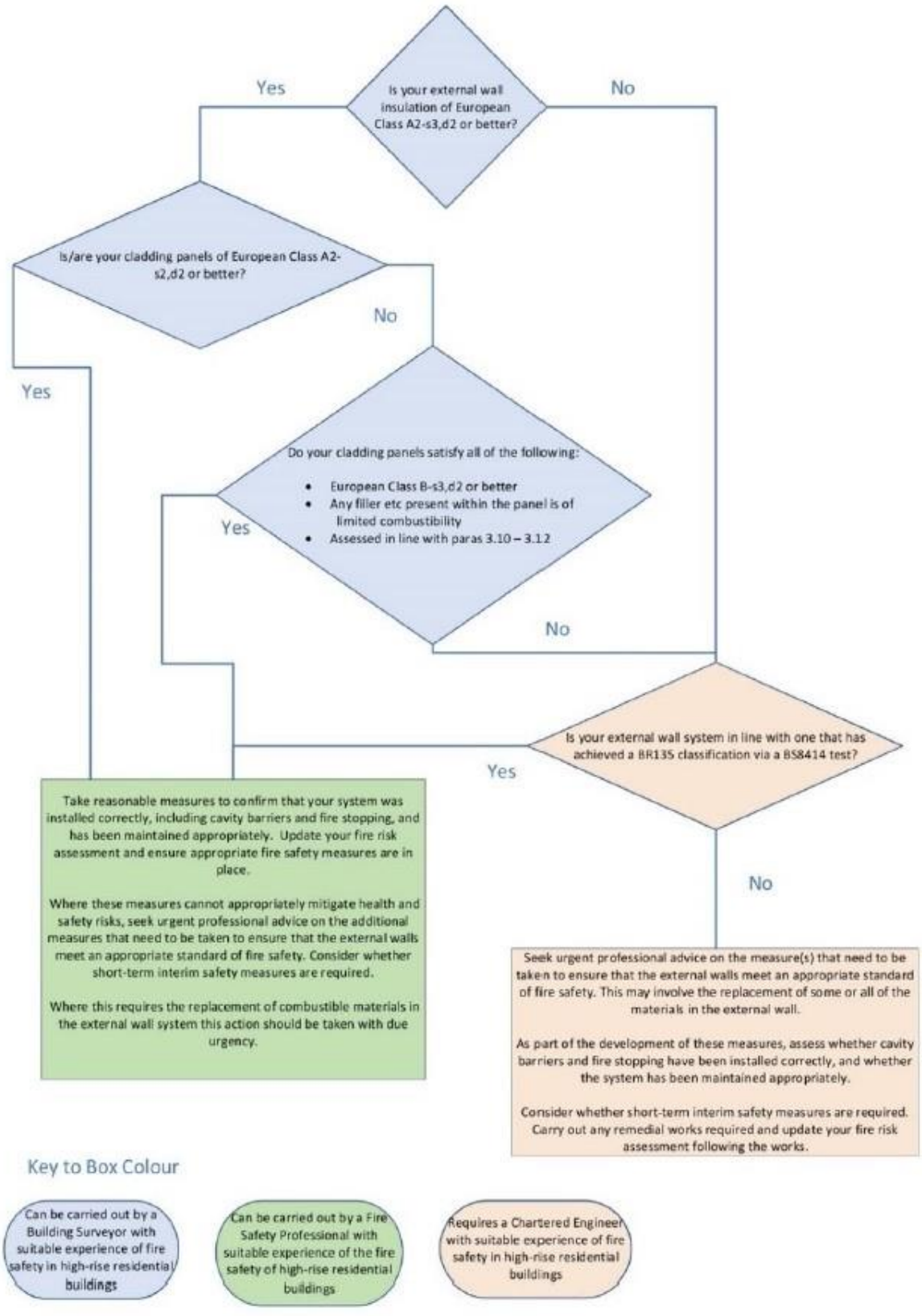
External walls of residential buildings should not assist the spread of fire, irrespective of height. It is important therefore to understand both the materials used in the external wall construction and whether the entire system has been designed, installed, and, maintained appropriately.

