Report No: 101-17	Classification:	Date: 21-7-17	Department: Engineering & Compliance - Asset Management - Housing and Modernisation
To:		David Rowson Fire Safety Team Manager	
Report title:		Type 4 Survey	
Area or Address		Ledbury Estate – Tower Blocks	
From:		Keiron Carroll BSc (Hons) Senior Fire Safety Surveyor	

Contents

1.0 Introduction

As part of the continued investigatory processes, the Fire Safety Team in-accordance with instructions have examined the following areas of the Ledbury high rise blocks

- unrestricted fire and smoke spread in concealed spaces
- inadequate fire stopping where services pass through walls or floors
- unsatisfactory fire rated material used to separate compartments

The report will supply detailed observations as required by a Type 4 survey as defined in Fire Safety in Purpose-Built Flats. This is not a typical property survey although will be approached as such. Primarily to the individual flats, however where required the investigation will continue in to the common parts.

This is a sample section of the buildings, but deemed to represent the layout and building elements. Where needed the report will suggest further investigation is required.

2.0 Limitation and restricted areas

A review of the Southwark Councils asbestos database has identified the following locations contain asbestos:

- floor covering of the sitting room and bedrooms (chrysotile)
- bitumen adhesive material of the skirting (chrysotile)
- string holding the insulation material to pipes in the kitchen (crocidolite)

Where there is an assumption of asbestos containing material, they will be tested by an accredited company or left in situ and reported to the asbestos department.

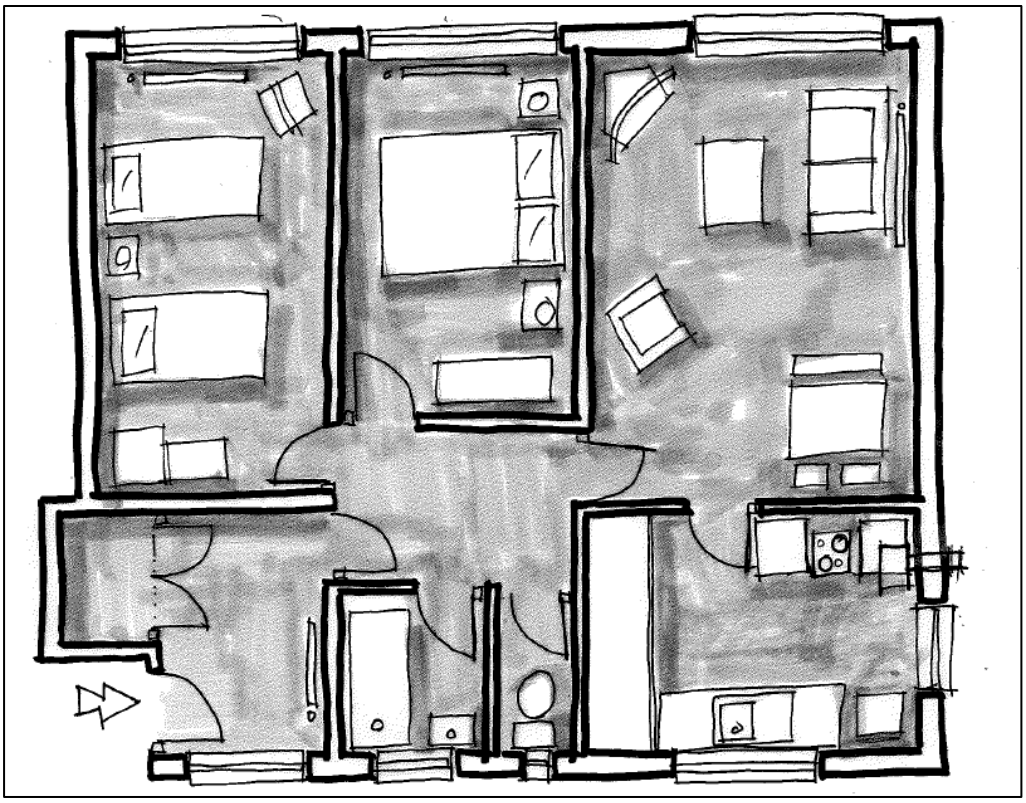
- store cupboard in access hall – fanlight board (amosite)
- Fanlight board over the front door – external panel (amosite)

Due to the known issues and the ongoing investigatory mechanism, this report will omit comment on the gaps to the external wall and floor slabs affecting the sitting room and bedrooms. The temporary sealing of the gaps will be documented in the results section of the report.

