# Report on Common Parts (HHSRS) Inspection – The Axis Mercury Gardens

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Abstract

This report outlines the criteria used by the London Borough of havering to apply the Health and Housing Safety Rating System (HHSRS) assessment and risk criteria in application of enforcement to address the issues of fire safety and cladding at The Axis residential development in Mercury Gardens Romford. The purpose of the assessment is to determine the risk of fire and the harm to the occupiers that would arise from the identified hazards, and to evaluate available enforcement options under part 1 of the Housing Act 2004, to determine the most appropriate course of action.

*Keywords*: Enforcement, Housing Act 2004, Fire Safety, Cladding.

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## Background

Following an initial investigation to determine the fire safety to the non-ACM cladding installed in seven high rise blocks of flats in Mercury Gardens, (Maxim Tower, Exon, Lexicon, Axiom, Zetex, Index & Holly House), a doubt was raised about the ability of the external cladding to contain and limit the spread of fire.

A meeting took place on the 22nd January 2020 between Local Authority officers from Planning & Building Control, Private Sector Housing and an Inspecting Officer from the London Fire Brigade to agree upon a strategy to address the issue. The enforcement powers that the Fire Brigade have under the Regulatory Reform (Fire Safety) Order 2005 covers the common parts of the building but does not extend to the external cladding meaning that the fire authority is unable to take enforcement action for this defect. The owners of the buildings have engaged staff to implement a waking watch which is an acceptable interim measure until a permanent solution can be implemented.

An alternative interim measure would be to install interlinked heat detection system in every room which overlooks the cladding complete with sounders, however this is also not an acceptable long-term solution and would only serve to replace the waking watch. The only acceptable long-term remedy is to remove all non-compliant cladding and replace to meet Building Regulations. Private Sector Housing have powers under the Housing Act 2004 to carry out a Health and Housing Safety rating System (HHSRS) inspection which is a risk assessment

used by authorised Local Authority inspectors to inform the enforcing authority (the Council's Public Protection Service) about the conditions found so that it can determine the appropriate action to take. This is usually in the form of a notice requiring remedial works to be carried out. The Fire Brigade were concerned that a report commissioned by the freeholders containing photos of removed sections of cladding show bridging of the cavity barriers and the extent to which this defect is present under the cladding i.e. whether the defect is confined to a small area of cladding or widespread across the structure is not known, but it is believed that the cladding did not meet the necessary standards at the time of installation.

Planning and Building Control have made it clear that if only part of the cladding needs to be replaced then the original Building Regulations standard at the time it was built can be applied but if the entire cladding requires replacing then this will need to be upgraded to current Building Regulations Standard. This could result in complications relating to the structural integrity of the building as cladding that meets current standards will be much heavier than the existing cladding and the building may be unable to accommodate the additional weight. The original developer was Barratts so they may need to be consulted should this become necessary.

**Investigation first phase, paper trail**

In the first instance it was important to ascertain what documentation exists within the control of the freeholders in relation to any compliance or testing reports on cladding. Section 235 of the Housing Act 2004 (1., p.186) gives power to an authorised officer to serve a notice on a person managing and or in control of a property to produce documents within 14 days on demand or face prosecution for failure to comply.

The notice was served on the 4th February 2020 to provide the following documents:

- Copies of any fire safety cladding test certification as specified in British Standard BS8414 dated as from July 2017 and carried out for all materials used in all coverings of external wall cladding materials in respect of the premises. Such certification should outline the results of tests to all covering material's and insulation and establish how they behave in a fire and whether or not they were compliant with the building regulations in force at the time the application was submitted in 2003.

- Copies of any fire risk assessment carried out to comply with the provisions of the Regulatory Reform (Fire Safety) Order 2005, including the name and contact details of the person who carried out the assessment.

- Copies of any written agreements or contracts held between the various interested parties.

The notice specified production of documents by 21st February 2020 if such documentation exists, or for the recipients of the notice to advise in writing if they don't exist or if they ae in the control of another person and to specify who that is.

If no such reports are available then this would be a reason to carry out inspections and HHSRS assessments and issue an appropriate enforcement notice. Any Schedule of work accompanying such a notice can specify a requirement for investigation and the commissioning of a specialist report in relation to the cladding in the first instance with remedial works to follow. Timescales for any works required would need to be lengthy and agreed in consultation with partners.

The response was received on the 18th February 2020 and included a fire safety review of the external cladding dated November 2019. [2] This is a non-intrusive report (dated November

2019) based on the documents review of the Operations & Maintenance Manual and the individual building fire risk assessment reports. The report finds that for all buildings on site, non-compliant items to the Building Regulations at the time of construction were found, and recommends that remedial work should be carried out in line with new Building (Amendment) Regulations 2018.

- Replace all render system throughout the building height including the finish and insulation materials with materials achieving either a) Euro Class A1; or b) Euro Class A2-s1, d0 classification tested to BS EN 13501-1:2007+A1:2009;

- Replace Trespa rainscreen cladding throughout the building height, including the panels, the Kingspan K15 insulation and Eurofox Macfox framing system, with materials/another system achieving either a) Euro Class A1; or b) Euro Class A2-s1, d0 classification tested to BS EN 13501-1:2007+A1:2009;

- Replace all Iroko wooden panels including both ground level and penthouse levels with materials achieving either a) Euro Class A1; or b) Euro Class A2-s1, d0 classification tested to BS EN 13501-1:2007+A1:2009;

- Site inspection is required to confirm the suitability of cavity barriers installation and update to be in line with the current Building (Amendment) Regulations 2018 requirement.

