

REGULATORY REFORM (FIRE SAFETY) ORDER 2005

Fire Risk Assessment for:

**Grenfell Tower, Grenfell Road
London W11 1TQ**

for

The Tenants Management Organisation
(TMO) of the Royal Borough of Kensington
and Chelsea

By Carl Stokes on the 17th October 2014

**Suggested Review Date: When the current building work/project
is completed**

or before, if any significant changes have taken place, in or adjacent to this building

DATE	REASON FOR REVIEW	BY WHOM	OUTCOME

Area(s) covered by this fire risk assessment:

All the common parts and areas of this building not handed over to the contractors, the staircase and landings/entrance area, the lift lobby areas and refuse chute rooms, the roof area plant and water tank rooms, the lift motor room the bin storage area, the basement level boiler room and the external walkway to the building.

Area(s) not covered:

All the private residential apartments and balconies, all of the areas handed over to the contractors, in reality all the floor levels below the building current entrance level off of the raised walkway level, the ground floor level electrical substation, the ground floor electrical room, the roof level ambulance communications room any other part of the building not identified above.

**The significant findings and action plan of this Fire Risk Assessment are
inserted next with this document continuing on page 2.**

It is the policy of the TMO to take all reasonable steps to protect all relevant persons including residents, employees, visitors, contractors, any members of the public or any other persons who are lawfully on the premises, from potential injury and damage to their health which might arise whilst they are on these premises. When entrusting tasks to an employee their capabilities are taken into account as regard to Health and Safety so far as they relate to fire aspects. The aim of the fire risk assessment is to comply with The Regulatory Reform (Fire Safety) Order 2005.

The occupier takes the duties imposed by the Equality Act very seriously and seeks to ensure that all reasonable adjustments are made to enable people with disabilities to be treated fairly and not to be placed at any substantial disadvantage as required by The Regulatory Reform (Fire Safety) Order 2005.

Legal Statement

This risk assessment has been undertaken as a requirement of The Regulatory Reform (Fire Safety) Order 2005, the enforcing authority, ie "the police" for the FSO are the fire and rescue authority for the area in which the premises are situated, (Article 25 of the FSO). It is the local Fire and Rescue Service who therefore have the power to undertake an audit of the fire risk assessment to determine if it is suitable and sufficient or not. Other agencies can ask if you have completed a fire risk assessment but it is not for them to view, enforce or make judgement on.

You do not have to give a copy of your risk assessment to anybody, not even the fire authority, if you do give them a copy this could be used against you at a later date. Under Article 9, headed Risk Assessment sub sections 6 and 7 of the FSO it states:

- (6) As soon as practicable after the assessment is made or reviewed, the responsible person must record the information prescribed by paragraph (7) where—
 - a) he employs five or more employees;
 - b) a licence under an enactment is in force in relation to the premises; or
 - c) an alterations notice requiring this is in force in relation to the premises.
(It is very unlikely that an open air even would have an alterations notice)
- (7) The prescribed information is—
 - a) the significant findings of the assessment, including the measures which have been or will be taken by the responsible person pursuant to this Order; and
 - b) any group of persons identified by the assessment as being especially at risk.

So legally you have to record any significant findings from the risk assessment if you fall into the categories of 6 a to c above and have this available to be inspected.

The FSO applies to the common parts of the building but the Housing Act 2004 applies to the whole of the building and could impose additional fire safety measures on areas of the building outside the scope of the FSO.

Responsible Person:

Chief Executive of the Royal Borough of Kensington and Chelsea

Building Owners/ Landlord:

The Council of The Royal Borough of Kensington and Chelsea

Person Consulted during the Assessment:

Mr Paul Steadman of the Tenant Management Organisation (TMO) of the Royal Borough of Kensington and Chelsea and the residents of the building.

Assessment completed by:

Mr C Stokes, ACI Arb, FPA Dip FP (Europe), Fire Eng (FPA), NEBOSH, FIA BS 5839 Part 1 System Designer, BS 5839 Part 6, Competent Engineer BS 5266, IFE Assessor / Auditor (FSO). 19 years Fire Safety experience with local Fire Authority, in enforcement and auditing roles, 5 years as an independent fire risk assessor. Member of the construction industry CPD certification Service for 11 years. Professional indemnity insurance cover provided by [REDACTED] Enhanced CRB checked.

H M Government Guide used:

Sleeping Accommodation

Local Government Group Fire safety in purpose-built blocks of flats (July 2011)

Any other guides that may be relevant:

Building Regulations 2010 Approved Document B (Volume 2) inc FPA information
Managing Agents management policy's, procedures and associated documentation
LACoRS (now Local Government Regulation) Housing Fire Safety Guidance

Any other legislation that could make requirements for fire precautions in the building.

The Equality Act 2010

Building Information

This fire risk assessment was carried out when the building was in normal use and only a visual inspection has been undertaken of the buildings structure and no invasive structural investigation was undertaken to complete the risk assessment. If there was any concern about hidden structural damage or lack of structural integrity of the buildings structure this will be raised with the landlords and commented upon within the following report. As far as I am aware the construction and any refurbishments of this building have gone through the Building Regulations process. Information has been gathered from the buildings occupants and employees of TMO and from an analysis of documents provided by TMO, there is no external cladding on this building at present.

Description of the building;

This is a purpose built standalone square shaped 25 storey tower block, there is a basement boiler room area and a roof level lift motor room and plant rooms along with cold water storage tanks. There are twenty levels of residential accommodation currently accessed from the walkway level, which is one floor level below the first accommodation floor level. The walkway level, the street/road/ground floor level and the upper ground floor level are currently under the control of contractors who are constructing new residential dwellings on these floor levels where office were located. On the ground floor level there is an electrical sub station and a secured bin storage area, these are outside of the contractors designated areas but the contractor is undertaking work in the basement boiler room.

This building stands on its own site and is not attached to any other buildings, apart from the walkway bridge, with enough distances between this building and the adjacent properties calculated to meet Building Regulations approval therefore minimising and preventing any fire spread to adjacent premises. It is considered unlikely that a fire in this building would compromise other buildings within the area. There were no apparent unusual structural features either externally or internally observed at the time of the assessment and there are no high voltage luminous tubes for signs etc in or on this building. The access arrangements to this building have been considered and the arrangements appear to conform to part B5 of Approved Document B of the Building Regulations. Any changes to road layout etc away from these premises are outside the control of the responsible person.

Construction of the Building;

This is a brick and concrete constructed building with a flat roof, the protected staircase enclosure is central to the building, the staircase and the walls and the floors of this building are constructed of concrete. The walls of the staircase enclosure are painted plaster/concrete with the staircase and landings being exposed concrete. The concrete walls of the flat/lift lobby areas are painted. The basement area is totally separated from the rest of the building with its own independent entrance/exits, the lower floor levels are separated from the residential floor levels by concrete slabs. There is a concrete floor slab between the upper residential floor level and the roof plant and lift motor room areas. There appears to be no hidden voids apart from the normal service duct and sanitary ones, in this building or sandwich panels used. There are no apparent unusual elements of building construction that were considered to add a significant additional contribution to the fire risk.

Use and Layout of the Building;

On each of the flat/lift lobby areas of the 20 residential floor levels of this building there are six self contained private residential apartments giving a total of 120 dwellings in the whole building. This building is located off a public road, there is a private service road to the left hand side of this building and hard standing areas at the rear and on the right hand side. Access to the residential part of this building is from the bridge from Grenfell Walk, this is called the walkway level, this level is 1 floor below the 1st residential floor level. The ground floor level, the upper ground and walkway level apart from the entrance hall/lobby area are not under the control of the TMO. These areas have been demised to Rydons, the contractors, who are

Use and Layout of the Building, continued :

also working in the basement boiler room. At the roof level which is accessed from the buildings protective staircase is the lift motor room, plant rooms, water tanks and a communications room. The flats are accessed from the internal flat/lift lobby areas on each residential floor level, there is a self closing fire door which separates the flat/lift lobby areas from the protected staircase enclosure. There is a purpose built domestic refuse chute in this building with the openings on each residential floor level in a refuse chute room. The refuse chute rooms are fire separated from each flat/lift lobby area by a 30 minute self closing fire rated door.

On the ground floor level there is an electrical sub station, the buildings electrical room and the bin room, the two lifts in this building service all the residential floor levels and both are evacuation/fire-fighting lifts so can be used for disabled evacuation if needed. The bin room is on the ground floor level and the electrical substation are externally accessed.

There are no plans or drawings of this building attached to this risk assessment, but the TMO do have plans showing the layout of this building.