3.0 Building information

The structure is formed of large prefabricated reinforced concrete panels. A central core having two lifts a stairwell and with flats on successive floors one above another, with solid vertical and horizontal divisions. The 'H' design has four flats per floor with opposing wings supporting two flats accessed by cross-corridor doors.

The configuration of the flats is one to three bedrooms although each flat has a similar floorplan. Comprising of an access lobby, hall, bedrooms, kitchen off the sitting room, a separate bathroom and w/c.



Typical Layout of a two bedroom flat

4.0 Inspection

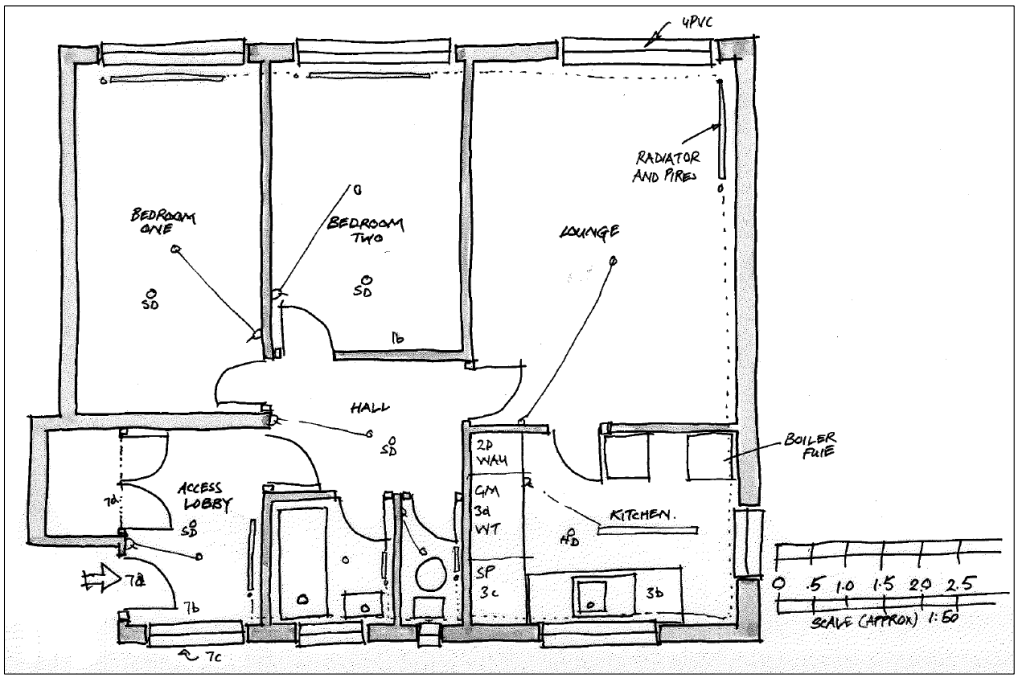
The following areas where inspected

Flats	Common parts
• an electric meter in the access hall, properties undergone a recent rewire • a gas meter in the kitchen, • a combination boiler on an external wall in the kitchen	• Stairwell • dry riser outlet cabinet • metal trunking at ceiling height • fuse board cupboard • refuge chute room

- stored water for the w/c
- waste and service pipes in the kitchen
- FD30sSC front door (and set)
- smoke detector in the access lobby, hall, bedrooms and a heat detector in the kitchen
- separate bathroom with a bath and whb
- water closet with a low level cistern
- internal doors are 35mm
- the store room has rebated double doors
- mini-trunking is surface mounted at high level dropping to light switches and socket outlets
- double glazed uPVC window frames
- Solid walls separating all rooms, some flats have store cupboards accessed from the hall and bedroom, where these have been removed the wall is a stud partition with a single glazed light at high level
- Built in cupboards in the kitchen, with timber separating compartments
- Dis-used warm air unit
- Infill panel - access lobby
- disused drying room
- cable penetrations to flats
- infill panel located in the residential lobby
- panels to integral units in lift lobby

5. Result of Flat Surveys

The following section provides a detailed description of each compartment; surveyed in a clockwise direction:



Layout reference

Item No.	Location	Detail	Breach	Action	Photos
1	**Bedrooms**	Two bedroom flat			
	a.	**Door and frame** 35mm thick with 2 hinges and lever furniture, a planted stop fixed to the frame	Accessed by the protected hall the door should provide 20minutes fire resistance, light weight door with no certification that it would meet this criteria	Replace door set with a fire rated door to provide 20minutes fire resistance to protect the escape route	
	b.	**Walls** wall to the adjacent bedroom was relatively slenderer, the party wall is a structural element	No an issue with the material as it would restrict fire spread for the desired period		
			Gaps to the external walls have been described and temporary remedial works are evident	The gaps are sealed with a backing rod covered with a pyrolastic mastic (intusil – tested at Exova Trada to BS EN 1366-4, BS EN 1366-3, BS 476: 20/22)	
		The wall separating the second bedroom to the hall is a timber stud with plasterboard.	Some flats have built in cupboard, accessed by the hall and bedroom these in-situ cupboards have an asbestos backing, where these have been removed the asbestos AIB had been removed	The wall from the bedroom to the protected hall is a stud partition with a clear glazed panel at high level. Re-instate the fire resisting properties to the wall.	

	c.	**Surface penetrations** Pressed steel radiators are situated on the external walls under the window, the flow and return pipes are at low level and penetrate each room. Light switches, socket outlets and ceiling roses are supplied by conduit within the walls	The copper pipes pass through the dividing walls; there are small gaps around the pipe work.	Where gaps around pipes exceed guidance in ADB, a proprietary seal should be applied.	 
2	**Lounge**	The kitchen is accessed through the lounge.			
	a	**Door and frame** 35mm thick with 2 hinges and lever furniture, a planted stop fixed to the frame	Accessed by the protected hall the door should provide 20minutes fire resistance, light weight door with no certification that it would meet this criteria	Replace door set with a fire rated door to provide 20minutes fire resistance to protect the escape route	
	b	**Walls** The wall separating the bedroom from lounge is a structural element, the wall to the kitchen is concrete, with a covered service hatch	No an issue with the material as it would restrict fire spread for the desired period Gaps have been described and temporary remedial works are evident	The gaps are sealed with a backing rod covered with a pyrolastic mastic (intusil – tested at Exova Trada to BS EN 1366-4, BS EN 1366-3, BS 476: 20/22)	

	c.	**Surface penetrations** Pressed steel radiators are situated on the external walls under the window, the flow and return pipes are at low level and penetrate each room. Light switches, socket outlets and ceiling roses are supplied by conduit within the walls	The copper pipes pass through the dividing walls; there are small gaps around the pipe work. Cables where identified, in the duct, that supply the light circuit, these are not secured to the walls; however they are in enclosed area, the cables penetrate the concrete with varying degrees of damage. This defect can be mitigated if the area is encapsulated	Where gaps around pipes exceed guidance in ADB, a proprietary seal should be applied. Apply fire stopping to damaged area to reduce the risk of fire spread and smoke spread	 
	d	**Ducts** Flats where originally heated by a communal warm air system, the warm air was vented to the protected hall; the lounge would have had an electric fire. There is an access panel next to the kitchen door.	The access panel was Medium Dense Fibre (MDF) or plywood, this may have originally an Asbestos Insulation Board (AIB). The location is no longer in use and is a void space. A concrete duct penetrates all floors, which was used to vent the warm air	Remove the MDF cover plates and fire stop the holes to provide the	

			unit; there are two circular holes that open to the concrete 'chimney'. These holes are in all flats above and below. Some have been covered with MDF where others are open.	equivalent fire resistance of the structure.	  
			There is a vent grille into the protected hall. This is open and would have been used to allow warm air to travel into the hall.	Fire stop this area using appropriate material (ablative bat).	 