The response included a further report on the findings of a visual inspection of opened up areas undertaken in December 2019, [3] to examine the types of insulation used across the buildings. An area of Sto render was removed from each of the 7 blocks along with the EPS insulation to reveal the concrete blockwork. Two areas of HPL cladding were removed from the buildings Index and Maxim, there were no manufacturers markings present on either the cladding or the insulation

which was 60mm phenolic foam with foil sides. The HPL panels were adhesive bonded to aluminium framing, insulation pads were also noted.

The Sto render sections removed from the Exon building show that the mineral cavity barrier has been bridged by the EPS insulation in these areas. A schedule of the findings was as follows:

| **Location** | **Element** | **Insulation** |
|---|---|---|
| Maxim | Sto Render HPL Panels | EPS<br>Phenolic Foam |
| Exon | Sto Render | EPS. Note mineral fibre cavity barrier with EPS extending over barrier |
| Lexicon, Axiom, Zetex and Holly Court | Sto Render | EPS |
| Index | Sto Render HPL Panels | EPS<br>Phenolic Foam |

A series of fire risk assessments were included, these were carried out in compliance with the Regulatory Reform (Fire Safety) Order 2005.[4] This type of inspection is non-invasive and confines itself to the common parts within the building to assess the structures capacity for containment and limitation of the spread of fire, as well as warning systems and means of escape, fire detection, firefighting measures, testing, sources of combustion and training and awareness of staff / residents.

The following assessments [4] all have the same findings:

| | |
|---|---|
| • FRA03529.1 - Vision Property Management - The Axis- Maxim Tower - Fire Risk Assessment 2019<br>• FRA03529.3 - Vision Property Management - The Axis - Index - Fire Risk Assessment 2019<br>• FRA03529.5 - Vision Property Management - The Axis - Zetex - Fire Risk Assessment 2019<br>• FRA03529.7 - Vision Property Management - The Axis - Lexicon and Axiom - Fire Risk Assessment 2019<br>• FRA03529.8 - Vision Property Management - The Axis - Exon and Lexicon - Fire Risk Assessment 2019 | Taking into account the hazards and potential ignition sources observed at the time of the risk assessment, it is considered that the likelihood of a fire starting in this premises is: **Medium**<br>Taking into account the nature of the building and its occupants, as well as the fire protection and procedural arrangements observed at the time of the risk assessment, it is considered that the consequences for life safety in the event of a fire would be: **Moderate Harm**<br>Accordingly, it is considered that the risk to life from fire at these premises is: **Moderate**<br><br>**Are all fire-resisting elements of structure maintained in good repair? - unknown** |

There was one slight variance in the following assessment;

| | |
|---|---|
| • FRA03529.4 - Vision Property Management - The Axis - Holly Court - Fire Risk Assessment 2019 | **Are all fire-resisting elements of structure maintained in good repair? – No**<br>The assessor noted damage carried out to the wall in the entrance lobby. This should be repaired with a suitable fire rated building material. |

**The Housing Health and Safety Rating System (HHSRS)**

Local authorities have a statutory duty to keep the housing conditions in their area under review. Either as a result of that review, or for some other reason such as a complaint from a tenant or a neighbour, they can inspect a property if they have reason to think that a health or safety hazard exists there. The evidence provided in compliance with the section 235 notice was sufficient grounds for the local authority to inspect and score any hazards found during the investigation in accordance with the method set out in the Health and Housing Safety Rating System (HHSRS) Guidance, (5., p.15-23) which uses a specific formula to obtain a single score for each hazard assessed on how it would affect the most vulnerable potential occupant over the following 12 months. It can then be compared to any other hazard(s) present. The higher the score the more

severe the hazard. Very high scoring hazards, 1000 or higher, are classed as Category 1 hazards. Any hazard scoring 999 or less will be classed as a Category 2 hazard. Councils have a duty to take enforcement action with hazards which are assessed as Category 1 and discretionary powers to deal with Category 2 hazards. The HHSRS has 29 prescribed hazards but this report concentrates on the hazard of fire.

The formula needs three sets of numbers to calculate a hazard score. The likelihood (chance) of an occurrence, the harm that could arise if that hazard occurred and weightings for different spread of harm outcomes as follows;

| | | |
|---|---|---|
| Class I | Extreme harm | 10,000 |
| Class II | Severe harm | 1,000 |
| Class III | Serious harm | 300 |
| Class IV | Moderate harm | 10 |

Formula

Class of harm X likelihood expressed as a fraction* X Spread of harm (expressed as a percentage)

*Or Class of harm / likelihood expressed as a ratio or whole number X Spread of harm (expressed as a percentage)

In the HHSRS risk assessment carried out for The Axis (Appendix 1) the likelihood of fire is 1:320 chance. The Spread of harm outcomes add up to 100%. In practice this means calculating harms I, II and III. The remainder makes up harm IV.

| **Class of Harm Weightings** | | **Likelihood** | | **Spread** | | |
|---|---|---|---|---|---|---|
| 10,000 | ÷ | 320 | X | 21.5 | = | 671.875 |
| 1000 | ÷ | 320 | X | 0.5 | = | 1.5625 |
| 300 | ÷ | 320 | X | 46.4 | = | 43.5 |
| 10 | ÷ | 320 | X | 31.6 | = | 0.9875 |
| **Result =** | | **Band D** | | | **Hazard Score** | **717.925** |

The hazard score equates to category 2 hazard.

