



FIRE SAFETY DESIGN REVIEW

FOR

**Neville House
Corby Borough Council
Corby
Northants
NN17 1QD**



PREFACE

At the request of Corby Borough Council, ("the client") JP Fire Safety Limited ("the consultant") carried out a fire safety design report for the proposed development at Neville House, Corby ("The premises").

The consultant carrying out this review has no powers under any statutory order to demand access, or for the production of documents or information. Therefore, information provided by the organisation and its representatives during the course of this review is assumed to be accurate and is accepted in good faith as such.

The information and recommendations provided by JP Fire Safety Limited within this review report are provided in good faith based upon the information and evidence available at the time and no guarantee can be provided that matters of non-compliance may not be discovered by inspectors with statutory powers during any subsequent inspections.

JP Fire Safety Limited makes every effort to identify contraventions of statute and best practice as determined by the relevant Approved Codes of Practice and British Standards. All advice is provided as the opinion of JP Fire Safety Limited and is subject to interpretation in a court of law in the UK.

JP Fire Safety Limited makes every effort to ensure that the information provided within this report is accurate and up to date, but no legal responsibility is accepted for any errors or omissions or misleading statements.

Neville House, Corby, Northamptonshire

The following report is produced with the information and plans available on the 18th October 2017.

This document provides an overview of the required and or existing fire protection measures for the property at Neville House, Corby. The premises is a disused block of flats that are to undergo a refurbishment. The refurbishment will not involve a 'material change of use' as defined by the Building Regulations. However in accordance with the Building Regulations the works to be undertaken will ensure the building is not made 'more unsatisfactory'. The proposed works will significantly increase the fire safety provision within the premises.

This report was commissioned in order to appreciate the legislative requirements under the Building Regulations, utilising the guidance contained in Approved Document B with regards to the application in relation to the protection of life safety within the property for the change of use of parts of the existing retail/dwelling premise. Whilst it is understood that the existing layout may not necessarily fall within the current building regulations there are compensatory measures that can be employed to protect the life occupancy of this property.

Approved Document B (ADB) allows some variation of the provisions set out in the document where Part B applies to existing buildings, where adherence to the guidance in that document might prove unduly restrictive. In such cases it would be appropriate to take into account a range of fire safety features, against an assessment of the hazard and risk peculiar to the particular case.

This report has been produced and based on the drawings available on the 18th October 2017 and are attached at the rear of this document.

B1 - Means of Warning & Escape

The primary function of means of escape is that occupants can safely escape from a building in the event of a fire.

The basic philosophy is that a person should be able to turn their back on a fire and evacuate from the hazardous area. This is achieved by the provision of escape routes that are suitably spaced, within travel distances and / or separated by fire resisting construction or protected by other fire safety systems. However, in flats the principle is slightly different.

Measures in (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 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.

Occupancy	It is understood that the maximum occupancy of the premises will be circa 50.
Direction of Travel	<p>Based upon guidance within Approved Document B (ADB), this limits travel distances to a maximum 9 metres within the flat to the exit door or protected lobby / staircase within all flats.</p> <p>As the flats are multi-level additional fire protection measures are required. The internal stair of each flat is a protected lobby /stairway, enclosed within 30 minutes fire resistance, the doors to the internal stair are FD30 with a combined intumescent strip and cold smoke seal all doors will also have an overhead self-closing device fitted that will be capable of closing the doors fully on to the doorstops and latching, this level of protection is maintained to the final exit of the flat.</p> <p>Due to the existing layout of the premises the travel distances cannot be met from the exit of each flat to the protected escape staircase.</p> <p>However, to compensate for this, each flat has an integral 30-minute fire resisting lobby / staircase enclosure and to reduce the risk of a fire in a flat affecting the means of escape from other flats and common parts of the building, the common corridors will be protected corridors providing 60 minutes fire resistance.</p> <p>The walls between each flat and the corridor will be fire compartment walls and will also provide 60 minutes fire resistance.</p> <p>These measures and those mentioned below will ensure all occupants in the flat of fire origin will be able to vacate the premises safely, it will also ensure all other occupants in the remaining flats will be able to adhere to the currently recommended stay put policy.</p>
Exit Widths	The doors on the escape route and final exit doors have a minimum width of 750mm.
Final Exit Doors	The flat doors (from the inside) and the final exit door on the ground floor must be readily openable without the need for a key.
Fire Detection & Warning	<p>The premises is to be provided with two different types of fire alarm systems complying with BS 5839.</p> <p>The first type of system is within the common means of escape corridors and staircase, this system will be installed in accordance with the requirements of a BS 5839: 1: L4 system. This is principally there to</p>

