



FIRE STRATEGY REPORT

Building Regulations 2010

Tontine Street, Folkestone
Kent CT20 1JP

Residential development to provide 45 flats

Our reference: CBFI/18/1030

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Document history

Harwood reference: CBF1/18/1030			
Revision	Purpose	Description	Date
A	Draft (first issue) for comment	Draft report for comment on proposed fire strategy.	03/08/18
B	Report for comment	Report for comment following comments received from Maria Melissianou within email dated 13/08/18 – occupancy levels updated item 4.2	15/08/18
C	Fire Strategy Report	Fire Strategy Report following amended drawings received for proposed third floor – drawing PR210/13 dated 30/08/18 – items 5.16 and 5.17	17/10/18
D	Fire Strategy Report	Amended report following email received from Maria Melissianou dated 3 rd April 2019 advising that total number of units has been reduced to 45 with the removal of one floor from the side of the building facing Tontine Street.	04/04/19
E	Fire Strategy Report	Amended report following email from Maria Melissianou confirming occupancy numbers within Section 4.2	04/04/19

Signatories

Originated by:



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Fire Safety Strategy Report

1.0 Scope of Report

- 1.1 Harwood Construction Consultants Ltd have been commissioned by On Architecture to provide a Fire Strategy Report for the proposed residential development of 45 flats at Tontine Street, Folkestone Kent. The purpose of this report is to review the proposals and advise on compliance with the substantive requirements of the Building Regulations. This report does not specifically address issues in relation to property/asset protection and comments are limited to those in relation to compliance with the requirements of the Building Regulations and any associated guidance.

2.0 Design Legislation

Building Regulations 2010

- 2.1 The Building works are subject to control under the Building Regulations 2010 and therefore need to comply with the requirements within Schedule 1 of the Regulations – Part B Fire Safety.

Regulatory Reform (Fire Safety) Order 2005

- 2.2 The Regulatory Reform (Fire Safety) Order 2005 applies in England and Wales and covers general fire precautions and other fire safety duties. It is a requirement of the order for a responsible person to carry out a fire risk assessment that must focus on the safety in a case of fire for all relevant persons. A risk assessment will help to identify risks that can be removed or reduced and to decide the nature and extent of the general fire precautions that need to be taken to protect people against the fire risks that remain. Further information can be obtained via the web address: www.fire.gov.uk

The Construction (Design and Management) Regulations 2015

- 2.3 The Construction (Design & Management) Regulations (CDM 2015) are the main set of regulations for managing the health, safety and welfare of construction projects. CDM applies to all building and construction work and includes new build, demolition, refurbishment, extensions, conversions, repair and maintenance.

3.0 Description of the works

- 3.1 Residential development of 45 flats located within Tontine Street, Folkestone. The development will incorporate a mixture of privately rented flats and social housing flats on five levels. The ground floor level (Tontine Street) provides parking under the building, the first-floor level consists of nine flats and a landscape podium garden with access to the car parking level below. On the upper levels, second – fifth is situated the remainder of the flat accommodation.

4.0 General fire safety information

- 4.1 Travel distances have been assessed in accordance with Approved Document B as indicated below.

Location	Single direction	More than one direction
Within common escape routes	4.5m/7.5m	30m
Within flats	9m	N/A

Note: Travel distances are assessed using these figures where the internal layouts of the building are known. Where the layouts are not detailed, direct travel distances equivalent to 2/3rds of the figures listed have been used.

- 4.2 The occupancy levels have been based upon information provided indicated below for the completed building.

First Floor	20 people
Second Floor	20 people
Third Floor	26 people
Fourth Floor	20 people
Fifth Floor	10 people
Total	96 people

5.0 Fire safety comments

Means of providing early warning in case of fire

- 5.1 New flats to be provided with a fire detection and alarm system in accordance with the relevant recommendations within BS5839 Part 6:2013 Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarms in domestic premises to at least a Grade D Category LD3 standard. No details on the proposed means of providing early in case of fire for the development have been reviewed as part of this report.
- 5.2 The means of escape from the building has been based on a simultaneous evacuation strategy in the event of a fire within the building.
- 5.3 The use of visual beacons is to be provided as appropriate in areas where noise levels are considered to be above the level of the above fire alarm system including any external and communal spaces.
- 5.4 Call points within area's likely to be subject to accidental or malicious activation may (subject to agreement with the approving/fire authority) be provided with suitable protected covers.
- 5.5 Emergency lighting is to be provided installed in accordance with the requirements within BS5266.
- 5.6 Fire exit signage is to be provided installed in accordance with the requirements within BS5499.

Fire safety comments cont'd...

Means of escape in case of fire

- 5.7 Means of escape has been considered on the basis of a simultaneous evacuation strategy based on escape in two directions of escape from the ground floor car parking area (Tontine Street) and a single direction of escape from the upper levels (residential accommodation).
- 5.8 Escape distances have been based on distances indicated within 4.1 above.