The evacuation strategy for this building;

For the residential areas of this building:

For the residents of the residential area of this building there is a "stay put" evacuation strategy, this means the residents remain within their own dwelling during a fire incident unless the fire is in that dwelling or it is otherwise affected, in which case they should immediately evacuate the dwelling and call the Fire and Rescue Service. The Fire Service or TMO employees will arrange for a general evacuation of the building at anytime if this is appropriate or the resident can leave at anytime if they so wish. TMO has provided information to all residents in tenant's handbooks, via letters and briefing sheets of 'what to do in the event of an emergency' and articles on fire safety advice and emergency procedures are included in the resident's magazine called "Link".

Also articles are provided reminding tenants that they must not store items in communal areas nor cause obstructions to the means of escape, these articles are produced in the 7 major languages which have been selected as being most likely to meet the needs of the residents. The landlord relies upon the tenants to respond to any emergency in accord with agreed emergency plans and does not facilitate any fire drills or other emergency evacuation exercises.

In the residential area of this building there have been no fires in the last 2 years apart from the burnt cooking/toast incident in the last week of September 2014, the fire service were called to this 10th floor level flat by the occupant. As far as I know no fire fighting action was taken by the fire service. I have been told and there is no known problems with false alarms from the domestic detectors installed within the individual dwellings.

For the contractors working on the lower three floor levels of this building:

The contractors will have an evacuation policy and procedure for a fire incident within the areas under their control, the actions that they will take has been asked for as part of this FRA, please see the significant findings sheets for more information on this issue.

Number of individual private dwellings in this building:

120

Methodology, for the completion of this fire risk assessment

The adopted risk assessment methodology has been developed in line with guidance from the Health and Safety Executive (5 steps to risk assessment) and PAS79. The assessment involves:

- Gathering relevant information for the building, occupants, processes and past fire history etc.
- Identifying hazards and determining measures to eliminate or control identified fire hazards.
- Determining existing physical fire protection measures and identifying any short comings.
- Discussions with occupiers and employees to determine the effectiveness of fire safety procedures and management policies.
- Subjective assessment of the likelihood of fire occurring.
- Subjective assessment of likely consequences to the occupants of a fire event.
- Assess fire risk and tolerability.
- Document the significant findings from the fire risk assessment.
- Formulating an action plan with the aim being to reduce the fire risk, from the significant findings with both physical and procedural controls,
- Formulating a checking procedures to oversee the “actions to be taken” in the significant findings.
- Formulating a time schedule for reviewing the assessment.

The type and scope of this Fire Risk Assessment is as defined by the Local Government Group Fire safety in purpose-built blocks of flats guidance document July 2011, as a Type 1 assessment, ie Common parts only, non destructive. But there is some over lap into a Type 3 assessment because questions have been asked and answers given about the electrical and heating installations within the flats along with testing and maintenance regimes and also the fire alarm systems installed.

The following rational is adhered to for the completion of this fire risk assessment

From The Building Regulations, Section 1 of B1, Means of Escape from Flats, of Approved Document B Fire Safety (Volume 2) Incorporating Insurers Requirements for Property Protection.

2.3 The provisions for means of escape for flats are based on the assumption that:

- a. the fire is generally in a flat;*
- b. there is no reliance on external rescue (e.g. by a portable ladder);*
- c. measures in Section 8 (B3) provide a high degree of compartmentation and therefore a low probability of fire spread beyond the flat of origin, so that simultaneous evacuation of the building is unlikely to be necessary; and*
- d. although fires may occur in the common parts of the building, the materials and construction used there should prevent the fabric from being involved*

beyond the immediate vicinity (although in some cases communal facilities exist which require additional measures to be taken).

From BS 9991: 2011 Fire safety in the design, management and use of residential buildings – Code of practice, section 0.2 Flats and maisonettes, General principles.

The provisions for means of escape for flats or maisonettes are based on the assumptions that: (the same as the Building Regulations apart from the end of a.)

- a. fire will occur within the flat or maisonette (e.g. not in a stairwell);*
- b. there can be no reliance on external rescue (e.g. a portable ladder);*
- c. the flat or maisonette will have a high degree of compartmentation and therefore there will be a low probability of fire spread beyond the flat or maisonette of origin, so simultaneous evacuation of the building is unlikely to be necessary; and*
- d. where fires do occur in the common parts of the building, the materials and construction used in such areas will prevent the fire from spreading beyond the immediate vicinity (although in some cases communal facilities exist which require additional measures to be taken).*

Information for Londoners living in high rise properties, this information is provided by the London Fire and Civil Defence Service (LFB 's web site)

If you live in a flat or maisonette

Flats and maisonettes are built to give you some protection from fire. Walls, floors and doors will hold back flames and smoke for a time.

If there's a fire outside of your flat, in another part of the building, you're usually safer staying in your flat unless heat or smoke is affecting you.

Important relevant information

This reviewed Fire Risk Assessment (FRA) supersedes any previous FRA's in their entirety because of new guidance documents that have been provided by Government Departments and enforcement agencies since the original FRA's were compiled. In particular the fire safety guidance document produced by the Local Government Group Fire safety in purpose-built blocks of flats dated July 2011 and the amendment of September 2011. This also includes determinations issued by the Secretary of State concerning the Fire Safety Order in particular the one about the retrospective fitting of cold smoke seals on fire rated doors. The reports, including the Coroner's ones issued after the Lakanal House fire (Camberwell London) , Shirley Heights fire (Southampton) and the Prestatyn maisonette fire (North Wales) have been studied and where relevant any information contained within these reports has been incorporated into this FRA.

Any other relevant information on this premises

The three lower floor levels of this building are currently under the total control of contractors, Rydon's who are constructing new residential dwellings on these floor levels where office were once located. The contractors are also working in areas of the building controlled by the TMO.

An audit, under The Regulatory Reform (Fire Safety) Order 2005 (FSO) was undertaken in this building by Fire Safety Inspecting Officer Matthew Ramsey of the London Fire Brigade, with a Notification of Fire Safety Deficiencies being issued. This Notification of Fire Safety Deficiencies was issued by London Fire and Emergency Planning Authority (LFEPA) on the 24th March 2014, the LFEPA reference is 12/20696/jf.

A copy of this Deficiency Notice is held by the TMO Health and Safety team based at The Network Hub 300 Kensal Road, there were three requirements on this Notice these are:

1. A system of monitoring should be implemented for the smoke ventilation system installed on the flat/lift areas and a maintenance schedule put in place so the system is kept in good working order.
2. A maintenance schedule should be put in place for the emergency lighting system installed in this building and the system kept in good working order.
3. Training on fire issues should be given to staff who work in the ground floor level reception area of Grenfell Tower.

The three deficiencies highlighted in the Notification of Fire Safety Deficiencies as issued by the Fire Officer are covered in this Fire Risk Assessment (FRA) and on the significant findings sheets that accompany this FRA.

There have been no further written or verbal comments received from LFB as far as I know in connection with this premises and the issued Notification of Fire Safety Deficiencies and no follow up inspection has been undertaken by an LFB officer. This information has been checked with the TMOs Health and Safety team.

The fire officers did not comment either at the time of the audit or in any correspondence after the audit about the buildings layout, the means of escape routes, compartmentation etc. Nor were there any comments about the positioning or siting of the fixed systems within the building, only about the maintenance of the systems. No adverse comments were received either about the management policies, procedures and arrangements in place within this building at the time of the audit. Therefore it has been assumed that the Fire Authority were completely satisfied with these arrangements at the time of the audit and there have been no changes to the residential part of this premises or the TMO's management policies or procedures since the above Fire Safety audit was undertaken.

As mentioned there is currently construction work being undertaken within this building but this is mostly on the three lower floor levels and not on the residential floor levels.

FIRE RISK ASSESSMENT

FOR: The areas of this building, Grenfell Tower, Grenfell Road, London W11 1TQ, under the control of the TMO only.

The following simple risk level estimator is based on a more general health and safety risk level estimator of the type contained in BS 18004 2008:

Potential consequences of fire ⇒ Likelihood of fire ↓	Slight harm	Moderate harm	Extreme harm
Low	Trivial risk	Tolerable risk	Moderate risk
Medium	Tolerable risk	Moderate risk	Substantial risk
High	Moderate risk	Substantial risk	Intolerable risk

Taking into account the fire prevention measures observed at the time of this risk assessment, it is considered that the hazard from fire (likelihood of fire) at these premises is:

Low ☐

Medium ☒

High ☐

In this context, a definition of the above terms is as follows:

Low: Unusually low likelihood of fire as a result of negligible potential sources of ignition.

Medium: Normal fire hazards (e.g. potential ignition sources) for this type of occupancy, with fire hazards generally subject to appropriate controls (other than minor shortcomings).