	<p>provide a signal to the automatic opening vents that are to be installed in the corridor and escape staircase.</p> <p>The second type of system, which is to be installed within each individual flat is a BS 5839 6: Grade D Category LD2 standard. This is to provide warning to the occupants of each individual flat.</p>
Exit Signs	<p>The single escape route leading to the final exit will be obvious to residents and therefore no signage would be necessary, however if it is believed that this may not be the case due to the type of occupant the escape route should be marked in a manner that is clearly visible so that the occupants can readily identify the direct route to a place of safety. All exit signs will be designed in accordance with BS 5499 Part 1 2002. The directional escape signs should be placed on each landing at the head of each flight of stairs showing the downward direction of escape.</p>
Escape Lighting	<p>Escape lighting will be provided in accordance BS 5266 Part 1 in the common corridors and on the protected escape route. Emergency lighting should also be installed in all maintenance areas.</p>
Protection of Escape Route	<p>The premises is a single stair premises which is situated towards one end of a long corridor.</p> <p>Despite the provisions described in this report, it is possible that a very small amount of smoke will get into the staircase from a fire in a flat, if only because the entrance door will be opened when the occupants escape. There will therefore be a means of ventilating the common corridors to control smoke and so protect the single staircase. This will enhance the protection provided by the fire doors to the stair.</p> <p>The vents in the corridors will be located as high as practicable and in a position so that the top edge is at least as high as the top of the door to the escape stair. These vents will be located on an external wall with minimum free area of 1.5m².</p> <p>There will also be a vent, with a free area of at least 1.0m², from the uppermost storey of the escape staircase to the outside.</p> <p>Due to the building having a single staircase, the smoke vents on the fire floor and at the head of the staircase will be actuated by the smoke detectors in the common corridors and staircase.</p> <p>As previously stated. Due to the existing layout of the premises the travel distances cannot be met from the exit of each flat to the protected escape staircase.</p> <p>However, to compensate for this, each flat has an integral 30-minute fire resisting lobby / staircase enclosure and to reduce the risk of a fire in a flat affecting the means of escape from other flats and common parts of the building, the common corridors will be protected corridors providing 60 minutes fire resistance, including doors.</p> <p>The walls and doors between each flat and the corridor will be fire compartment walls and will also provide 60 minutes fire resistance.</p> <p>These measures and those mentioned below will ensure all occupants in the flat of fire origin will be able to vacate the premises safely, it will also ensure all other occupants in the remaining flats will be able to adhere to the currently recommended stay put policy.</p>

	<p>Comment:</p> <p>Whilst the above does not entirely fit in with the requirements of the guidance given in ADB, B1, it is believed the range of fire safety features installed within the premises means the functional requirement is met. The flat lobbies / staircase enclosures are there to prevent smoke entering the corridor when tenants evacuate the flat of origin, as each flat has an extensive fire detection system fitted the alarm will be raised early allowing the occupant to leave while the fire is still in its incipient stages and producing small amounts of smoke. Therefore, it is believed very little smoke if any will enter the main corridor.</p> <p>The measures that are proposed include smoke control from the corridors and staircase to ensure they are free of smoke this system will be linked to the BS 5839 1: L4 fire alarm system that is installed in the common areas and staircase enclosure. If smoke is detected in the corridor or staircase the mechanical system will operate immediately. Should the Fire Service or tenants initiate full evacuation the corridors and staircase will be clear of smoke. This in conjunction with the fact that all Flat doors are 60-minute fire resisting doors with intumescent strip and smoke seals fitted as well as self closing devices that are capable of closing the doors fully onto their doorstops and latching. Therefore, it is believed very little smoke, if any will enter the staircase.</p> <p>As previously stated, measures in (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.</p>
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B2 - Internal Fire Spread (Linings)

Consideration will be given to the construction of the premises fabric, including surface finishes and how these materials could affect fire growth behaviour and the safety of occupants in the building and Fire Service Staff.

Linings	<p>The fire performance characteristics of internal surfaces of the means of escape routes are indicated below. These surface ratings will be in accordance with BS 476 part 7 and Building Regulations guidance.</p> <ul style="list-style-type: none"> • Stairway enclosure = Class 0 or B-s3, d2. • All escape corridors and circulation routes in common areas = Class 0 or B-s3, d2. • Rooms in general = Class 1 or C-s3, d2 • Small rooms not more than 30m² = Class 3 or D-s3, d2
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B3 - Internal Fire Spread (Structures)

The premises elements of structure must provide a suitable period of fire resistance to ensure they do not fail prematurely and contribute to the collapse of the flats, which could endanger the lives of occupants and Fire Service staff.

Structural Fire Resistance	<p>In accordance with Building Regulations guidance, the fire resistance period required for load bearing elements of structure should be 60 minutes as the building is not greater than 18m in height to the uppermost storey. Due to the premises being of existing construction it is believed this requirement has been met, however this must be confirmed once strip out commences. The purpose of providing the structure with fire resistance is threefold,</p> <ul style="list-style-type: none">a. to minimise the risk to the occupants, some of whom may have to remain in the building for some time while evacuation proceeds if the building is a large one;b. to reduce the risk to fire-fighters, who may be engaged on search or rescue operations; andc. to reduce the danger to people in the vicinity of the building, who might be hurt by falling debris or as a result of the impact of the collapsing structure on other buildings.
Compartmentation	<p>To enhance the fire safety provision within the premises, all flats are fire resisting enclosures designed to achieve a minimum fire resistance of 60 minutes. To further enhance the fire separation all Flat doors are 60-minute fire resisting doors with intumescent strip and smoke seals fitted as well as self-closing devices that are capable of closing the doors fully onto their doorstops and latching.</p> <p>The flats are separated from the areas on the ground and first floors by appropriate levels on fire resisting construction giving a minimum of 60 minutes fire resistance.</p> <p>All service risers will be enclosed in 60 minutes fire resisting construction.</p>

B4 - External Fire Spread

The external walls of the flats must adequately resist the spread of fire over walls and from one building to another, with regard to the height, use and position of the building.