The advice is intended to assist building owners in assessing the safety of residential buildings. This advice does not replace or supersede requirements under the Building Act 1984, Housing Act 2004 or Regulatory Reform (Fire Safety) Order 2005.

When considering the risks building owners should consider the full range of risk factors. The Expert Panel's view is that the vulnerability of occupants is a significant factor in assessing this risk and, in some instances, may be more significant than building height.

For new residential buildings of 18 metres or more (or where building work is carried out on existing residential buildings of 18 metres or more), the government has introduced an effective ban, through an amendment to Regulation 7 of the Building Regulations 2010, on the use of combustible materials in external walls and specified attachments (including balconies, etc.). The ban limits the use of materials in the external wall and specified attachments to products achieving a classification of Class A1 or A2-s1,d0, subject to a number of specific exceptions.

Diagram 1 – Process chart for assessing external wall systems



6.5 RICS EWS1 Form

The Royal Institution of Chartered Surveyors (RICS), The Building Societies Association (BSA), and UK Finance have agreed a new industry-wide valuation process which will help people buy and sell homes and re-mortgage in buildings above 18 metres (six storeys).

RICS have been led a cross-industry working group to consider best practice in the reporting and valuation of tall buildings within the secured lending arena, to agree a new standardised process. This is to be used by valuers, lenders, building owners and fire safety experts in the valuation of high-rise properties, with actual or potential combustible materials to external wall systems and balconies. This is endorsed by RICS, UK Finance, Buildings Societies Association, IRPM and ARMA. MHCLG are supportive of the approach.

The External Wall Fire Review process will require a fire safety assessment to be conducted by a suitably qualified and competent professional, delivering assurance for lenders, valuers, residents, buyers and sellers. Only one assessment will be needed for each building and this will be valid for five years.

The assessment of fire risk as described above includes that insofar as is necessary to ensure a reasonable standard of health and safety of those in and around the building, all external wall constructions and any external attachments (e.g. balconies) of the building:
Resist spread of fire and smoke so far as is reasonably necessary to inhibit the spread of fire within the building, and
Are constructed so that the unseen spread of fire and smoke within concealed spaces is inhibited, and
Adequately resist the spread of fire over the walls, having regard to the height, use and position of the building.

The assessment takes account of regulations and published design guidance as were current at the time of construction as well as those which are current at the time of this assessment. It cannot be guaranteed that it would address guidance and regulations which may be introduced in the future.

7 Supporting Documents

Supporting

- Advice for building owners of multi-storey, multi-occupied residential buildings. January 2020 by MHCLG.
- Building Regulations 2010
- Approved Document B
- Fire Safety in Purpose Built Blocks of Flats Guidance
- BS 9991:2015 - Fire safety in the design, management and use of residential buildings – Code of practice

Reviewed

- FAÇADE INVESTIGATION REPORT. GNP Structural Surveys. August 2021
- Façade Safety Review of External Walls and Attachments. International Fire Consultants Limited. March 2021.

8 Extent of Report

The report is limited to the information that has been provided.

Statements regarding the fire resistance of the external façade have been based on information provided, and typical expected resistances of materials and construction. They comprise a visual inspection of accessible areas only. No testing, measurements or calculations were carried out as part of this inspection.

The supporting evidence provided in this report has been selected to substantiate the statements made within its content. Additional photographs are available upon request.

It was not possible to verify that the observed conditions were applicable in all similar locations within the façade and therefore it cannot be assumed that are representative of the entire building envelope.

Where structure and façade elements were hidden by cladding and other coverings, the assessment was based on experience of similar buildings and construction. Where necessary, we may recommend further investigation for such items. If significant issues with the façade design beyond the scope of work have been identified, then the analysis of these defects will fall outside the scope of this commission, we will however provide comments based on our visual assessment of the issues.