The likelihood or chance of a hazardous event occurring over the next 12 months can either be a single one-off event such as a fire or a longer exposure to a more insidious hazard (a typical example is damp and mould). The likelihood is chosen from a prescribed range representative ratios.

| 5600 | 3200 | 1800 | 1000 | 560 | 320 | 180 | 100 | 56 | 32 | 18 | 10 | 6 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <4200 | 2400 | 1300 | 750 | 420 | 240 | 130 | 75 | 42 | 24 | 13 | 7.5 | 4 | 2.5 | 1.5> | |

So, a likelihood of 1 in 320 represents the chance of a 1 in 240 to 1 in 420. These scale points must be used when scoring, any other ratio is incorrect.

The HHSRS provides a method of grading the severity of threats to health and safety in any dwelling. A dwelling can include a self-contained flat as well as the means of access and shared or common parts within residential buildings.

The key principle of the system is that a dwelling, including the structure and associated outbuildings and garden, yard and/or other amenity space, and means of access, should provide a safe and healthy environment for the occupants and, by implication, for any visitors.

The inspection process is a risk-based assessment and considers the effect of any ‘hazards’ in the property. Hazards are rated according to how serious they are and the effect they are having, or could have, on the occupants, that is, ‘the effect of the defect’. The basic principle is that the property should be safe for occupation.

It should be borne in mind that all properties contain hazards, for example stairs, electrical outlets etc. and it is not possible (or desirable) to remove all hazards. The emphasis should be to minimise the risk to health and safety as far as possible either by removing the hazard altogether or minimising the effect, as appropriate. All references in this guide to removing hazards should be read with this in mind.

The level of harm suffered during fire is influenced by the presence or absence of a fire detection and alarm system, because smoke alarms raise the alarm, shortening the discovery time of fire and allowing occupiers early warning to be able to escape in the event of a fire. The presence or absence of a working smoke detection system will influence the outcome. The type of alarm will also be a factor because the failure rate of battery smoke detectors, (typically flat batteries are not replaced,) is greater than that of mains powered alarms. (5., p.150-155,) (6., p.23-26) A kitchen is the most likely place for a fire to start and if there is no door between the kitchen and the hallway this would also be a factor in whether or not the design of the dwelling is able to contain and limit the spread of fire. In addition to this, where doors are present any defects are noted (to fire doors or otherwise) that would allow smoke to pass through. These factors can increase or

decrease the potential severity of the outcome, together with the layout of the property and distance of travel from the furthest point to the exit to an ultimate place of safety.

Dwellings are assessed against the average for the type and age of building. The inspector also judges whether the condition increases or lowers the likelihood of an occurrence. The system provides information about the characteristics of average dwellings, as a basis for inspectors' own assessments of the conditions they find. Inspectors will normally concentrate on hazards that are likely to be worse than the average, but they will be able to assess any of the hazards on the basis of their observations or their knowledge of hazards that are specific to particular areas. In the case of fire account will be taken of non-fire-resistant fabric and smoke permeable fabric allowing fire and smoke to spread as well as a lack of (or defects to) fire stops to cavities allowing fire to spread along with any other disrepair to the fabric of the building, i.e. walls, ceilings and floors that would allow smoke, fumes or fire to spread.

In November 2018 an addendum to the HHSRS guidance on fire safety relating to cladding in high rise residential buildings was presented to Parliament. [7] The additional guidance makes it clear that the presence of any cladding (ACM or otherwise) and filler or core that is combustible does not affect the likelihood of a fire starting but it is a deficiency contributing to the hazard, (7., p.4) because if such cladding is improperly fitted with defects relating to cavity barriers it will increase the likelihood of the spread of fire once it has started and increase the potential for harm.

The potential effects of any hazard towards members of any vulnerable age groups is also considered, for the hazard of fire this is persons aged 60 or over. (7., p.13) The addendum to the hazard profile of fire also points out that the original HHSRS research and data did not have any statistical or accepted evidence on the mental health impact of fire, this is now more widely recognized that mental health impacts will increase Class II and III outcomes and IV reduces accordingly. (7., P.13-14)

**Investigation second phase Inspection of the Axis**

The inspection of the common parts of the Axis took place on the 18th March 2020. The risk assessment for the Axis (Appendix 1) considers hazards and the likelihood of harm to the common parts of the building rather than the individual dwellings (purpose-built flats). The assessment of the common parts includes the exterior (as well as cladding and panels) and internal common parts of each floor, including any means of escape and distance of travel through corridors, hallways and stairways.

The assessment process is not just a question of spotting defects, but is all about risk assessment, outcomes and effects.