External Walls	<p>The proposed development area does not materially affect the external fire spread between buildings from what was previously present.</p> <p>The external walls of the premises are to be clad with a product that will be noncombustible and not propagate flame, it will provide Class 0 or B-s3, d2 as a minimum.</p> <p>The material being considered for the rainscreen cladding is Trespa 'Meteon' FR (fire resistant). The material is of limited combustibility. It achieves the Euroclass fire rating of B-S2,d0 (if 6mm thick) or B-S1,d0 (if 8mm on a metal frame). Both are rated higher than the stated B-S3,d0 but it is not certified to the National Class 0 fire rating.</p>
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B5 – Access and Facilities for the Fire Service

The premises must be designed and constructed so as to provide reasonable facilities to assist fire fighters in the protection of life.

Access and Facilities for the Fire Service	This has not changed from the original provision when the premises were built, due to the layout it is not believed that firefighters will be able to get to all points within the premises inside 45m from the position of the appliance. This therefore does not meet current requirements. However, as the use has not changed there is no requirement to provide a firefighting main.
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Sprinkler Recommendation:

Based upon recent events in London at Grenfell Tower there has been significant discussion around the need for sprinklers in blocks of Flats. The current review of Building Regulations related to this is some time away from publication, but it could result in the need to install sprinklers in all blocks of flats.

Due to the extended travel distances within this property and the noncompliance with the requirements of B5, it would be a significant compensatory measure and enhancement of life safety if domestic sprinklers were fitted in each individual flat.

The sprinkler system design, installation and commissioning will need to follow the recommendations and guidance provided in BS 9251:2014 ('Fire sprinkler systems for domestic and residential occupancies. Code of practice'). As the system is to cover each individual flat it is believed that a Category 2 system will be acceptable, this enhancement over a Category 1 system will assist with the mitigation of the extended travel distances and the B5 noncompliance.

General Comments

The premises will fall within the scope of the Regulatory Reform (Fire Safety) Order 2005 and will therefore require a fire risk assessment once complete.

A suitable and sufficient fire safety risk assessment should be undertaken and should be made available on the premises. The assessment should cover all significant risks, which may affect any person who may be affected by fire, and should include the means of access and egress from the premises. The assessment must take in to account the fire safety design and provision described within this report. The assessment should be reviewed at regular intervals, and when a significant change is made.

It is not known what the current CBC policy states for the connection of fire alarm systems within blocks of flats to the 24/7 security control room. This must be confirmed and if required it is recommended that only the common area system is linked.

Conclusion

The design and fire safety provision is based upon a "stay put" policy for occupants. The existing layout of the premises provides challenges to the design team and the proposed fire safety design significantly improves the life safety provision in the flats, whilst this does not entirely fit in with the requirements of the guidance given in ADB,

The fire detection systems will give early warning of fire to all occupants in individual flats and maintain smoke free escape routes, be that by way of the BS 5839: part 6 system within each individual flat alerting these occupants of fire allowing them to vacate their flat before conditions become untenable, or if in the common areas the BS 5839: part 1 system will activate the smoke control systems. The fire resisting structure will contain the products of combustion to the flat of origin to support the "stay put" policy and the smoke extraction system will ensure the products of combustion that do enter the means of escape are cleared keeping it available at all material times should the fire service wish to evacuate the whole premises.

The fire rating of each individual element of the rain screen (exterior cladding panel, the insulation material or any other element) may achieve the required fire ratings in accordance with current requirements, however it is imperative that the fire performance of the whole system together must meet current regulations. The proposed build up of the support and insulation behind the cladding is non-combustible and will not propagate or promote flame spread. It consists of (from the outside) aluminum support brackets/rails, Rockwool 'Duo Slab' mineral fibre insulation, calcium silicate sheathing board (60 minutes fire resistance), Steel Framing System (SFS) filled with Rockwool 'Duo Slab' mineral fibre insulation, internal plasterboard and scim finish. This must be clear to the designer / installation contractor. The installation of the rain screen must be strictly in accordance with the test data criteria and parameters stated on the issued certificate from Warringtonfiregent.

It is believed that the functional requirement of Building Regulations will be met based upon the design drawings and details within this report, as all occupants will be protected from fire and will be able to access a smoke free protected escape route leading to a protected staircase if necessary to facilitate escape.