High: Lack of adequate controls applied to one or more significant fire hazards, such as to result in significant increase in likelihood of fire.

Taking into account the nature of the building and the occupants, as well as the fire protection and procedural arrangements observed at the time of this fire risk assessment, it is considered that the consequences for life safety in the event of fire would be:

Slight harm ☒

Moderate harm ☐

Extreme harm ☐

In this context, a definition of the above items is as follows:

Slight harm: Outbreak of fire unlikely to result in serious injury or death of any occupant.

Moderate harm: Outbreak of fire could foreseeably result in injury (including serious injury) of one or more occupants, but it is unlikely to involve multiple fatalities.

Extreme harm: Significant potential for serious injury or death of one or more occupants.

Accordingly, it is considered that the risk to life from fire at these premises is:

Trivial ☐

Tolerable ☒

Moderate ☐

Substantial ☐

Intolerable ☐

Comments:

The risk to the occupants of this premises is considered to be tolerable.

A suitable risk based control plan should involve effort and urgency that is proportional to risk.

Risk level	Action and timescale
Trivial	No action is required and no detailed records need be kept.
Tolerable	No major additional controls required. However, there might be a need for improvements that involve minor or limited cost.
Moderate	It is essential that efforts are made to reduce the risk. Risk reduction measures should be implemented within a defined time period. Where moderate risk is associated with consequences that constitute extreme harm, further assessment might be required to establish more precisely the likelihood of harm as a basis for determining the priority for improved control measures.
Substantial	Considerable resources might have to be allocated to reduce the risk. If the building is unoccupied, it should not be occupied until the risk has been reduced. If the building is occupied, urgent action should be taken.
Intolerable	Building (or relevant area) should not be occupied until the risk is reduced.

(Note that, although the purpose of this section is to place the fire risk in context, the above approach to fire risk assessment is subjective and for guidance only. All hazards and deficiencies identified in this report should be addressed by implementing all recommendations contained in the following action plan. The fire risk assessment should be reviewed regularly.)

A fire risk assessment has been carried out for this building and the significant findings produced. By implementing the actions of the significant findings the risks or hazards will be lowered and therefore making the building safer for its occupants. If appropriate the significant findings should be passed on to any other occupiers in the building so that co-ordinated actions can be taken and visa versa, this also applies to any significant findings from any reviews etc that are undertaken.

You should consider the potential increased risk and hazard of any significant change before the change is introduced, it is usually more effective to minimise a risk or hazard beforehand than trying to achieve it after the event.

FIRE HAZARDS AND THEIR ELIMINATION OR CONTROL

1. ELECTRICAL SOURCES OF IGNITION

	YES	NO	N/A
Are reasonable measures taken to prevent fires of electrical origin?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are fixed installation periodically inspected and tested?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If appropriate, is portable appliance testing carried out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If any electrical appliances are present, are trailing leads/adapters suitably limited and sockets not overloaded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments or observations:

According to the TMO electrical data information the 5 year electrical test on the fixed wiring in the common parts of this building was last checked on the 11th December 2009 and is next due to be tested in December 2014, there appeared to be no outstanding items indicated on this certificate. This information is backed up by the same test and retest dates being on the contractor's label fixed to the supply/distribution board in the electrical room of this building. The electrical supply boards and other associated electrical components appear to be industry standard items and are were appropriate housed in standard metal lockable containers. The main electrical room is located off the base of the staircase off the ground floor lift lobby area in a secure room.

Please see the significant findings sheets for more information on this issue.

The caretakers carry out regular visual inspections of the lighting system which is the main electrical installation in the common parts of this building. Some of the lighting units in this building on the flat/lift lobby areas and on the staircase landings are also combined lighting/emergency lighting units. The electrics in the common parts of this building are on a different electrical sub circuit than the apartment's ones. The caretakers inspections also encompasses the lift motor room and boiler room, there are no electrical devices, items of equipment or supply boards etc on display in the common parts of this building. The individual apartment's electrical supply/distribution boards and meters are located within each flat. If there is any damage or remedial work is needed this is reported and repair's or replacement lighting units are installed by a contractor on a responsive defect reporting procedure.

Any defects can also be reported at any time by a resident direct to the TMO's 24 hour help line.

There are no electrical sockets located on the flat/lift lobby areas or in the staircase enclosure of this building so trailing leads or multi plugs are not used here and there are no solar thermal or photovoltaic systems on or attached to this building. Portable electrical appliance testing (PAT) is not carried out on any resident's private electrical items.

Contractors or workmen employed by RBKC and TMO are required to use only electrical equipment that is fit for purpose, in a good condition and appropriately inspected and maintained. TMO does not carried out checks on these items of equipment and it is assumed that electrical items of equipment brought into the

building by other contractors or workmen are also suitable and in a good condition as again the TMO does not carried out checks on these items of equipment. There is no recent history of major electrical power supply failures for this building, therefore the British Standard testing timetables for stand by/back up batteries in the fire alarm (including radio/wireless systems), emergency lighting and other fixed systems is deemed to be acceptable.

2. SMOKING

YES NO N/A

Are reasonable measures taken to prevent fires as a result of smoking?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Is the smoking ban suitable enforced, in the common parts, with "No Smoking" notices displayed at the entrance(s)?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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If located are the external smoking areas appropriately sited with suitable receptacles provided?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Does the no smoking policy appeared to be observed at the time of the inspection?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments or observations:

The residents are allowed to smoke within their own private individual dwellings but not in the common parts of this building or any communal areas, at the time of this risk assessment there were no indications that the no smoking policy was being abused. No smoking signage is displayed at the entrance to the building on the walkway level from Grenfell Walk, there is no designated external smoking area.

3. ARSON

YES NO N/A

Does basic security against arson by outsiders appear reasonable?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Are combustible and waste materials kept away from the outside of the premises?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Are the external refuse containers/rubbish bins suitably secured against an external arson attack?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Is the refuse storage area kept reasonably tidy and the amount of waste material kept to a minimum?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments or observations:

There are electrically operated door entry control system on this buildings main entrance/exit door, this door is currently located on the walkway level, this entry control system is to restrict entry to the building to authorised personnel only. Key fobs are used by the residents and there is an intercom system for visitors to the building, this door also has a fireman override switch fitted to it. At the time of this assessment both the door locking mechanism and the fireman's override device were both not working when tested. Currently the secondary exit door from the walkway lift lobby area is not in use.

The entrance door and the inner door from the lift lobby area to the open room are fitted with self closing devices so that these doors close automatically, both of these self closing devices worked correctly and closed the doors fully when tested at the time of this assessment.

Combustible and waste materials are kept away from the exterior of the premises as far as possible, some of these areas are under the control of the contractors, Rydon's. The internal flat/lift lobby areas and the staircase landings etc along with the roof and basement levels were clear of any waste and rubbish at the time of this assessment. There are secure waste/bin storage area located at the base of the purpose built domestic refuse chute of this building. The openings to this refuse chute are located within the fire rated refuse chute rooms which have self closing fire doors on them. These refuse chute rooms were clear of any storage or waste/rubbish at the time of this assessment, the refuse chute empties directly into the bin area directly below the refuse chute. This bin room is externally accessed and has a metal door fitted with a lock, this door was locked shut at the time of this assessment. The refuse goes into medium sized industry standard metal rubbish bins. This bin storage area is fire separated from the remainder of the building apart from the refuse chute, there is a steel shut off plate built into the refuse chute at its base in this bin area. There was no rubbish or waste on the floor of the bin room at the time of this assessment, all the rubbish was in the waste bins.

Recycling bins are located outside this building on the paved area between this building and the one close by, these are industry standard metal containers with lids for use by the residents of this building and other TMO dwelling nearby. The area around these recycling bins was clear and in a tidy state at the time of this assessment.

From information provided to me bin storage area fires have not been a problem in this area or building and to minimise the amount of waste the refuse is collected regularly by the local council.

4. PORTABLE HEATERS & HEATING INSTALLATIONS **YES** **NO** **N/A**

Is the use of portable heaters avoided as far as practicable, in the areas covered?

✓		
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Are fixed heating boilers/installations subject to regular maintenance, including any gas supply?

✓		
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Are suitable measures taken to keep combustible materials and waste away from boilers or heaters?

✓		
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Are gas safety checks carried out in the building?

✓		
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Comments or observations:

Portable heaters are not used in the common parts of the residential areas of this building.

There are central gas boilers for this buildings these are located in the basement area of this building, these provide the heating and the hot water for all of the dwellings in this building and some other TMO properties located nearby. This boiler room is externally accessed from the service road area on the right hand side of this building and you then go down a set of concrete steps.