For each hazard noted, two key tests are applied – what is the likelihood (chance or probability) of a dangerous occurrence as a result of this hazard and if there is such an occurrence, what would be the likely outcome? In the case of fire, it is the likelihood of a fire starting and then once started how likely it is that the fire will go undetected and spread.

There was no documentation available from the manufacturers in the form of test certification that could be used to confirm the fire classification. The opened-up areas of cladding and the breach of the cavity barrier that was found raise doubts as to whether or not there is sufficient compartmentation to contain and limit the spread of fire through this route, which could result in the type of chimney effect fire seen at Grenfell. The point at which the defect was found is at a crucial point in the route that comprises the means of escape to a place of ultimate safety.

In accord with a worked example provided by MHCLG on cladding, [8] the spread of harms are moved to account for all these factors. In addition, the HHSRS risk assessment for the Axis takes account of the harm to occupiers arising from the stress due to factors such as the cost of waking watch, (between £16,423 and £20,764 per month) and the devaluing of their properties and inability to sell whilst costly interim measures are in place. [9]

**Decision on Action to Take**

The risk assessment has shown that the hazard is a Category 2 Hazard which falls within the prescribed band range of D (500 - 999) under the prescribed calculation method for the seriousness of the hazard arriving at a numerical score of 717.925 which is just below the minimum band range for a Category 1 Hazard which would be C (1000 – 1,999.) [5]

When deciding to take enforcement action under the Housing Act 2004 section 8 makes clear that the Local Authority must prepare a statement of reasons for the decision to take the relevant action and must include the reasons why they decided to take the relevant action over other types of action. This detailed statement must accompany every notice or order that is served. (5., s.8(4)

p.7) as part of the statement of reasons a brief summary is included as an option appraisal. For the purposes of this enforcement action the appraisal will be summarised accordingly;

**Enforcement Options**

**Improvement Notice:** Would involve undertaking works to the property (listed in schedule 2). If these works are necessary the total cost should not exceed an estimated maximum of £XXXX.

Once the improvements are completed it can be expected that the hazards to the common parts of the buildings will be reduced to an acceptable level. The main advantage of the service of an Improvement notice is the retention of these flats as units of affordable accommodation, of which there is a severe shortage within the borough.

**Prohibition Order:** Would prohibit the use of part or all of the premises for some or all purposes or occupation by particular numbers or descriptions of people.

As the cost of the improvement works is unlikely to be prohibitive, bearing in mind the rental income and the prices that could be obtained for sale of the freehold or lease in this area of high property values; then prohibiting the use of the premises would not be considered an appropriate option.

Prohibiting the use of the premises would also mean that a large number of units of affordable accommodation will become unavailable, such units are already in a severe shortage in the borough. The service of a prohibition order to restrict its use by particular numbers of people or vulnerable may create social exclusion to that prohibited group.

This option may also require that the tenants would have to be re-housed, which would deprive the local authority or local RSL's of a number of units of accommodation. As such the service of a prohibition order would not be considered an appropriate response.

**Suspended Notice/Order:** The suspension of an improvement notice or prohibition order would involve no actions until a trigger event occurs, and would not be an appropriate option as the costs of improvement works are balanced against the likely impact on the health and welfare of the occupier/s during the suspended period. This would result in the occupants to be continued to be exposed to the hazards; which would not be considered an acceptable risk. The suspension of an improvement notice or prohibition order would also not be considered an option as no appropriate trigger events exist. Furthermore, the council do not consider the hazards to be remote or relatively minor hazards and as such the suspension of an improvement notice or prohibition order would not be an appropriate response. In particular because it could potentially breach article 2 (the right to life) under the European Convention of Human Rights as it could leave leaseholders trapped in buildings with unsafe cladding amidst worries for personal safety and unable to sell flats that have severely dropped in value.

**Emergency measures:** Because the interim measure of waking watch is in place, the hazards do not present an imminent risk of serious harm to the health and safety of any of the occupiers of the premises or any other residential premises. Therefore, the service of an emergency prohibition order or undertaking emergency remedial action would be considered inappropriate.

**Hazard Awareness Notice:** Would draw the attention to the person responsible for the works of the desirability of remedial action. The person responsible would be under no legal obligation to remove or reduce the hazards. This would result in the occupants to be continuing to be exposed to the hazards which would not be acceptable and would breach article 2 (the right to life) under the European

Convention of Human Rights as it could leave leaseholders trapped in buildings with unsafe cladding amidst worries for personal safety and unable to sell flats that have severely dropped in value.

Additionally, as the cost of improvement works is unlikely to be prohibitive when balanced against the likely impact on the health and welfare of the occupier/s a hazard awareness notice would be considered inappropriate. The enforcement guidance considers that a hazard awareness notice may be a reasonable response to a remote or minor hazard which the council do not consider these hazards to be.

**Demolition Order:** would involve the demolition of the premises. However, the structure is adjoined to other properties and above a commercial retail shopping mall and its demolition would not be possible without having an adverse effect on the structural stability of the other buildings. This option may also permanently remove a unit/s of affordable accommodation, of which there is already a severe shortage in the borough. As such the service of a demolition order would not be considered as the most appropriate response in these circumstances.