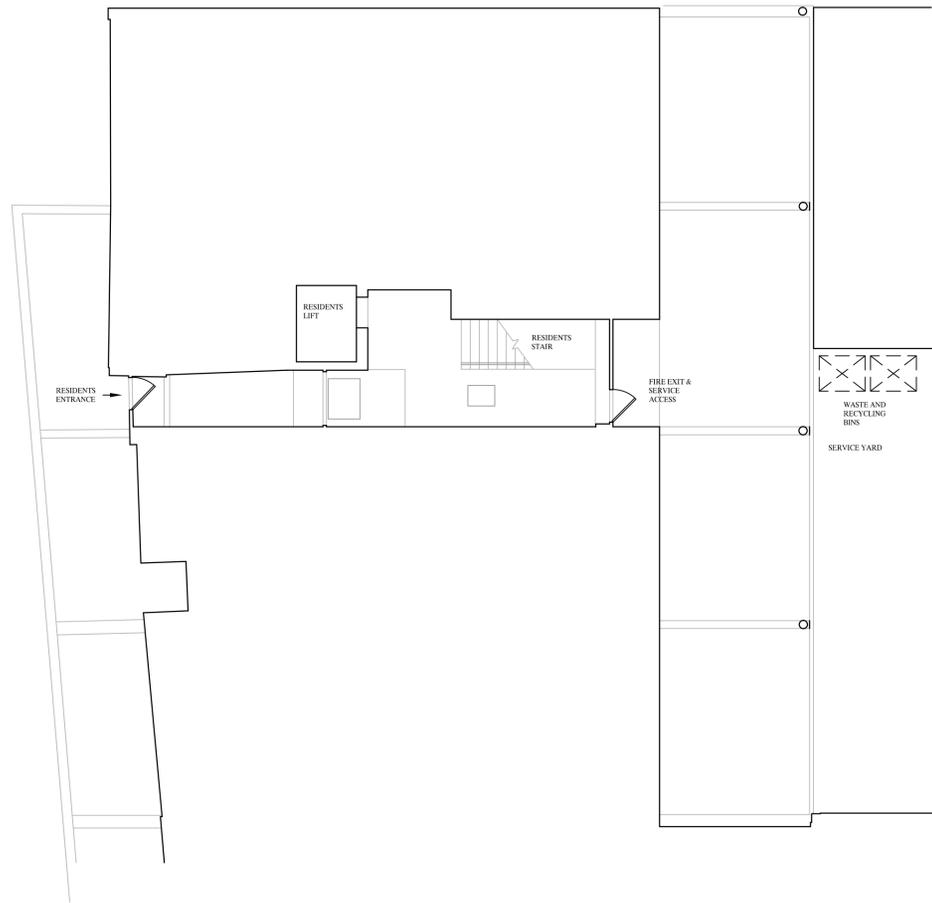
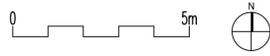
However, even with the improved fire safety measures recommended in this report, it is strongly recommended that the individual flats are provided with domestic sprinkler coverage to assist with the mitigation of the non-compliant elements. This would significantly improve life safety within the premises.

Should you, the Building Control Body or the Fire Authority wish to discuss this report please do not hesitate to contact me.

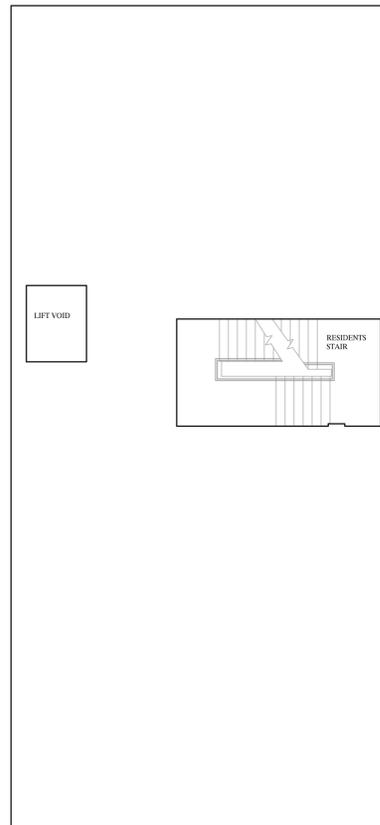
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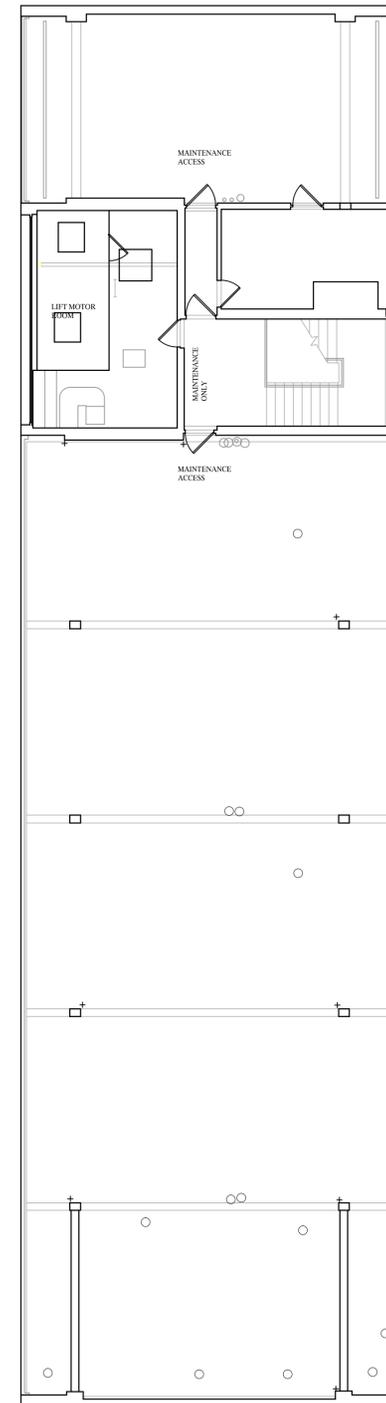
INSTITUTE OF FIRE PREVENTION OFFICERS incorporating the INSTITUTE OF FIRE SAFETY OFFICERS