There is a secondary exit from this boiler room via a fixed ladder and a trap door.

The gas supply and boilers are on a planned preventive maintenance and servicing programme which also includes annual servicing of any gas appliances of tenanted flats in this building.

According to the contractors label on the gas boilers the last service of these boilers was undertaken by Colley on the 5th September 2014, there were no outstanding items indicated on this contractor's label. The water pumps were last service, on the 14th April 2014. The boiler room was clear of any waste or rubbish and there were no items on top of the boilers, this boiler room is fire separated from the remainder of this building with no gaps seen around the pipes as they leave or return to this room. At the time of this risk assessment there were no leaks of oil/lubricant or other types of liquid from the boilers or the associated machinery seen on the floor. Access to this boiler room is restricted to authorised persons only because of the type of key needed to access the room. There is a manual gas shut off valve is located by the exit door from this boiler room, the main gas meter for this building is located in this boiler room.

There are spare items of engineering equipment in the boiler room, these items are related to these boiler's and are made of metal, these items were against walls etc and did not cause an obstruction or trip hazard. There were no combustible items stored in the boiler room or waste etc at the time of this assessment.

Any separate gas supply and any gas appliances in any tenanted flats of this building is on an annual planned preventive maintenance and servicing programme with an external contractor, with any gas meters for any individual flats being located within the flats themselves.

The Link magazine regularly includes a "performance chart" of which one of the featured performance indicators is gas servicing, this is currently showing that the percentage of the tenanted properties with valid gas safety certificate is nearly 100%. The actual figure for the year September 2012 to September 2013 is 99.9%, the remaining point 1 of 1% of tenanted dwellings without an annual gas safety certificate are noted and targeted so that the goal is to have a 100% compliancy rating.

The contractor due to undertake some work within this boiler as part of the refurbishment of this building.

5. PLANT and FIXED EQUIPMENT

YES NO N/A

Does the plant look in good working order?

✓		
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Is combustible material kept away from the plant or equipment?

✓		
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Comments or observations:

The lift motor room and other items of plant are located in a purpose built room at the roof level, at the time of the risk assessment there did not appear to be any leaks of oil or other types of liquid from any plant or machinery. There was no storage of any kind in this lift motor room at the time of this assessment. There is a planned maintenance programme of inspections for the lift machinery /plant within the building which is carried out by a third party contractor(Express Lifts Limited). The records kept centrally in the "Hub" in Kensal Road but there is a record book kept in the lift motor room to aid the service engineers, the last service dates in the lift record books is the 12th September 2014. Both lifts installed in this building are fire fighting/evacuation lifts according to the TMO's documentation, these

fighting/evacuation lifts have their own independent dedicated power supply and fire fighters control switch. The lift motor room is located at the roof level and is accessed from the buildings staircase, the staircase has a gate and wire mesh at the top residential floor level so restricting access to the roof level. There was no combustible storage in this lift motor room or any of the other roof level rooms at the time of this assessment.

There are water boost pump rooms located in basement boiler room, these pumps are on a planned maintenance programme of inspections according to the contractor's information and service booklets in the boiler room. Cofley the third party contractors last service of these pumps was on the 14th April 201. A record book is kept next to the pumps to aid the service engineers and also this information is kept centrally in the "Hub" in Kensal Road. At the time of the risk assessment there did not appear to be any leaks of oil or other types of liquid from any plant or machinery.

6. COOKING and LAUNDRY FACILITIES

YES NO N/A

Are reasonable measures taken to prevent fires as a result of cooking?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Is there a suitable design and layout of the cooking area?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Are reasonable measures taken to prevent fires if any laundry facilities are located in the building?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Are any filters changed or cleaned on a regularly basis if fitted in any cooker hoods or tumble dryers in laundries?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Are any filters changed and ductwork cleaned on a regular basis in any kitchen/laundry extract systems?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Are there suitable extinguishing appliances available?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Comments or observations:

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There are now no cooking or laundry facilities located in the common parts of the residential areas of this building, this assessment is covering the residential areas only, all other areas of the building from the street level to the walkway level are under the control of the contractors. There maybe cooking areas within this area of the building but this will be covered by the contractors Fire Risk Assessment (FRA). Kitchens are located in each residential dwelling in this building with the occupier being responsible for the maintenance of these domestic cooking areas and also any laundry equipment contained within their dwelling.

7. LIGHTNING

YES NO N/A

If a lightning protection system is installed on the building does it look in good condition?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments or observations:

This building has a lightning protection system installed on it, from the information provided by the TMO engineer this system is on a planned preventive maintenance contract with an external contractor, Redpath Buchanan Limited, with the records kept centrally in the "Hub" in Kensal Road. The last service on this lightning protection system was undertaken on the 4th February 2014, from the service sheet seen all was compliant with the system at that time. When I visually inspected the installed system at the time of this assessment, where this was possible, some parts of this lightning protection system were seen to be damaged.

8. HOUSEKEEPING

YES NO N/A

Is the standard of housekeeping in the building adequate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there an avoidance of unnecessary amounts of combustible materials or waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there an avoidance of inappropriate storage of combustible materials or waste in escape routes, staircases or around rubbish chutes (if any in the building)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there an avoidance of inappropriate storage of combustible materials or waste in cupboards or stores etc?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are any soft furnishing etc in corridors kept to a minimum, do not raise the fire loading or cause an obstruction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are routine preventive checks carried to see that the housekeeping/cleaning routines are working?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments or observations:

The TMO has decided that the policy on items in the common areas of the residential parts of this building will be a "managed" one. This is because the structural elements of this building are concrete and brick ie non combustible, this means that items can be on the walkways/balconies etc. But the amount and type of items is monitored by regular caretaker inspections. So push bikes or push chairs etc could be left in these areas, a push chair was outside flat 25's entrance door but they must not cause an obstruction and there must not be combustible items stored here, this includes items piled up on any push chairs etc. But on the flat/lift lobby areas on the 19th and 20th floor levels push bikes have been chained to the dry rising main outlet.

The caretakers or contract cleaners ensure that any quantities of waste and combustible material are removed from the building to the external refuse bins, therefore not allowing a build up of any combustible waste materials or rubbish in the common parts of the building or in the small garden areas around this building. It is part of the landlords cleaning contract that the cleaning contract's manager undertakes regular inspections to see that all the areas of the building are kept free of combustible storage and waste.

The roof level and the basement areas were free of any storage at the time of this assessment, the lift lobby areas were also free of any storage as was the staircase.

The residents have not introduced any other items into the common parts of the building, apart from some residents do have door mats outside their flat doors, these are low risk and did not appear to cause an obstruction or be a trip hazard. There is a purpose built domestic waste rubbish chute located in this building with the secure bin area being located at the ground floor level, the refuse chute rooms were clear of any rubbish or waste at the time of this assessment and the bin room was also clean and tidy with no waste or rubbish on the floors of this room. The flat/lift lobby areas have a linoleum type floor surface with the staircase being exposed concrete, there were no areas of flooring that were damaged etc at the time of this assessment.

9. HAZARDS INTRODUCED BY OUTSIDE CONTRACTORS & BUILDING WORK

	YES	NO	N/A
Are fire safety conditions imposed on outside contractors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If contractors carry out lone working are there suitable precautions taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there satisfactory control over works carried out in the building by outside contractors (including "hot work" permits)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If there are in house maintenance personnel, are suitable precautions taken, including use of hot work permits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments or observations:

Contractors are currently undertaking work in this building, this is on the lower three floor levels and also in the flat/lift lobby areas, in the flat/lift lobby areas new pipes are being inserted through the floor slabs and these pipes then enclosed. This contractor, Rydon's has provide all the relevant paperwork and risk assessments to the TMO before this work was started.

Otherwise only authorised contractors, who have to provide method statements and schedules of work or TMO employees carry out work for the TMO in the building, TMO has policies and procedures for contractors or in house employees carrying out work in their buildings, including "hot work" or other permit work. These policies and procedures are kept under review and altered as and when necessary or in the light of new information. If any contractors or tradesmen are employed by a leaseholder or tenant directly and the TMO is not informed then the TMO has control over these contractors or tradesmen and these persons are outside the control of the TMO.

According to the TMO policies contractors employed by the TMO or TMO employees are advised on procedures to undertake when lone working takes place.

TMO instructed contractors or tradesmen are advised that when work is carried out that waste and building materials should not be allowed accumulate and obstruct or block exits and escape routes nor should final exit doors be propped or wedge open to aid the workmen. If openings are created in fire resisting partitions or compartments suitable preventive measures must be put in place to maintain the fire separation within the building until these openings are closed again.