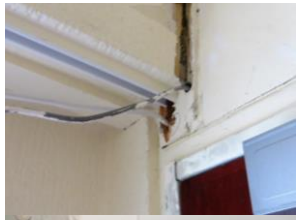
3	**Kitchen**	Off the lounge			
	a	**Door and frame:** 35mm thick with 2 hinges and lever furniture, a planted stop fixed to the frame. Due to the configuration, this door does not need to be a fire rated.			
	b	**Walls and Floors**: The wall separating the lounge from the kitchen does not need to be fire rated. There was a service hatch, which has been covered with plaster and wall tiles. Removal of the sink base unit exposed a solid concrete floor with no loose or brittle areas. The concrete was sound and hammer tested.	The junction between the floor and wall has a hairline gap, this would not be visible as it would typically be covered with skirting board and lino.	When exposed the gaps should be sealed with a linear (flexible) fire rated sealant Further investigation may be required as part of the structural investigation	

	c	The wall separating the kitchen from the water closet (W/C), the service and waste pipes enter the kitchen in to an enclosed duct. The pipe work was punched through the wall; it was covered with plaster and painted from the w/c side. A new gas supply pipe has been fitted externally, the pipe penetrates the external wall and then through the internal cupboard walls only. This has not been connected to the gas meter	The gap was filled with loose bricks, mortar and padded out with newspaper 'The Independent 1988' Access from the kitchen side is limited; also ACM is recorded in this area.	There are two solutions: 1. replace the existing door to the w/c with a FD20 door, or 2. hack off plaster (w/c side) and adequately fire stop the gaps	  
	d	**Surface penetrations** Flooring was removed to expose any surface penetrations, areas identified: • redundant gas pipe (cooker installation) • water supply pipes • waste pipes • gas pipe to the gas meter The floor is firm and sound with no gaps around pipes.			

		The floors are sound with no loose concrete, however as only a sample was inspected other flats should be checked when they become available The ceiling was also checked, the majority of pipes where adequately sealed.	In another flat the gas pipe was fitted with a bend, to get this pipe installed the concrete floor was hacked back by at least 25mm. It was noted in one flat that the gas pipe penetrating the ceiling was not satisfactorily sealed.	The floor was not breached, as this pipe is now redundant it should be removed the area should be covered with a concrete mix. Pipework penetrating the ceilings should be fire stopped from the underside to reduce the risk of fire and smoke spread.	    

		Mini trunking is used throughout to supply power to the sockets. Due to the recent rewire it is expected to have had an installation certificate.			
	e	**Integral cupboards and storage area** To the right side of the kitchen there are two accessible cupboards, one housing the gas meter and the other as a storage area. The area also houses a water tank, disused warm air unit and service pipes. The frame appears to be soft wood, the panels where exposed where either MDF or ply. However, others may be an AIB.	If the fire stopping works are completed as noted above there is no requirement to upgrade the doors or panels.		
4	**W/C**	Access directly from the hall			
	a	**Penetrations** As noted above, fire stopping is required to separate the kitchen (3b). There are no issues identified in this room.	The photos show the location of fire stopping and the amount of surface penetrations.		 

5	**Bathroom**	Access directly from the hall			
	a	**Floor and external wall junction** The bath panel was removed to expose a solid floor with no loose or friable concrete.	The junction between the floor and wall has a hairline gap, this would not be visible has it would covered by the bath panel or with a skirting board. A piece of paper folded was pushed through the gap to a depth 30mm.	When exposed the gaps should be sealed with a linear (flexible) fire rated sealant Further investigation may be required as part of the structural investigation	
6	**Hall**	All rooms are access from the hall, there is no natural light apart from the high-level window from a bedroom.			
	a	**Walls** This is a circulation area giving access to the bedrooms, lounge/kitchen and bathroom-w/c. This is the only exit from these rooms and therefore must provide suitable protection. The floor area of the space is (2.6m*1.9m) less the 5m2.	As noted in sections 1a, 1b and 2d this area needs to be protected; if the works are completed as prescribed there will be no issues.		
7	**Access Lobby**	There is a store cupboard, electric meter, uPVC window and an infill panel.			
	a	**Front Entrance Door and Frame** The front door is a notional FD30s SC with an intumescent letter plate. It has one key entry and a thumb turn to leave. The timber frame is covered			