LEVEL 00



LEVEL 01



ROOF

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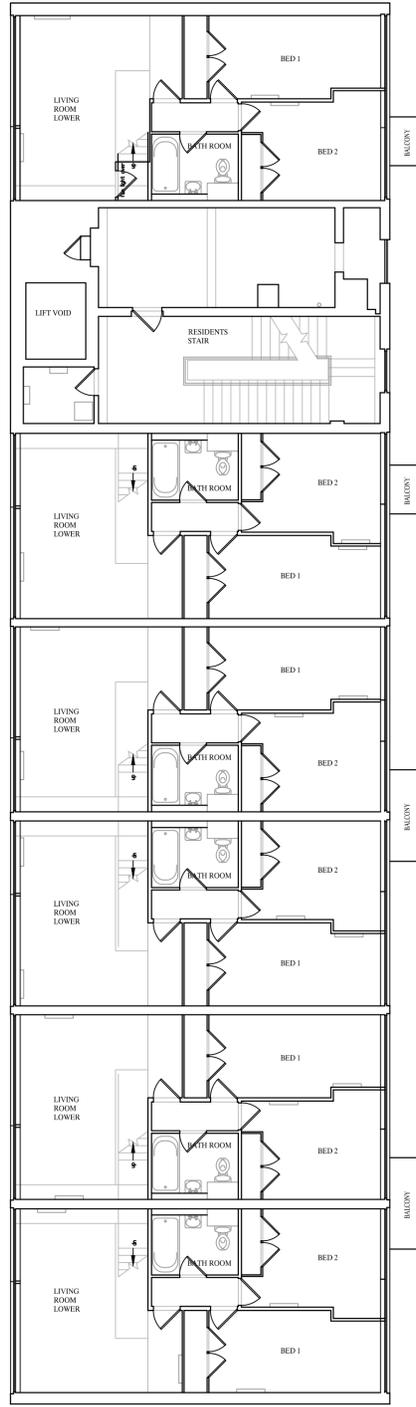
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Residential Refurbishment
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Corby, NN17 1QD

Client
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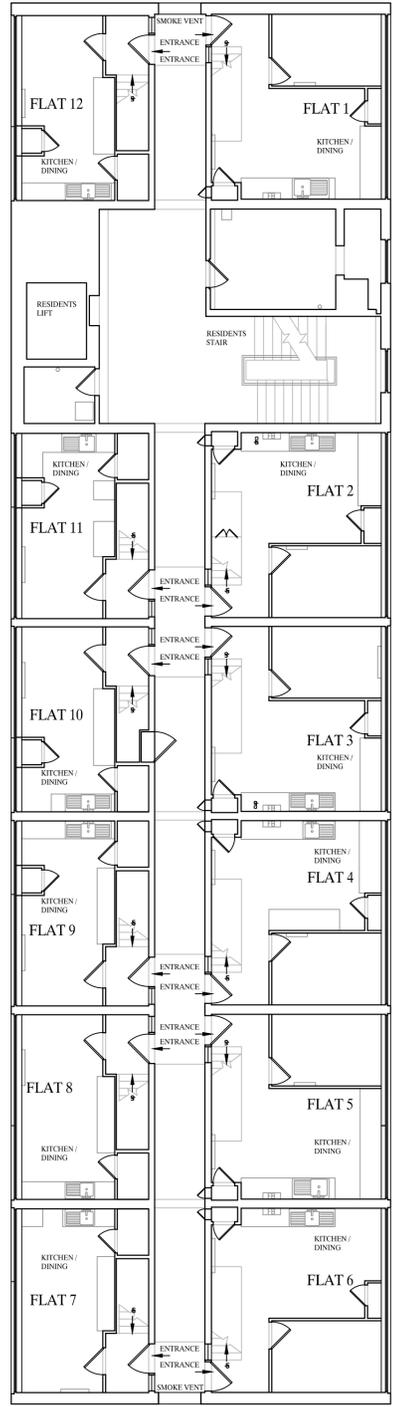
Drawing
Existing Plans
LV00, LV01, ROOF

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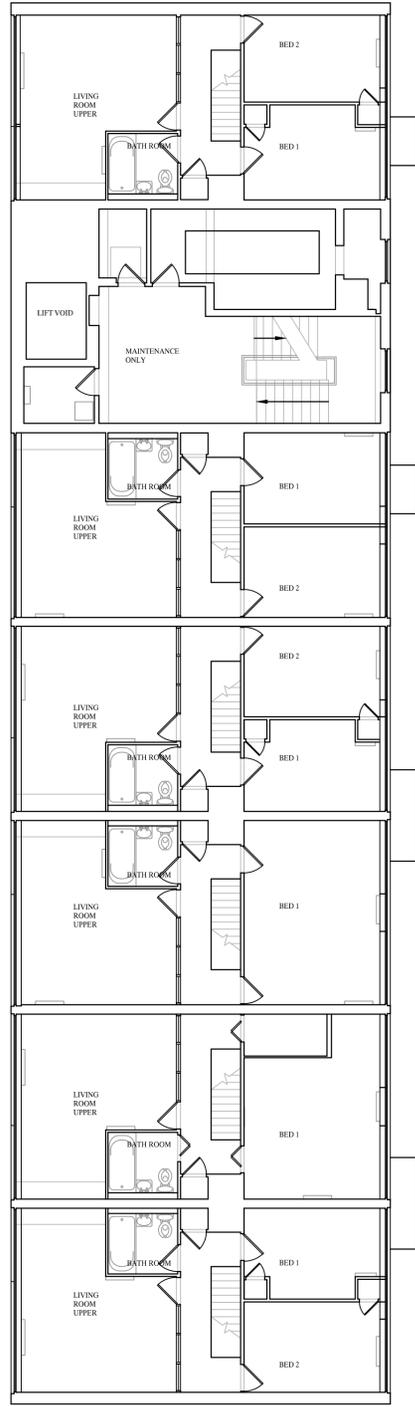
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LEVEL 02