10. DANGEROUS SUBSTANCES

YES NO N/A

If dangerous substances are, or could be, used, has a risk assessment been carried out, as required by the Dangerous Substances and Explosive Atmospheres Regulations 2002?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Comments or observations:

There are no dangerous substances stored or used in the common parts of this building covered by this FRA, this risk assessment has not taken into account any substances that may be within any domestic dwelling, but there are clauses in the tenancy agreements to restrict such substances. There maybe dangerous substances in the contractors controlled areas but again this will be covered by the contractors fire risk assessment.

11. PEST CONTROL

YES NO N/A

Is there suitable control of any pest infestations?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments or observations:

The building does not have any problems at the present time with rats, pigeons, squirrels or other rodents or insects but this issue is kept under review to mitigate any damage that these types of vermin could cause to the fabric or structure of the building and electrical cabling or wiring. If droppings or guano are noticed then action can be taken to inform the pest control company employed by TMO to monitor the pest situation and measures will be taken to eradicate the problem. Where pigeon netting has been erected to cover the flat balconies, from a visual inspection from the ground there appeared to be no areas where this pigeon netting was damaged and it appeared to be well fitted, at the time of this assessment. There was no access to each flat balcony as these are private areas but the pigeon netting where fitted, is only covering the balcony opening it is therefore not obstructing any doors from the flat onto the external balcony area.

FIRE PROTECTION MEASURES

12. MEANS OF ESCAPE FROM FIRE

YES NO N/A

It is considered that the building is provided with reasonable means of escape in case of fire?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Is the design of the escape routes adequate?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Is there suitable protection of escape routes?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Are the escape routes unobstructed?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Are the escape routes suitable for buildings occupancy?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Do the escape routes lead to suitable final exits?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	YES	NO	N/A
Are there reasonable travel distances, both in a single and alternative direction, if applicable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are travel distances in dead ends suitably limited?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are travel distances suitable for disabled people?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there adequate provision of final exits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are exits easily and immediately openable where necessary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Where necessary do the fire exits open in direction of escape route?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do the final exit doors have appropriate securing devices?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do the dwelling entrance doors appear to be fire rated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are any other doors protecting the escape route suitably fire rated and in a good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Where appropriate are any fire doors fitted with self closing devices and do these function correctly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are store and cupboard fire doors kept locked shut?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Where appropriate are the doors/flaps to rubbish chutes or the fire doors to the rubbish chute rooms suitable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the floor covering suitable to prevent slips, trips and falls?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments or observations:

This building appears to have been constructed in accordance with the Building Regulations at the time of construction with the layout of the building including the travel distances, the escape routes, the width of escape routes and the number of exits appropriate for the present use. The means of escape route/the staircase leads to a final exit at the walkway level at present. The entrance/exit doors of this building all open in the direction of travel as do the flat/lift lobby area doors on to the staircase.

To exit the building the inner door handle on the exit door override the locking mechanism on the door, as mentioned above the lock on this door presently does not work.

There was adequate protection for the means of escape route from the building with no visual damage observed during the assessment, there are no openings off the staircase apart from the entrance/exit doors to each flat/lift lobby area. Each flat/lift lobby area has the apartment entrance doors and the refuse chute room door off it. The tenanted apartments within this building had a few years ago their flat entrance doors replace with new self closing 30 minute certified fire rated doors which meet

the requirements of the Building Regulations. The letter box on these new doors is fire rated and cold smoke seals are fitted as standard, there is a level threshold for compliance with Part M of the Building Regulations. A key is not needed to open these new flat entrance doors from the internal face of the door again complying with Building Regulation requirements. Information on these new doors which also have acoustic, safety and security properties (PAS 23 and 24) as well as fire along with the fire certification documentation is held at the Hub in the TMO offices. The other flat entrance doors which have not been replaced are flush solid fire rated doors with perko self closing devices fitted on the ones looked at, these are the originally fitted doors. please see the significant findings sheets for more information on the flat entrance which have not been replaced by the TMO and the locations of any non compliant doors. If new flat entrance doors are fitted in the future to the original flat doors then these will conform to the requirements of the Building Regulations at the time of installation.

On the flat entrance doors that have not been replaced the standard letter box and flap is in the lower half of the door and in some cases these doors are fitted with multiple locks. It is assumed that the occupants of these flats can exit the flat in an emergency without any undue delay.

The door to each of the refuse chute rooms is a 30 minute fire rated door fitted with a self closing device and cold smoke seals, please see the significant findings sheets reference the damaged door. The door flaps/hoppers of the purpose built refuse chute worked correctly at the time of this assessment and none were missing or damaged, apart from the one mentioned on the significant findings sheets. The staircase doors are also 30 minute fire rated doors but do not have cold smoke seals on them. This is because the inflow air route for the automatic ventilation system installed on each flat/lift lobby area comes in via the small gaps around these doors. The doors on the cupboards of the walkway lift area appear to be fire rated but if they are not the presently fitted doors are suitable and fulfil the function that is required of them as they are close fitting solid doors.

At the time of this risk assessment the escape route in this building, the staircase and the landings of it were clear of obstructions.

The basement areas have their own independent entrances/exits with the boiler room having an alternative exit out into the area by the old ground floor level entrance door. On the twentieth floor level of the staircase is a locked gate which restricts access to the roof level.

At the time of the risk assessment the flooring materials on the escape routes within the common parts of the building appeared suitable to prevent slips, trips and falls during evacuation, there were no signs of any damage to the floors or any unevenness. The caretakers carry out checks and report any deficiency's to the "Hub" so repairs can be undertaken. As the balconies are external routes it is not known if the weather could cause a deterioration of the floor surface but there has been no reported incidents of slipping on wet flooring reported to the TMO.

When this building was constructed it was not a requirement under the Building Regulations standards at the time to have cold smoke seals fitted to fire doors, changes to the Building Regulation standards are not retrospective. The internal fire doors that do not have smoke seals are close fitting and shut tight. If these fire doors are to be replaced, repaired or any refurbishment work carried out that involves these fire doors, then they will either be upgraded with smoke seals fitted to the door or in the surrounding frame or replaced with doors that already have smoke seals fitted.

If any of the apartments in this building are leaseholder apartments rather than tenanted apartments then the entrance door of the flat is demised to the leaseholder. The TMO does not have any control over or legal powers to intervene if the leaseholder changes the flat entrance door. The lease agreement clearly defines that the entrance door is demised to the leaseholder so if there is an issue over the conformity of the flat's entrance door to either the standards required of the Fire Safety Order or the Building Regulations this is a private matter between the leaseholder and the enforcement authority. There have been meetings on this subject between the TMO and the local LFB fire safety team leaders, minutes of these meeting are held by the TMO Health and Safety team manager along with the relevant policies and procedures. If the apartment is a tenanted one with a TMO tenant not a leaseholder then the TMO has control and will undertake any appropriate actions needed.

13. DISABLED PEOPLE

YES NO N/A

It is considered that the building is provided with reasonable arrangements for means of escape for disabled people?

✓		
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Comments or observations:

At the time of the risk assessment there was no evidence of any resident within the premises who suffers from sensory impairment to such a level that would prevent them from hearing a shouted warning of fire or a loud knocking on their entrance door to warn them.

TMO have recently introduced a comprehensive programme to gathering information about tenants including any disabilities and their physical ability and mobility to respond to any emergency situations. This information will be imputed on a "TP Tracker system" and held centrally.

The additional information will be used to assess if residents may require additional devices to provide them with early warning of smoke/fire in their home and/or development of a Personal Emergency Evacuation Plan (PEEPs).

Both of the lifts in this building are firefighter/evacuation lifts and could be used as part of the evacuation strategy for disabled persons but if these lifts were used this would be under the control of the fire service, if they were in attendance. Before the fire service arrive at this building the lifts could be used by the residents, this policy is in accordance with guidance given in the H M Government risk assessment document Sleeping Accommodation.

14. MEASURES TO LIMIT FIRE SPREAD AND DEVELOPMENT

YES NO N/A

It is considered that there is:

A reasonable standard of compartmentation provided?

✓		
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A reasonable limitation of the fire loading in the means of escape routes/corridors that might promote fire spread?

✓		
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The wall and ceiling linings are in a good condition?