Horizontal escape

- 5.9 The means of escape from the ground floor level is in two directions and is within the travel distance allowances for escape in two directions within Table 2 Approved Document B (storage and other non-residential) which allows a maximum travel distance of 45m in two directions. Escape is available via the main entrance which gives direct access to Tontine Street or the stair core which provides access upwards to the third-floor level from which access is available to St Michael's Street. The use of an alternative exit up through the building is considered appropriate as both exits are separated from each other by fire resisting constructions allowing people escaping from a fire to turn away and escape in the opposite direction via a protected escape route.
- 5.10 It has been assumed that flats will be provided with internal protected entrance halls with a maximum travel distance of 9m and that doors to habitable rooms will be fire doors (FD 20 type). Flat entrance doors are to be fire doors (FD30s type) fitted with self-closing devices.
- 5.11 It has been assumed that corridors will be constructed as protected corridors with all doors accessing these corridors being fire doors (FD30s type) fitted with self-closing devices.
- 5.12 The maximum distance of travel for escape in one direction exceeds the allowable distance of 7.5m and whilst additional doors have been located within the corridor further justification will be required in respect of the proposed arrangement and the overall travel distances noted.
- 5.13 The corridor or lobby adjoining the stair to be provided with provision for smoke ventilation. Vents should either be located on an external wall with a minimum free area of 1.5m² or discharge through a vertical smoke shaft (closed at the base) in accordance with the requirements within Approved Document B clause 2.26 (a-b (i-iv)).
- 5.14 In addition to the above the stairs will need be provided with ventilation at the top storey of the stairway having a free area of at least 1m².
- 5.15 Due to the internal nature of the protected corridors and as an alternative to natural ventilation noted above mechanical ventilation of the stairs and or corridors can be considered to provide protection to the stairs from the effects of smoke. Guidance on the design of smoke control systems using pressure differentials is available within BS EN 12101. – Design details will be required.

Fire safety comments cont'd...

- 5.16 The exit from the stair enclosure at the ground floor level from Stair 3 should maintain suitable lobby protection from the adjacent car park accommodation and the ancillary accommodation.
- 5.17 Any stair that serves an enclosed (non-open sided) car park, or place of special fire hazard should be provided with a lobby with not less than 0.4m² of permanent ventilation or be protected from the ingress of smoke by a mechanical smoke control system.
- 5.18 It has been assumed that the proposed car park is not open sided and as such it will not be possible to achieve the requirements for natural ventilation. In this instance mechanical smoke ventilation will need to be provided as noted below.
- The system should be independent of any ventilating for the normal car park ventilation system and be designed to operate at 10 air changes per hour in a fire condition.
 - The system should be designed to run in two parts, each part capable of extracting 50% of the rates indicated above and designed that each part may operate singly or simultaneously.
 - Each part of the system should have an independent power supply which would operate in the event of a mains failure
 - Extract points should be arranged so that 50% of the outlets are at high level and 50% at low level and;
 - Fans should be rated to run at 300°C for a minimum of 60 minutes and the ductwork and fixings should be constructed of materials having a melting point not less than 800°C.
- 5.19 An alternative method of smoke ventilation from enclosed car parks is given in BS7346-7:2006.

Vertical escape

- 5.20 The building is provided with three separate stair core arrangements. Stair 1 is accessed from St Michaels Street (third floor level) and serves the accommodation at the fourth and fifth floors only. Stair 2 which can also be accessed at the third-floor level extends down to the second, first and ground floor car parking levels. Stair 3 extends from the basement to the fourth-floor level.
- 5.21 A minimum stair width to be 1200mm.
- 5.22 At this time, it has been considered that the provision of a fire fighting lift is not required on the basis that the top floor of the building is less than 18m above the fire service access level.

Fire safety comments cont'd...

- 5.23 Escape stairs which form part of the only escape route from an upper storey of a building (or part of a building) should not be continued down to serve any basement storey. The basement should be served by a separate stair. This arrangement will need further consideration by a suitably qualified fire engineer to advise further on the suitability of this arrangement.
- 5.24 Lift shafts should not be continued down to serve any basement if it is in a building served by only one escape stair and smoke from a basement would be able to prejudice the escape routes in the upper floors.

Internal fire spread (linings)

- 5.25 The surface spread of flame classifications for the wall and ceiling linings within the proposed development are indicated within the table below.

Location	Class	European Class
Small rooms of area not more than 4m ² in residential accommodation 30m ² in non-residential accommodation	3	D-s3, d2
Other rooms (including garages) Circulation spaces within dwellings	1	C-s3, d2
Other circulation spaces, including the common areas of blocks of flats	0	B-s3, d2

Internal fire spread (structure)

- 5.26 Elements of structure within the building will need to achieve the minimum period of fire resistance.

Building Element	Minimum Period of Fire Resistance (see note 1)
Structural frame and load bearing walls (note 2)	60 minutes
External walls (as appropriate) (note 3)	60 minutes
Compartment walls	60 minutes
Floors	60 minutes
Places of special fire hazard	30 minutes
Protected escape routes	30 minutes
Notes Note 1 - Minimum periods of fire resistance in terms of load bearing capacity, integrity and insulation. Note 2 - load bearing walls – load bearing capacity only Note 3 - Any part of a wall more than 1m from relevant boundary 15 minutes insulation only	

Fire safety comments cont'd...