**Clearance area:** would involve the demolition of the premises and in an area of otherwise satisfactory dwellings. This option may also permanently remove a number of units of affordable accommodation, of which there is already a severe shortage in the borough and could require that the tenants be re-housed, which would deprive the local authority or local RSL's of a unit of accommodation. Overall the declaration of a clearance area would not be in the interests of the residents and as such would not be considered as the most appropriate response in these circumstances.

**The most appropriate course of action**

With regard to enforcement options listed above the preferred course of action is the service of an Improvement Notice and the other options can be discounted.

## Consultation with Freeholder

The next step is to contact the Freeholder and advise them of the findings of the risk assessment and of our intention to take enforcement action. We usually allow a 14-day period, but because of the current COVID-19 situation it would be reasonable to extend this and make it a 28 day consultation period. The correspondence consists of a cover letter and summary of the risk assessment findings, and it would be for the freeholder or their appointed agents to contact us and discuss how to proceed.

In the first instance we would expect the Freeholder to make reasonable arrangements for safety testing or explain why this may not be possible. In either case we should proceed and serve a

notice after 28 days with a full statement of reasons and detailed schedule of works and realistic timescale for the remediation work to be completed.

**Improvement Notices**

The next step is to contact the Freeholder and advise them of the findings of the risk assessment and of our intention to take enforcement action. We usually allow a 14-day period, but because of the current COVID-19 situation it would be reasonable to extend this and make it a 28-day consultation period. The correspondence consists of a cover letter and summary of the risk assessment findings, and it would be for the freeholder or their appointed agents to contact the Local Authority and discuss their proposals. It is unlikely that this would deter or delay the service of a notice because under the option appraisal the serving of an improvement notice is still the most appropriate course of action.

When an improvement notice is served s.13(2) of the Housing Act 2004 say's it must state the date on which remedial action is to start and the date by which it must be completed. (5., p.10) In practice this is usually an estimate. Under s.16(4) of the act, there is flexibility to issue a variation to the timescale either on our own initiative based on known circumstances or in agreement with the person on whom the notice was served. (5., p.12) The notice s revoked by the Local Authority upon completion of works.

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## Appendix 1 – HHSRS Assessment

**HHSRS Dwelling** Assessment – Hazard Scoring

| | | | | |
|---|---|---|---|---|
| Property Identification | • Maxim Tower (flats 1-45), Mercury Gardens Romford RM1 3HE<br>• Exon Apartments (flats 46-76) Mercury Gardens Romford RM1 3HF<br>• Lexicon Apartments (flats 77-111) Mercury Gardens Romford RM1 3HG<br>• Axiom Apartments (flats 112-131) Mercury Gardens Romford RM1 3HJ<br>• Zetex Apartments (flats 132-149) Mercury Gardens Romford RM1 3HN<br>• Index Apartments (flats 150-189) Mercury Gardens Romford RM1 3HS<br>• Holly Court (flats 1-40) Dolphin Approach Romford RM1 3AP | | | |
| Property Age Band | Pre-1920 | 1920-1945 | 1946-1979 | Post 1979 |
| Property Type | Common Parts of Flats | | | |
| Surveyor | Paul Oatt | | | |
| Date of Inspection | 18th March 2020 | | | |
| Hazard Title & No. 24 | Fire Safety | | | |

**Deficiencies:** The development comprises of 8 building blocks consisting of 189 luxury one and two bedroom apartments, with one three bedroom. There is also a Gym, Concierge / reception office and communal post box area, in addition to this are 40 housing association apartments in one block.

Maxim Tower is a detached building with a height above 18m. Exon/Lexicon, Lexicon/Axiom, Axiom/Zetex and Zetex building blocks are with various heights, some above 18m and some below 18m. However, they are all attached to each other. In terms of external cladding review, the entire facades across all buildings are considered as a whole and therefore the façade is considered to be above 18m based on the tallest building block.

The London Fire Brigade have raised concerns that the cladding (which is not ACM) was installed in such a way as to have not been compliant at the time of construction, specifically because the cavity barriers have been breached by the cladding.

Documents received in response to a section 235 notice include a fire safety review of the external cladding dated November 2019. [1]

The report finds that for all buildings on site, non-compliant items to the Building Regulations at the time of construction were found, and recommends that remedial work should be carried out in line with new Building (Amendment) Regulations 2018.

- Replace all render system throughout the building height including the finish and insulation materials with materials achieving either a) Euro Class A1; or b) Euro Class A2-s1, d0 classification tested to BS EN 13501-1:2007+A1:2009;
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The Trespa rainscreen cladding post Grenfell was submitted to testing by the Building Research Establishment (BRE) under BS 8414 and had to be terminated after 43 minutes due to flame spread above the surface of the rig. The report also states that a site inspection is required to confirm the suitability of cavity barriers installation and update to be in line with the current Building (Amendment) Regulations 2018 requirement.

A visual inspection of opened up areas was undertaken in December 2019 [2] to examine the types of insulation used across the buildings. An area of Sto render was removed from each of the 7 blocks along with the EPS insulation to reveal the concrete blockwork. Two areas of HPL cladding were removed from the buildings Index and Maxim, there were no manufacturers markings present on either the cladding or the insulation which was 60mm phenolic foam with foil sides. The HPL panels were adhesive bonded to aluminium framing, insulation pads were also noted.