	✓	
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	YES	NO	N/A
If fitted, is any fire rated glazing in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Where necessary are fire dampers provided to protect the means of escape against fire, smoke and combustion products in the early stages of a fire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If fitted, is the ductwork of any mechanical ventilation system cleaned and any filters changed regularly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments or observations:

This building appears to have appropriate fire separation and compartmentation and from a visual inspection of the structure of the building there appeared to be no areas that raised concern about structural damage to the building or fire stopping issues. I have classed the roof space area, minus the lift motor room as one fire compartment, I believe that the present arrangements are suitable and no action is needed on this issue. The basement level is also one compartment with the areas at the base of both the staircase having fire rated doors protecting the staircases. There were no obvious signs that in the areas covered that bad workmanship would mean that the fabric or fire integrity was or could be compromised. No invasive structural investigation was undertaken to complete this risk assessment. There were no visible breaches of the compartment walls and ceilings linings at the time of this risk assessment and the fire loading of the common parts of the building was considered to be good, please see the sections on "housekeeping" and "arson" for more information. Please see the significant findings sheets reference the two duct covers on the flat/lift lobby areas.

There is fire rated glazing in some of the fire doors in this building no piece of fire rated glazing were seen to be damaged or had cracks in them at the time of this assessment.

Please see section 19 below for more information on the smoke ventilation systems in this building, natural ventilation is used to vent the staircase enclosure.

15. EMERGENCY ESCAPE LIGHTING

	YES	NO	N/A
If any is fitted, is the emergency lighting system currently installed in the building, to a reasonable standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there adequately normal or borrowed lighting to back up any fitted emergency lighting system installed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Where necessary, does the emergency lighting cover any external escape routes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If fitted, are all emergency lighting units, clean and visually in a good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments or observations:

There are emergency lighting units installed in the staircase enclosure of this building, on the flat/lobby areas and on the walkway level area, in the boiler room and in the roof level lift motor, plant and water rooms. I believe this provides an

adequate level of illumination should the normal supply systems fail. There is column and street lighting on the walkway and the public road outside of this building which would illuminate by borrowed light the external route from the building including the walkway level during the hours of darkness. In the event of a supply systems failure in the building the exterior lighting would still function as it is on a different circuit. The emergency lighting system in this building was not checked/tested during this assessment.

The installed emergency lighting system consists of self contained units, not a centralised battery system or a generator back up system, the neon indicator lights are visible on the emergency lighting units. The glare limits of the emergency lighting units are within the acceptable ranges of BS 5266 and the colour of the light produced is white, there are no twin pack lighting units in use.

16. FIRE SAFETY SIGNS AND NOTICES

YES NO N/A

Is there suitable pictogram fire signage in this building?

	✓	
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Are any signs displayed clearly legible, fixed securely in position and unobstructed?

	✓	
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If necessary, are there pictogram fire safety notices in the building with the assembly point indicated?

	✓	
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Comments or observations:

Given the simple layout of the building, there is only one staircase so no escape signage is provided in this staircase, this is in accordance with H M Government Guidance, the staircase is connected to each flat/lift lobby area. At the walkway level, which is at the base of the staircase there is a final exit door once you have gone through the entrance hall area, the buildings entrance/exit door goes direct to open air. There is no signage on this entrance/exit door describing the action of the release/securing device fitted to the door, because the normal door handle on the inner face of the door over rides the locking mechanism of the door in a single action and is used every time by person leaving the building.

There are no fire action notices displayed next to each of the fire alarm break glass call points in the basement boiler room or in the roof level areas of this building, please see the significant findings sheets reference this item and the 16th floor level number. Signs displaying the floor level number are permanently fixed to the wall of the staircase landing and on each flat/lift lobby area in a large font near in this building to aid the emergency services.

There are no fire action notices on the residential floor levels of this building as the residents have been instructed on the actions to be taken in the event of any emergency in other ways. Pictogram signage is used so that anybody who does not use English as their first language can understand the signage.

To aid the emergency services in the ground floor entrance lobby area there is a sign indicating the flat numbers and which floor they are located on and on each floor level on the lift lobby area and on the staircase landing there is a sign indicating the floor level. These signs are permanently fixed to the wall and in a large font.

17. MEANS OF GIVING WARNING IN CASE OF FIRE**YES NO N/A**

Is a suitable manually operated electrical fire alarm system provided in the common parts of the building?

✓		
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Does it have automatic fire detection, if required?

✓		
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Is the system suitable for the occupancy and fire risk?

✓		
---	--	--

If the system extends into the private flats is it suitable?

		✓
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Has remote transmission of the system been considered?

✓		
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Comments or observations:

There is an automatic smoke detector located in each flat/lift lobby area on every residential floor level of this building these detectors are to operate the smoke ventilation system only. In the basement boiler room area there is a manual fire alarm system and the roof level lift motor room has automatic detection with the rest of the roof area having a manual system. All of these devices are linked into the single fire alarm panel located now by the entrance door on the walkway level, the panel was originally located in the ground floor entrance lobby area. There are no sounders of the fire alarm system in the residential parts of the building, again the detectors are only located here to operate the ventilation system.

There was no access to all the individual dwellings but from the flats looked at there appears to be a mixture of different types of domestic smoke alarms, there are self contained battery operated ones and also electrically powered/operated hardwired ones, it is not known if automatic detection is in every flat. The TMO in newsletters etc has advised residents to fit domestic smoke detectors and there are some central records of devices being fitted in some flats before residents moved in.

London Fire Brigade (LFB) operate a policy where they will undertake home visits to domestic dwellings and fit domestic detectors, the LFB have provide home information leaflets centrally to the TMO for caretakers to deliver to residents to request these visits. If during any LFB visits concerns are identified about fire safety issues in any dwelling then the arrangement is that the TMO are informed of this by the LFB. It is TMO's policy that if flats are refurbished then the installed detection is assessed to see if it needs to be up graded etc by the addition of new devices.

Where domestic smoke and heat alarms are fitted within a dwelling the occupant/resident is responsible for any testing of the device.

It is not known if remote transmission of the fire alarm and warning system in this building has been implemented as the ground floor reception area has now been moved.

A "Stay Put" evacuation strategy is currently in place for all residential flats in the building and this is considered to be acceptable.

18. PORTABLE FIRE EXTINGUISHING APPLIANCES**YES NO N/A**

Is there reasonable provision of portable fire extinguishers?

✓		
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Are all the fire extinguishing appliances readily accessible?

✓		
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Comments or observations:

There are no portable fire fighting appliances provided within the common parts of this building this is in accordance with the guidance in the document issued by the Local Government Group, Fire safety in purpose-built blocks of flats (July 2011) and because of advice from London Fire and Civil Defence Service. Under normal circumstances it is good practice for extinguishers to be located in a building along escape routes and near exits but as residents in an accommodation building are not trained to use portable fire extinguishers none are provided. The presence of fire extinguishers may encourage people to tackle a fire when, they should be evacuating the building and additionally any fire extinguishers provided could be stolen and /or misused as there are no permanent staff/employees on site. So with the recommendations of the guidance in mind portable fire fighting equipment is only located in plant rooms and other similar ancillary areas of TMO controlled buildings. It is not know if any portable fire fighting equipment has been purchased by any residents for their own private dwellings, in news letters to the residents there have been fire safety articles contains basic instructions in relation to the safe use of portable fire fighting equipment. If any residents have purchased portable fire fighting equipment, then this will be for their own person use and beyond the control of the TMO.

Fire extinguishers are provided in the roof level lift motor and plant room areas and in the basement boiler room.

With the coming into force of BS 5306 Part 8 2012 the principles of the 2000 document in regard to dry powder fire extinguishers being used/discharged in a confined space have now been extended to cover all types of buildings. The BS 5306 Part 8 2000 document only previously commented on their use in hospitals, old people's homes and hotels this is because of the sudden reduction of visibility which may temporarily jeopardise any escape, rescue or other emergency action. Previously water based extinguishers were the preferred option in hospitals, old people's homes and hotels, now dry powder fire extinguishers should not normally be specified for use indoors in any building unless mitigated by a Health and Safety assessment. There are dry powder fire extinguishers in the basement boiler room of this building, the fire extinguisher engineer may comment further on this issue when he next undertakes the annual servicing of the fire extinguishers.

19. FIXED FIRE SYSTEMS AND EQUIPMENT

YES NO N/A

Type of fixed system: Dry Rising Main

<input checked="checked" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Evacuation/Fire fighting Lifts

Automatic Opening Ventilation System

Hose Reels

Comments or observations:

There is a dry riser installed in this building with the inlet on the ground floor lift lobby area, this was visible from the fire appliance parking place, which was outside this buildings entrance door. This inlet is housed in a standard metal recessed painted box, the outlets for the dry riser are also housed in standard secure metal boxes with a glass panel on the front face of the boxes. The outlets are located on each floor level of the residential part of this building and also at the roof level, as there is an outlet on each floor level there is no sign on the staircase landing indicating that an outlet is located on that flat/lift lobby area. The TMO use a third party contractor to maintain and service the dry rising main and all the fitting attached to it and they are

responsible for its operation and effective working order. If any defects are noticed during a service or maintenance visit the contractor in under a contractual obligation to inform the TMO of these defects if there is a substantial cost implication or repair them if possible if the costs are within the agreed amount.