		with a metal casing There is no fanlight, externally having a stippled effect (as throughout the block) decoration over assumed AIB, from the internal side there is a suplalux board witch is screwed into the timber frame.		The assumed AIB has been removed and sent for analysis. The board should be replaced with a material that will withhold the escape of smoke and fire for at least 30minutes.	 
	b	**Penetrations through the door frame** The frame around the door has a metal casing, the area above the frame is timber.	Holes have been drilled through the frame to allow low voltage cables to penetrate the flat.	If the cables are no longer required, the holes are to be fire stopped, if are still needed cables are to be plugged with a fire and smoke resistant sealant to ensure the door and frame can restrict smoke and fire for at least 30minutes. The cavity identified (in the picture) must be sealed to prevent fire penetrating the breach and weakening the frame.	 
	c	**Infill Panel** The panel is located under the window in the access lobby. It is unknown if this panel is original,	A panel has been removed for testing, initial visual inspection: Polystyrene (dense) foam is sandwiched between aluminium panels.	This element is to be tested to classify the materials fire resistant properties. If the element fails to provide suitable	

		although it may have been a Georgian Wired screen. However, as an unprotected area, it would not be permitted due to its dimensions and close proximity other unprotected areas.		resistance, it will be replaced with a panel system that provides similar resistance to the external walls.	 
	d	**Surface penetrations** A pressed steel radiator is situated on the internal wall opposite the front door, copper pipe run into the bathroom. Plastic mini trunking secures cables for the intercom system; the breach to the front door has been noted in section 7b. At high level attached to the frame of the internal cupboard, plastic surface mounted trunking supports the laterals to the electric meter. The electric meter is enclosed in unit on the wall, cables are run within conduit or surface mounted trunking.	Although there are minor gaps around the pipe these are not significant, especially as this room is not a protected area A hole has been drilled through the fame to allow the cables through. This cupboard is designated as a separate compartment; the doors provide 20-minute separation from the access lobby. The panel above the transom is an AIB.	Fire stop the hole from both sides, fire-stopping material is to be suitable for medium high voltage cables.	 

	e	**Store cupboard** The store cupboard has a footprint of 1.65m2. It has cables running at high level, which penetrates the doorframe as noted in section 4d. There are two types one appears to be communication (Coaxial) cables, that may be redundant; the others area lateral mains that enclosed in a plastic flexible conduit. **Floor penetrations** There is a metal box with 4 large cables penetrating the ground. The lino was removed and the floor was solid, with no visible signs of damage or being brittle, the area was hammer tested. The coaxial cable passes through the concrete floor with no sign of gaps.	The penetration from the common walkway (corridor) is fire stopped internally. The flexible conduit passes through the compartment (common parts and internal) wall for at least 20mm.		 

6 Common part information

The following section gives a brief outline of the results of the survey undertaken to the common parts. This sample relates directly with the flats surveyed.

Stairwell a) Concrete walls and stairs with a central balustrade b) Permanent ventilation on the top floor with glazed uPVC windows on all floors c) FD60s SC to three blocks and FD30s SC the other d) Signage and emergency lighting with a direct access at ground floor level	Peterchurch House the door to the lobby should be replaced with an FD60sSC
Dry riser a) The inlet is identifiable b) The outlets are on all floors apart from the ground c) The cabinets are metal and secure d) There were no compartment breaches	
Metal trunking at ceiling height a) Supplies electrical cables to all flats on floor b) Fire stopped with the Ryfield board cabinet c) The trunking does not penetrate the flats, the cables pass through a hole in the trunking passing through the compartment wall to the store cupboard, where it is fire stopped	
Refield fuse board cupboard a) The door is lockable with a FB key b) The door has intumescent seal and is 44mm thick c) The cupboard is fire stopped with a batt and ablative coating	
Refuse chute room a) Located on each floor b) Secured by a solid composite door c) The refuse hatch is self-closing and will provide at least 90minute separation d) The refuse chute room is vented	
Disused drying room a) The room is locked with no unauthorised use	
Cable penetrations to flats	

a) This was noted in section 4a b) There is a small access plate between the flat entrance doors – at high level; this covers a void where redundant telecommunications where cables are	The panel is supalux and intumescent sealant covers the joints and junctions
Infill panel located in the residential lobby a) This was noted in section 7c	This is the same type of panel but situated in the common parts of the residential corridor
Panels to integral units in lift units a) The frame to the panels appear to be softwood b) Some panels have been replaced with MDF c) The original panel was cementitious board	All MDF or non-fire rated panels are to be changed to *Grypoc Fireline* board (or similar) to provide an hour separation.

7. Conclusion

The survey results will constitute a reasonable study of defects. The report is not able to identify areas where residents have altered their properties. Therefore, when flats become available further investigations should take place.