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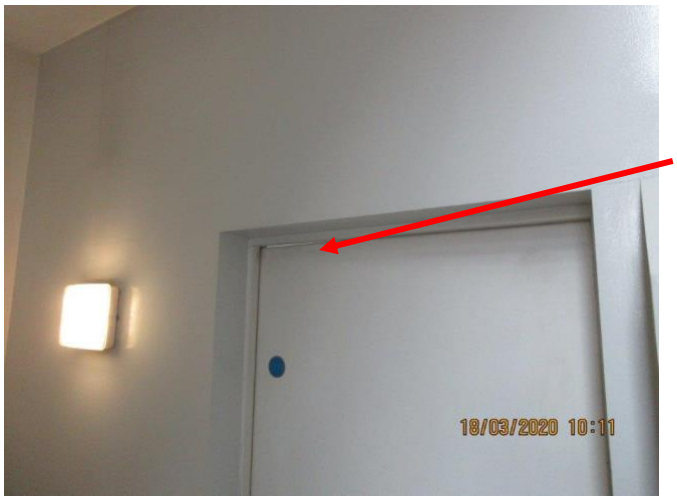
| Lexicon | Sto Render | EPS |
| Lexicon | Sto Render | EPS |
| Axiom | Sto Render | EPS |
| Axiom | Sto Render | EPS |
| Zetex | Sto Render | EPS |
| Zetex | Sto Render | EPS |
| Holly Court | Sto Render | EPS |
| Holly Court | Sto Render | EPS |
| Index | Sto Render | EPS |
| Index | Sto Render | EPS |
| Index | HPL Panels | Phenolic Foam |
| Index | HPL Panels | Phenolic Foam |
| Index | HPL Panels | Phenolic Foam |

Test evidence from the manufacturers in the form of a report or certification was unavailable so materials were reviewed from the manufacturer's standard material data sheets, as such there is no confirmation that the fire classification as stated on these data sheets is valid.


In the car port area beneath Axiom/Zetek an edge was damaged to the underside of the façade where allegedly a delivery van had hit it, exposing the Glassfibre mesh.




In the ground floor communal entrance to Index and Holly Court a fire door between the ground floor area near the lift and stairs has a fire door separating the exit from the Liberty Shopping centre. The door is locked but poorly hung and daylight can be seen at the top left-hand corner between the door and the frame.

List of relevant matters

| **LIKELIHOOD** | | | | **OUTCOMES** | | |
|---|---|---|---|---|---|---|
| A | Presence of Cladding | 2 | | A | Presence of Combustible Cladding | 3 |
| B | Lack of FRA | - | | B | Non-fire-resistant doors | - |
| C | Outstanding points from FRA | - | | C | No or non-functioning AFD | - |
| D | Lac/non-functioning AFD | - | | D | No fire-resistant fabric | - |
| E | Disrepair to outer surfaces | 2 | | E | Disrepair to doors | 2 |
| F | Disrepair to compartmentation | 3 | | F | Single route of escape | 1 |
| G | Inadequate testing of riser | - | | G | Width of escape route | - |
| H | Ducting affecting compartmentation | - | | H | Test Certificate for fire-lift | - |
| I | Services not in fire resistant enclosure | - | | I | Obstructions in escape route | 1 |
| J | Non-functioning smoke vents | - | | J | Absence/disrepair emergency lighting | - |
| K | Non-fire-resistant waste hoppers | - | | K | Dry/wet riser testing | - |
| L | Disrepair refuse chute hopper | - | | L | Access for fire fighters | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| M | External sources of fuel | - | | M | Fire suppressant/ sprinkler system | - |
| N | Inadequate waste storage | - | | N | Smoke Vents | - |
| O | Opportunity for external arson | - | | O | Refuse chute hopper (location) | - |
| P | External unintentional fire | - | | P | Refuse chute hopper (condition | - |
| Q | Lack of controlled access/security | - | | Q | External lighting | - |
| | | | | R | Signage | - |
| | | | | S | Distance between building and safety | 1 |

| KEY | |
|---|---|
| 3 | Seriously defective |
| 2 | Defective |
| 1 | Not satisfactory |
| - | satisfactory |

**Likelihood** | National Average = 1 in 2,157

| 5600 | 3200 | 1800 | 1000 | 560 | **320** | 180 | 100 | 56 | 32 | 18 | 10 | 6 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <4200 | 2400 | 1300 | 750 | 420 | 240 | 130 | 75 | 42 | 24 | 13 | 7.5 | 4 | 2.5 | 1.5> | |

**Justification:** The report carried out in November 2019 [1] reviews the building materials used from the manual or the manufacturers material data sheets. No test reports or certificates were available at the time of assessment. The data sheets alone cannot be relied upon as being conclusive without test evidence. The visual inspection carried out in December [2] serves as an indicator of insulation types used but recognises that there may be other types of insulate present to other facades of the buildings. It therefore is limited to the areas opened up.