If this dry riser is used by the fire service during an operation incident then this riser is under the total and full control of the fire service.

As part of the refurbishment work to be undertaken in this building the dry riser inlet is to be moved from its current located in the ground floor lobby area to an external position on the face of the building.

Both the lifts in this building are evacuation/ fire fighting lifts, the lifts have the standard fire fighter over ride controls fitted so that the Fire and Rescue Service can take control of these lifts and use them as they see fit to do so in the event of an emergency. Please see the significant findings sheets regarding the relocation of these lifts.

The TMO use a third party contractor to maintain and service these fire fighting lifts and any associated equipment and they are responsible for its operation and effective working order. If any defects are noticed during a service or maintenance visit the contractor in under a contractual obligation to inform the TMO of these defects if there is a substantial cost implication or repair them if possible if the costs are within the agreed amount. The power supply's to each lift are as required for a fire fighter/evacuation lift along with all the other requirements for weight and size etc but there is no roof hatch in the lifts.

These evacuation/ fire fighting lifts could be used as part of a person's PEEP's if needed, if these fire fighting/evacuation lifts are used by the fire service during an operational incident then these lifts are under the total and full control of the fire service.

There is an automatic opening smoke ventilation system located on each flat/lift lobby area, there are two sets of vents, each of two vents on opposite walls on the flat/lift lobby areas. There is a smoke detector located on each flat/lift lobby area which upon activation opens the vents on that floor level, 2 vents are for in flow air the other 2 are extraction. The mechanical extraction units and the control panels for these vents are located in the roof level plant room on the wall. There is a manual over ride facility located in the ground floor lift lobby area for use by the fire service. Please see section 17 above, "Means of giving a warning in case of fire" for more information of the lift/flat lobby area detectors.

As part of the buildings refurbishment this smoke extraction system is being upgraded, this currently installed system was serviced by RGE Services on the 11th October 2013. This smoke extraction system incorporates dampers within the duct work.

In each of the refuse chute rooms there is a mechanical air extraction system which will also remove smoke, again the extraction units and the controls for this system at located at the roof level on the opposite wall of the plant room from the flat/lift lobby areas ones.

There are fire fighting hose reels in the basement boiler room, these hose reels are due to be removed as part of the boiler room refurbishment work, they have not been serviced according to the servicing labels attached to each item since August 2012.

MANAGEMENT OF FIRE SAFETY

20. PROCEDURES AND ARRANGEMENTS

YES NO N/A

Are there routine in- house fire safety inspections and checks carried out, with records kept?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are appropriate fire procedures in place with a suitable record of the fire safety arrangements ?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are there suitable arrangements for summoning and meeting the fire and rescue service, including providing relevant information and any likely hazards?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Are there suitable policies and procedures in place for contractors and "lone workers"?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Comments or observations:

The TMO caretakers walk around the common parts of this building on a regular basis and there are defect reporting policies and procedures in place so that any discrepancies or damage can be repaired or items replaced. Any resident can ring the TMO 24 hour help line at any time to report any defects in this building, lights not working etc or any items that are damaged.

The Fire and Rescue service can be called at any time by any resident if there is an emergency situation and the tenant would meet the Fire Service on their arrival as would be the situation for a fire in any private dwelling.

The Health and Safety Advisor of the TMO has regular liaison meetings with the local fire and rescue service commander to pass on information and arrange familiarisation visits if needed or requested. As far as I can tell and from information I have been given the policies and procedures are subject to reviewing at set intervals or are altered if new or relevant information becomes available.

21. TRAINING

YES NO N/A

Are TMO employees given adequate fire safety instruction and training on induction and adequate periodic "refresher training" at suitable intervals, with records kept?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Is the content of the staff training provided suitable, with practical instruction on fire fighting equipment?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Comments or observations:

All TMO employees receive induction training which includes fire training and periodic "refresher training" at regular intervals, any records of this training are kept by the Human Resources (HR) department at 300 Kensal Road North Kensington. Caretakers, wardens and office managers receive training to be fire marshals/ wardens by a third party fire training company the fire warden are also the nominated persons and by being recorded as a fire warden you are also the nominated person, training records again kept by the HR department. The topics and areas covered by the training packages are available from either TMO's HR or the Health and Safety team or direct from the training provider.

I have been shown copies of the training documents and they appear to cover all the areas and topics that are mentioned in the H M Government risk assessment guidance booklets.

The practical training involves using the types of portable fire fighting appliances currently provided in the TMO buildings.

If anybody receiving this training does not use English as their first language this fact is taken into account so that they comprehend the information given to them.

Prior to moving into this building all residents are issued with a handbook which includes some fire safety advice and are given a tour of the building by a Neighbourhood Officer, there is no documentary evidencing required by TMO for the issuing of the handbook.

Contractors are reported by the TMO to be required to have a construction phase plan which should be agreed before work commences and be acted upon including provision of a suitable number and type of fire extinguishers and someone trained to use them as part of the fire safety arrangements for the project where appropriate.

The ground, upper ground and walkway level offices in this building no longer exist, these office areas are being converted into private residential dwellings, so the issued of fire training as raised in the Notification of Fire Safety Deficiencies dated the 24th March 2014 now do not apply.

Fire drills are not undertaken by the residents of this building, it is not known what fire drills are undertaken by Rydons, but this item will be covered in their fire risk assessment.

22. CO-OPERATION WITH ANY OTHER EMPLOYERS

YES

NO

N/A

If this building is shared with other occupiers is fire risk Information co-ordinated between occupiers?

☐
☐
☒

Have you received appropriate information on other occupiers fire risks and general fire precautions?

☐
☐
☒

Comments or observations:

I have classed the residential areas of this building, the areas covered by this Fire Risk Assessment (FRA) as a single occupied residential building. There are contractors working in this building refurbishing the lower floor levels, the street level to the walkway level this includes constructing some new dwellings. Therefore I would recommend that the contractors, Rydons are asked for a copy of their FRA. This FRA should be inspected and any points concerning any fixed systems covering the residential parts of the building or items involving the common parts of the residential areas noted and acted upon if required.

There is an EDF electrical substation accessed externally at the ground floor level and located under the residential areas of this building, this substation is next to the bin storage room. This electrical substation is accessed from the footpath off the service road at the side of this building. This area is unmanned and only visited infrequently and restricted to employees of this electrical company. There is no needed for the companies employees to enter the building and TMO employees cannot access this area. This is only mentioned because to access the substation you need to enter the service road, if it was on the public road outside the boundary of this site there would be no need to mention this substation.

23. TESTING AND MAINTENANCE

	YES	NO	N/A
Is the structure of the premises adequately maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there weekly testing and six monthly servicing of fire detection and fire alarm system, with records kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is there a monthly visual and annual testing of the emergency escape lighting, with records kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is there a monthly visual and annual maintenance of the fire extinguishing appliances, with records kept?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there a monthly testing and annual servicing and maintenance of any automatic opening vents along with any associated equipment/devices, with records kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is there routine checks of final exit doors and/or security fastenings, with records kept?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there periodic inspection of any external escape staircases and gangways, with records kept?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Six monthly inspections, (pipe & pump(s)) and annual testing of any wet or dry rising mains, with records kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Monthly inspections of switches and annual testing of the fire fighting/evacuation lifts, with records kept?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weekly inspections and annual testing of the sprinkler installations, with records kept?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Annual inspection and test of lightning protection system, with records kept?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monthly and annual testing and servicing, under load of any back up/stand by generators, with records kept?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments or observations:

From information and the asset records provided to me by the TMO the lightning protection system, the dry riser, the fire alarm system, the emergency lighting system and the fire fighter/evacuation lifts in/on this building are subject to maintenance contracts. Testing, servicing and maintenance is being carried out on these systems/items by professional third party contractors on a planned preventive maintenance programme with records kept centrally by TMO at the "Hub" and by the contractors.

According to the information on the TMO asset register the installed emergency lighting system/units in this building are overdue to be serviced, tested and a discharge test carried out. Please see the significant findings sheets for information on other systems in this building which are also overdue servicing or are due shortly.