LEVEL 03



LEVEL 04

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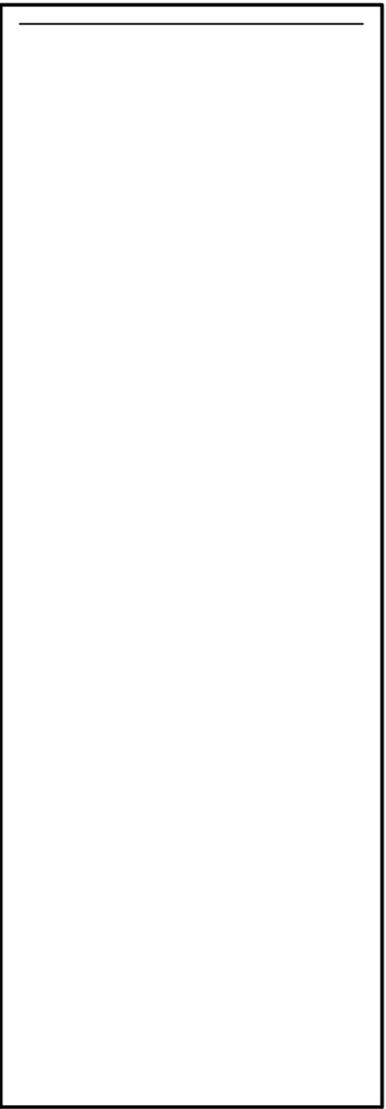
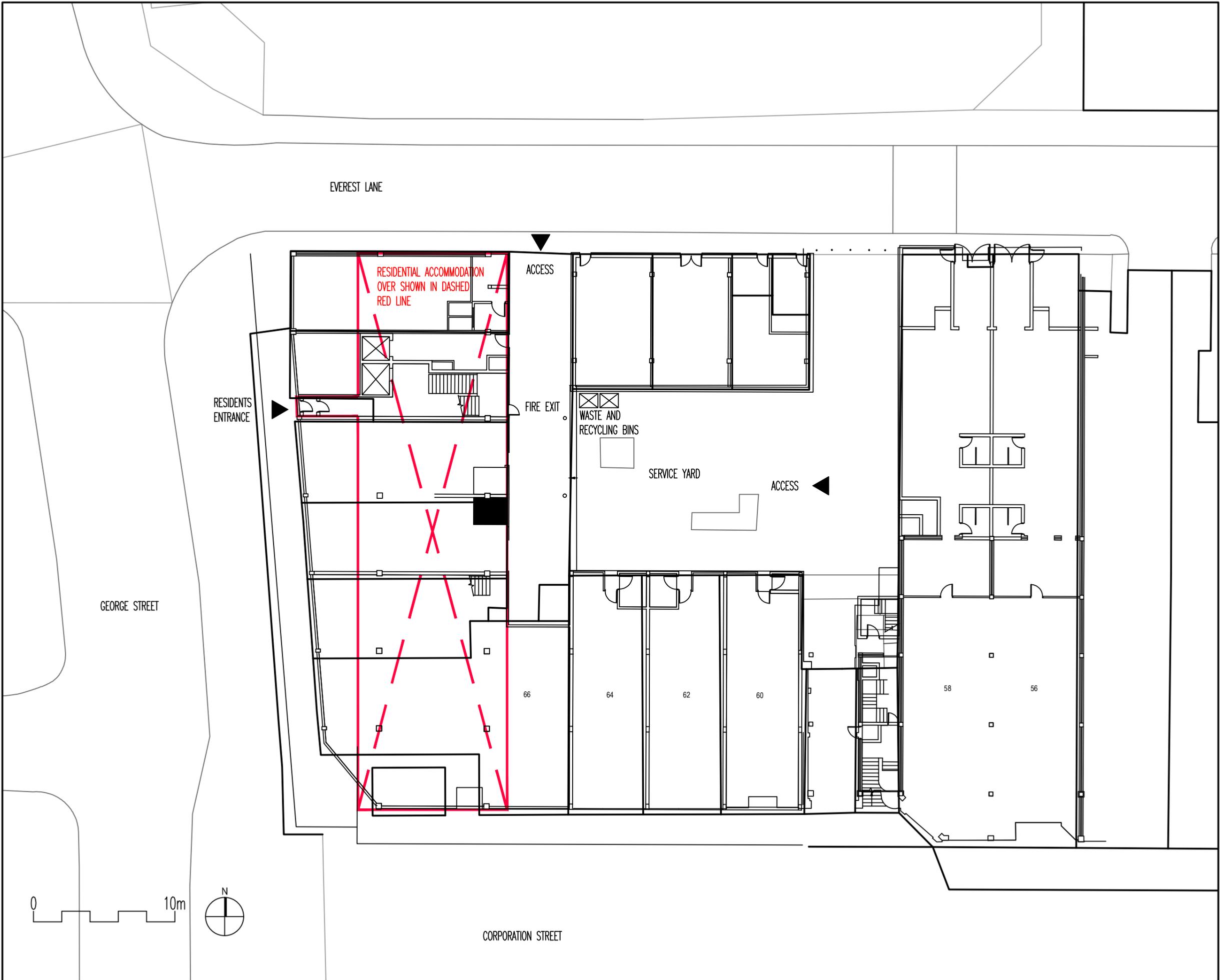
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Residential Refurbishment
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Corby, NN17 1QD