The HHSRS inspection was non-invasive and it was found that the means of escape through corridors and stairwells had sufficient uncomplicated distances of travel, and automatic smoke extraction systems and working automatic smoke detectors. Corridors to stairwells were sufficiently partitioned with fire doors. The exit point from Maxim, Exon, Lexicon, Axiom and Zetex is through the concierge and down the stairs to the street (Main Road). Holly Court and Index can exit via this route but also benefit from an alternative exit on the opposite side of the building being a staircase that takes them out to the street at rear of the shopping centre, (Dolphin Approach.) At the bottom of this area before the final point of exit the poorly hung fire door between the shopping centre and this area has a gap that will allow smoke to enter through.

The November 2019 report (p.32, [1]) recommends that the original fire risk assessment change from '*stay-in-put*' policy to simultaneous evacuation. The most recent fire risk assessment provided under notice, published April 2019 (but inspected February 2019) [3] states there are no procedures in place to evacuate any disabled persons likely to be present, and no persons nominated and trained to assist in the evacuation of any disabled persons, and fire wardens had not received any training in relation to evacuation. Consideration has also been given to the Exon building being adjacent to the concierge in the event of a fire starting at Exon where the mineral cavity barrier was found to

have bridged the EPS insulation stay put could jeopardise lives if a fire is able to travel swiftly upwards in a chimney effect as seen in Grenfell.

The Governments HHSRS Operating guidance (p.150-155, 4) makes clear that there is a greater risk of fire occurring in flats than houses, whilst occupier behaviour, is said to be a major factor in relation to fires starting, e.g. carelessness or misuse of equipment or appliances, cooking or smoking, provision of smoke detection allows early warning and influences the level of harm, account has been taken of the fact that there is a good working smoke detector system, but account has to be taken of the fact that the increased risk in flats is attributable to the number of storeys and the higher the building, the higher the likelihood is that a person is more likely to die in the event of fire.

Updated HHSRS Operating Guidance on fire and cladding systems (p.11 5) states there should be clear and appropriate instructions of what (and what not) to do in the case of fire and the nature of these instructions is dependent on whether the fire safety strategy is '*simultaneous evacuation or defend in place*,' (stay-in-put).

Both the original guidance and the update 4,5 agree that the dwelling design, construction and condition should limit the chances of carelessness causing a fire, with no obvious disrepair or compromise of compartmentation and should limit the spread of fire, howsoever caused and provide safe and ready means of escape. The dwelling should be constructed of fire and smoke-permeable resistant materials. To help in containing and limiting the spread of fire the design and construction should incorporate fire stops to cavities.

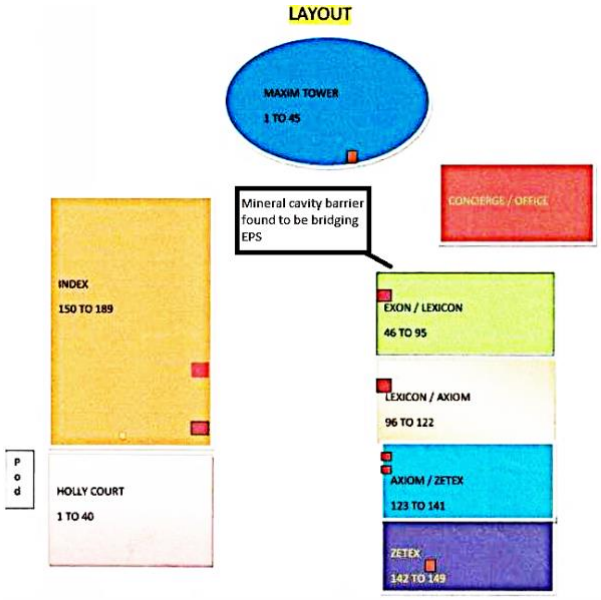
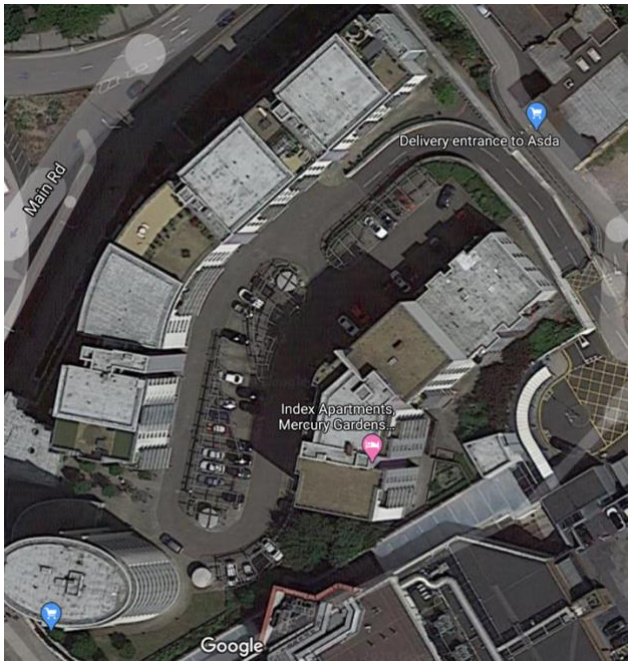



**Figure 1 Site layout of Axis development**

We cannot be certain that the bridging seen on Exon is not replicated throughout the structures. Occupiers trying to leave from Maxim, Exon, Lexicon, Axiom and Zetek do not have access to escape through the exit behind Holly Court and Index, their means of escape would be through the concierge, negotiating escape from this route is compromised, because in doing so having to travel past the point where the defect was sampled and found on Exon.