From the asset records provided to me by the TMO the lightning protection system on the building is subject to a maintenance contract and that testing, servicing and maintenance is being carried out on the system by a professional third party contractors on a planned preventive maintenance programme with records kept centrally by TMO at the "Hub" and by the contractor. Please see the significant finding sheets regarding this installed system which is presently damaged. RGE Services were under contract to the TMO to provide portable fire fighting equipment testing, servicing and maintenance, a new contractor, for this building Chubb has been appointed from the 1st April 2014. The fire extinguishers in this building are in the lift motor room and plant room areas and in the basement level boiler room, were all in test date, the last test date on the Chubb contractor's label on these extinguishers being this month, October 2014. All of the fire extinguishers in the TMO controlled parts of this building had the same service date on them. It is not known if the occupier's tests and inspections of the fire systems within this building are being undertaken along with the structural safety features of the building by the caretaker and that a written record is being kept on each relevant premises file or in a TMO office.

Definitions:

Responsible person: The person ultimately responsible for fire safety as defined in the Regulatory Reform (Fire Safety) Order 2005. which is:-

"responsible person" means—

- a) in relation to a workplace, the employer, if the workplace is to any extent under his control;
- b) in relation to any premises not falling within paragraph (a)—
 - i. the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or
 - ii. the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business or other undertaking.

"relevant persons" means—

- a) any person (including the responsible person) who is or may be lawfully on the premises; (members of the public in a shop or licensed premises, contractors or visitors in a factory) and
- b) any person in the immediate vicinity of the premises who is at risk from a fire on the premises, but does not include a fire-fighter who is carrying out his duties in relation to a function of a fire and rescue authority under section 7, 8 or 9 of the Fire and Rescue Services Act 2004 (fire-fighting, road traffic accidents and other emergencies). This could include people in flats above a ground floor shop or the staff living over a licensed premises.

Child; Anyone who is not over compulsory school age, i.e. before or just after their 16th birthday.

You must, before you employ a child, provide a parent with clear and relevant information on the risks to that child identified by the risk assessment, the measures you have put in place to prevent/protect them from fire and inform any other responsible person of any risks to that child arising from their undertaking.

Combustible materials: A substance that can be burned.

Compartment wall and/or floor: A fire-resisting wall or floor that separates one fire compartment from another.

Competent person: A person with enough training and experience or knowledge and other qualities to enable them properly to assist in undertaking the preventive and protective measures.

Dangerous substances: A substance which because of its physico-chemical or chemical properties and the way it is used or is present at the workplace creates a risk or a substance subject to the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR). Small quantities of substances are not considered a major hazard for instance DSEAR talks of quantities of 25 litres and more so a few plastic bottles of cleaning materials and other such substances are not relevant and would be normal. For example the local corner shop or supermarket would not record as dangerous substances all the items they sell in their shop, including bleach, white spirit, paint and glue etc.

Material change: An alteration to the premises, process or service which significantly affects the level of risk to people from fire in those premises.

Means of escape: Route(s) provided to ensure safe egress from the premises or other locations to a place of total safety.

Premises: Any place, such as a building and the immediate land bounded by it, any tent, moveable or temporary structure or any installation or workplace.

Significant findings: A feature of the premises or items from which the fire hazards and persons at risk are identified this information comes from completing the fire risk assessment. It can also contain the necessary information, instruction and training needed and how it will be given. From the significant findings can come an:-

An Action plan: The actions you have taken or will take to remove or reduce the chance of a fire occurring or the spread of fire and smoke, including time frames and who will supervise or carry out the work needed.

Travel distance: The actual distance to be travelled by a person from any point with-in the floor area to the nearest storey exit or final exit, taking into account the layout of walls, partitions and fixings in the building. If the building has been constructed in accordance with The Building Regulations and no unauthorised alterations have then place then the travel distances will be satisfactory.

Where necessary: The Order requires that fire precautions (such as fire fighting equipment, fire detection and warning, and emergency routes and exits) should be provided (and maintained) 'where necessary'.

What this means is that the fire precautions you must provide (and maintain) are those which are needed to reasonably protect relevant persons from risks to them in case of fire. This will be determined by the findings of your risk assessment including the preventative measures you have or will have taken.

Who is at Risk in the building:

This is a term used in risk assessment documents and the Fire Safety Order 2005, for the purposes of this risk assessment persons who are at risk are deemed to be anybody who is lawfully entitled to be in the building, ie relevant persons, but excluding fire fighters engaged in emergency activities. Please see the definition of "relevant persons" as described above.

Young person:

(a) A person aged 16 years, from the date on which he attains that age until and including the 31st August which next follows that date.

(b) A person aged 16 years and over who is undertaking a course of full-time education at a school or college which is not advanced education.

(c) A person aged 16 years and over who is undertaking approved training that is not provided through a contract of employment.

REFERENCES:Fire Safety Design and Management

BS 5588-12: 2004. *Fire precautions in the design, construction and use of buildings Managing fire safety*. Now incorporated in:

BS 9999: 2008. *Code of practice for fire safety in the design, management and use of buildings and BS 9991:2011*.

LACoRS. *Housing Fire Safety Guidance (Now Local Government Regulation)*
Local Government Group Fire safety in purpose-built blocks of flats (July 2011)

Fire Detection and Fire Alarm Systems

BS 5839-1: 2013. *Fire detection and fire alarm systems for buildings - Code of practice for system design, installation, commissioning and maintenance*.

BS 5839-6: 2013. *Fire detection and fire alarm systems for buildings – Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings*.

BS 5839-8: 2013. *Fire detection and fire alarm systems for buildings - Code of practice for the design, installation, commissioning and maintenance of voice alarm systems*.

BS 5839-9: 2011. *Fire detection and fire alarm systems for buildings - Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems*.

Fire Extinguishing Appliances

BS 5306-1: 2006. *Code of practice for fire extinguishing installations and equipment on premises - hose reels and foam inlets*.

BS 5306-3: 2009. *Fire extinguishing installations and equipment on premises - Code of practice for the inspection and maintenance of portable fire extinguishers*.

BS 5306-8: 2012. *Fire extinguishing installations and equipment on premises - Selection and installation of portable fire extinguishers - Code of practice*.

BS EN 3. *Portable fire extinguishers*.

BS EN 671-3: 2009. *Fixed fire-fighting systems. Hose systems. Maintenance of hose reels with semi-rigid hose and hose systems with lay-flat hose*.

BS 5306-0:2011 *Fire protection installations and equipment on premises Part 0: Guide for selection of installed systems and other fire equipment*

BS EN 1869: 1997. *Fire blankets*.

BS ISO 14520-1:2006 *Gaseous fire-extinguishing systems. Physical properties and system design. General requirements*

Emergency Escape Lighting

BS 5266-1: 2011. *Emergency lighting - Code of practice for the emergency lighting of premises.*

BS 5266-7: 1999 (BS EN 1838: 1999). *Lighting applications - Emergency lighting.*

BS 5266-8: 2004 (BS EN 50172: 2004). *Emergency escape lighting systems.*

Fire Safety Signs

BS 5499-1: 2002. *Graphical symbols and signs - Safety signs, including fire safety signs. Specification for geometric shapes, colours and layout.*

BS 5499-4: 2000. *Safety signs, including fire safety signs. Code of practice for escape route signing.*

BS 5499-5: 2002. *Graphical symbols and signs - Safety signs, including fire safety signs. Signs with specific safety meanings.*

BS 5499-10: 2006. *Safety signs, including fire safety signs. Code of practice for the use of safety signs, including fire safety signs.*

Fixed Fire Extinguishing Systems and Equipment

BS 5306-2: 1990. *Fire extinguishing installations and equipment on premises - Specification for sprinkler systems.*

BS 9990: 2006. *Code of practice for non-automatic fire-fighting systems in buildings.*

BS EN 12845: 2004. *Fixed fire-fighting systems - Automatic sprinkler systems - Design, installation and maintenance.*

Miscellaneous

BS 476-22: 1987, 'Fire tests on building materials and structures, methods for determination of the fire resistance of non-load-bearing elements of construction'

BS 7176:2007 A1 2011. *Specification for resistance to ignition of upholstered furniture for non-domestic seating by testing composites.*

BS 7273-4: 2007. *Code of practice for the operation of fire protection measures - Actuation of release mechanisms for doors.*

BS 7671: 2008 A12011. *Requirements for electrical installations. IEE Wiring Regulations. Seventeenth edition.*

PAS 79: 2012. *Fire risk assessment - Guidance and a recommended methodology.*

Lightning

BS EN 62305-1: 2011. *Protection against lightning. General principles.*

BS EN 62305-2: 2006. *Protection against lightning. Risk management.*

BS EN 62305-3: 2011. *Protection against lightning. Physical damage to structures and life hazard.*

BS EN 62305-4: 2011. *Protection against lightning. Electrical and electronic systems within structures.*