Client
Corby Borough Council

Drawing
Existing Plans
LV02, LV03, LV04

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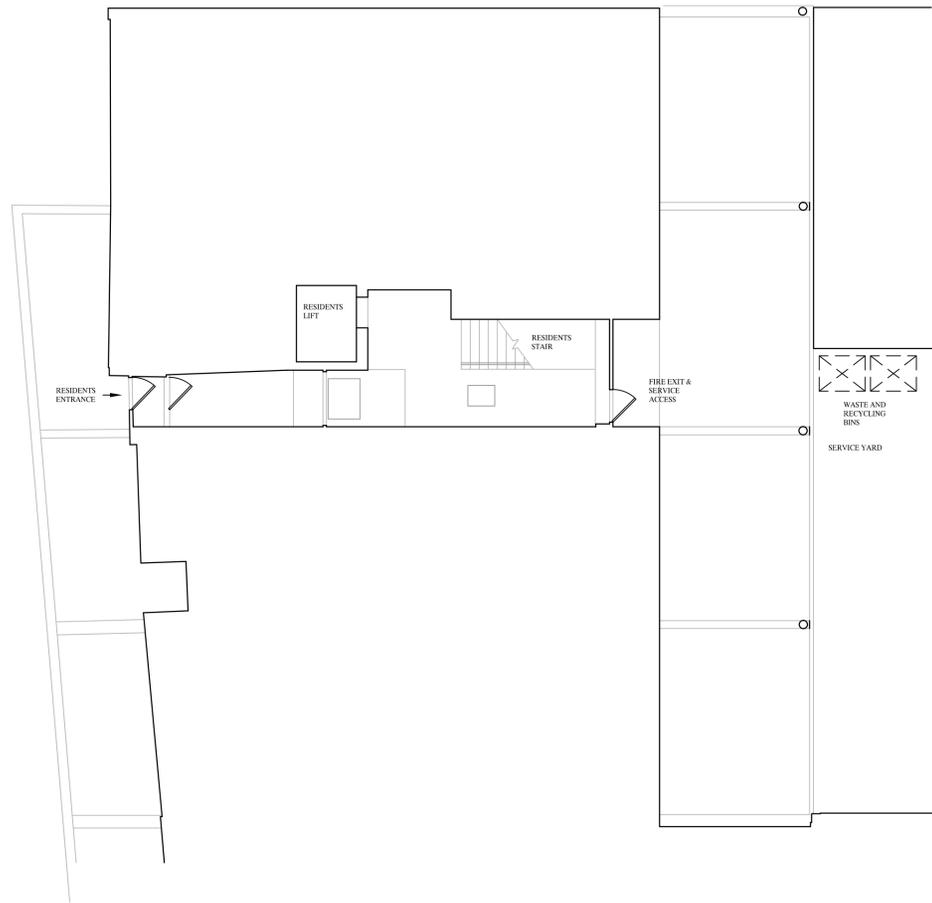
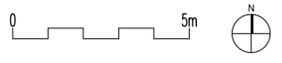
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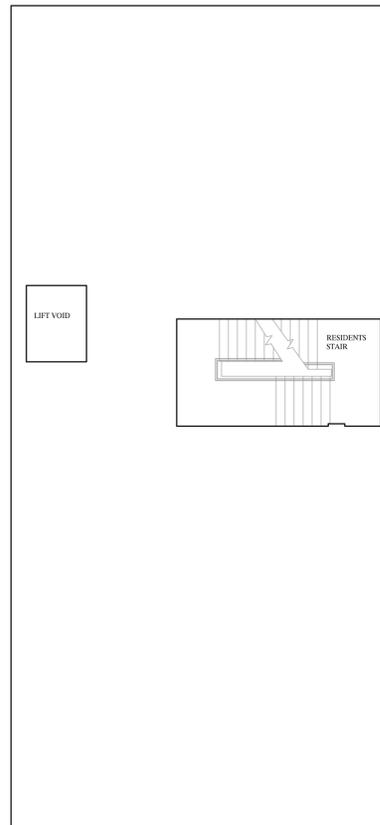
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Client	
Corby Borough Council	
Drawing	
Block Plan	