According to LACoRS Fire Safety Guidance (p.18 6) that if there is no practical way of avoiding escape into a courtyard from where there is no exit it should be at least as deep as the building is high. Therefore, the car park area in the middle overshadowed by the surrounding buildings is not an ultimate place of safety.

Insulation Trespa rainscreen cladding (type 4 façade) is known to be combustible and is not to be used on buildings above 18m. Overall the block appears not to have adequate fire protection and resistance to the communal areas and the cladding fire safety review does not provide any reassurance that fire resistance is adequate and raises very strong doubts in this regard. These factors justify increasing the likelihood substantially, in line with the worked example MHCLG WE 1_2018. 7

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**Outcomes** | National Averages = CI 3.1 CII 0.0 CIII 17.2 CIV 79.7

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Class I** | 0 | 0.1 | 0.2 | 0.5 | 1 | 2.2 | /4.6 | 10 | 21.5 | 31.6 | 46.4 | **21.5** |
| **Class II** | **0** | 0.1 | 0.2 | 0.5 | 1 | 2.2 | 4.6 | 10 | 21.5 | 31.6 | 46.4 | **0.5** |
| **Class III** | 0 | 0.1 | 0.2 | 0.5 | 1 | 2.2 | 4.6 | 10 | /21.5 | 31.6 | 46.4 | **46.4** |
| **Class IV** | 0 | 0.1 | 0.2 | 0.5 | 1 | 2.2 | 4.6 | 10 | 21.5 | 31.6 | 46.4 / | **31.6** |
| | <0.05 | 0.15 | 0.3 | 0.7 | 1.5 | 3 | 7 | 15 | 26 | 38> | | |

**Justification:** The absence of test evidence from the manufacturers in the form of a report or certification showing the fire classification as stated on the data sheet is valid is a source of concern, as is the bridging prior to any commencement of remedial action or an independent testing from the BRE will be required prior to any commencement of remedial action.

The presence of defective cladding and the unknown combustibility of insulation suggests that a fire reaching the cladding is likely to spread through bridging of the EPS via the mineral cavity barrier, there is potential for vulnerable persons (age group 60 and above) to be trapped at higher levels with exposure to toxic smoke as the fire takes hold and spreads quickly through defective cladding. For this reason the classes of harms are increased. If the envelope of the cladding is involved in the fire simultaneous evacuation could be catastrophic for exit into the car park and attempt to pass through

the area between the buildings and the concierge. Any fire from the shopping mall has the potential to spread from the poorly hung fire door into the ground floor lobby which is the ultimate point of exit for Holly Court and Index.

Account has also been taken of the harm to occupiers arising from the stress due to factors such as the cost of waking watch, (between £16,423 and £20,764 per month) and the devaluing of their properties and inability to sell whilst costly interim measures are in place. [7,8]

| | | | | | | |
|---|---|---|---|---|---|---|
| 10,000 | ÷ | 320 | X | 21.5 | = | 671.875 |
| 1000 | ÷ | 320 | X | 0.5 | = | 1.5625 |
| 300 | ÷ | 320 | X | 46.4 | = | 43.5 |
| 10 | ÷ | 320 | X | 31.6 | = | 0.9875 |
| **Result =** | | **Band** | **D** | | **Score** | **717.925** |

**RATING SCORES AFTER IMPROVEMENT**

**Likelihood** | National Average = 1 in 3,200

| 5600 | **3200** | 1800 | 1000 | 560 | 320 | 180 | 100 | 56 | 32 | 18 | 10 | 6 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <4200 | 2400 | 1300 | 750 | 420 | 240 | 130 | 75 | 42 | 24 | 13 | 7.5 | 4 | 2.5 | 1.5> | |

**Outcomes** | National Averages = CI 3.1 CII 0.0 CIII 17.2 CIV 79.7

**Justification:** Investigation and remedial work by a qualified Chartered Engineer with suitable experience of fire safety in high-rise residential buildings in agreement with the local fire authority and building control should be carried out as necessary to remove all or identified areas of defective cladding and replace to the current standard of building regulations. Part of this investigation may involve removal and examination of panels to determine whether or not materials used are the ones available in the literature and BS8414 testing via BRE or bench scale testing by a UKAS accredited testing laboratory and identification of any defects to cladding installation that breaches the cavity barrier. Remediation to address identified defects as necessary, will reduce the hazard to at least as good as the average.

| | | | | | | |
|---|---|---|---|---|---|---|
| 10,000 | ÷ | 3200 | X | 3.1 | = | 9.6875 |
| 1000 | ÷ | 3200 | X | 0.0 | = | 0 |
| 300 | ÷ | 3200 | X | 17.2 | = | 1.6125 |
| 10 | ÷ | 3200 | X | 79.7 | = | 0.2490625 |
| **Result =** | | **Band** | **I** | | **Score** | **11.5490625** |

(10,000 / 3200) X 3.1 + (1,000 / 3200) X 0.0 + (300 / 3200) X 17.2 + (10 / 3200) X 79.7 = 11.5490625