PLANNING ISSUE

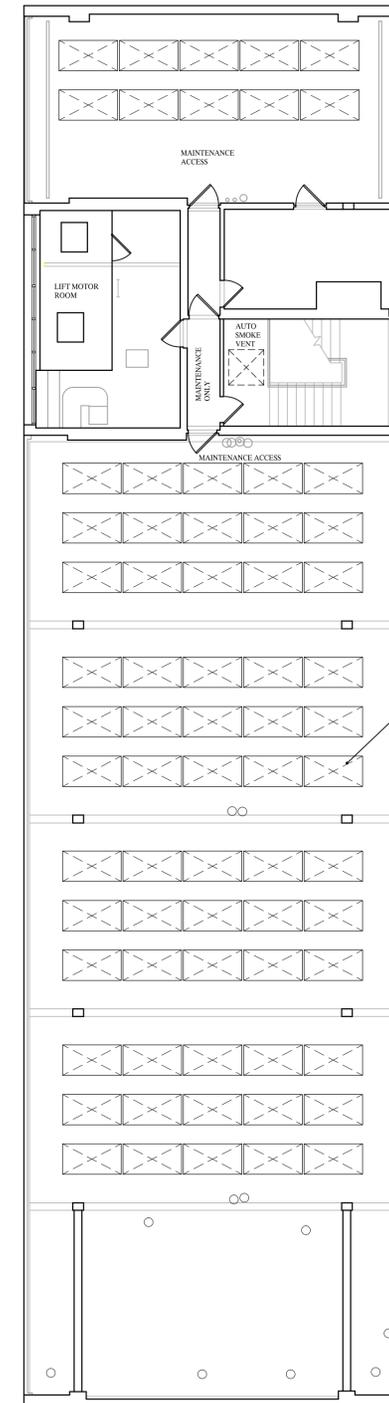
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LEVEL 00



LEVEL 01



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Drawn FMA Check FMA

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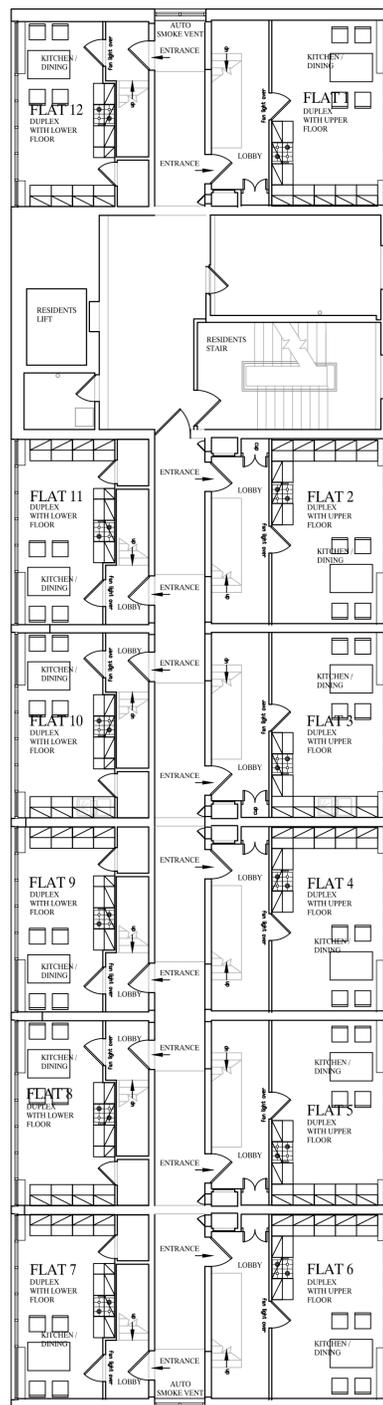
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LV00, LV01, ROOF

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LEVEL 02



LEVEL 03



LEVEL 04

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Drawing
Proposed Plans
LV02, LV03, LV04

PLANNING ISSUE

Scale 100 @ A1	Date 10.10.2017
Ref. 1232	Number AP110
Rev. A	



0 5m



ROOF LEVEL

LEVEL 04

LEVEL 03

LEVEL 02

LEVEL 01

LEVEL 00

Photovoltaic array
Renewed railings at
roof level

Existing brickwork
cleaned and repaired

Concrete frame repaired
and painted white

Metallic coloured
cladding panels

Dark grey panels and frames

Clear glazing

Obscure glazing

Gap between Level 02
& Level 01 to be retained

Existing rear service access
at ground level unchanged

0 5m

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Neville House, George Street, Corby
Proposed Elevation - East facing

PLANNING ISSUE

- 1232 AP112 rev A
- 1:200 @ A3
- 10 October 2017

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- Existing brickwork cleaned and repaired
- Concrete frame repaired and painted white
- Dark grey panels and frame
- Clear glazing
- Incorporating automatic opening smoke vents
- Gap between Level 02 & Level 01 to be retained

Elevation - North facing Everest Lane



- Existing brickwork cleaned and repaired
- Concrete frame repaired and painted white
- Dark grey panels and frame
- Clear glazing
- Incorporating automatic opening smoke vents
- Existing sign board retained
- Gap between Level 02 & Level 01 to be retained

Elevation - South facing Corporation Street

- ROOF LEVEL
- LEVEL 04
- LEVEL 03
- LEVEL 02
- LEVEL 01
- LEVEL 00