Compartmentation

- 5.27 All floors and walls will be constructed as compartment walls and floors in accordance with the requirements within Approved Document B (Volume 2) Section 8. The minimum periods of fire resistance are indicated within 5.26 above.

Space Separation

- 5.28 At present consideration has not been given to the requirements for space separation

Sprinklers

- 5.29 At present it is not proposed that the development will be provided with a sprinkler system.

Access for fire fighting

- 5.30 Fire and service vehicle access to the building will be based on access for a pump appliance to within 45m of all points within the flats. At present access has been considered on the basis of access from Tontine Street and St Michaels Street directly adjacent to the proposed development.
- 5.31 Having regards the layout of the building it is considered that a dry riser will be required within the development.

6.0 Appendix A - Drawings



Appendix A – Drawings cont'd...



Appendix A – Drawings cont'd...



Appendix A – Drawings cont'd...

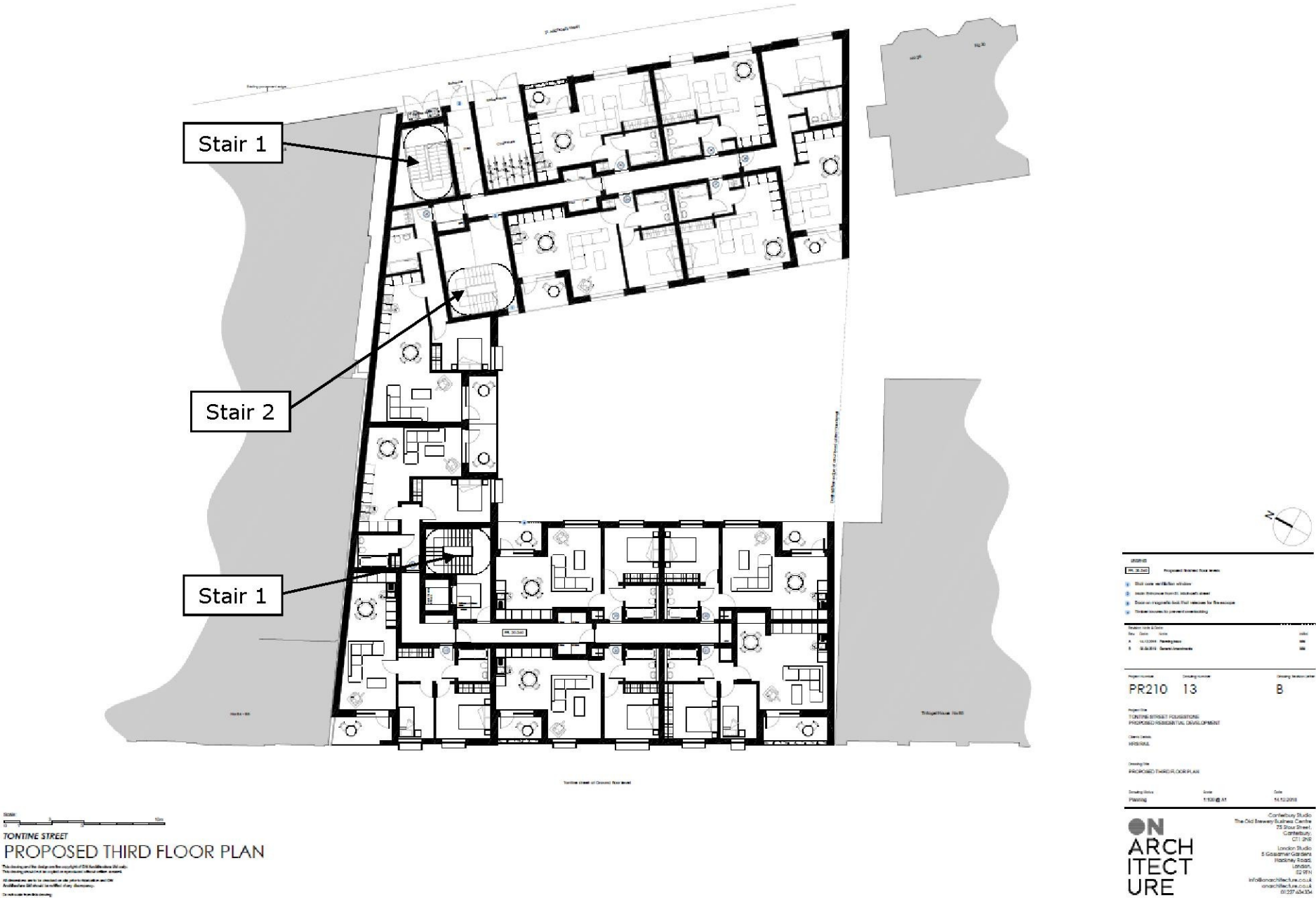
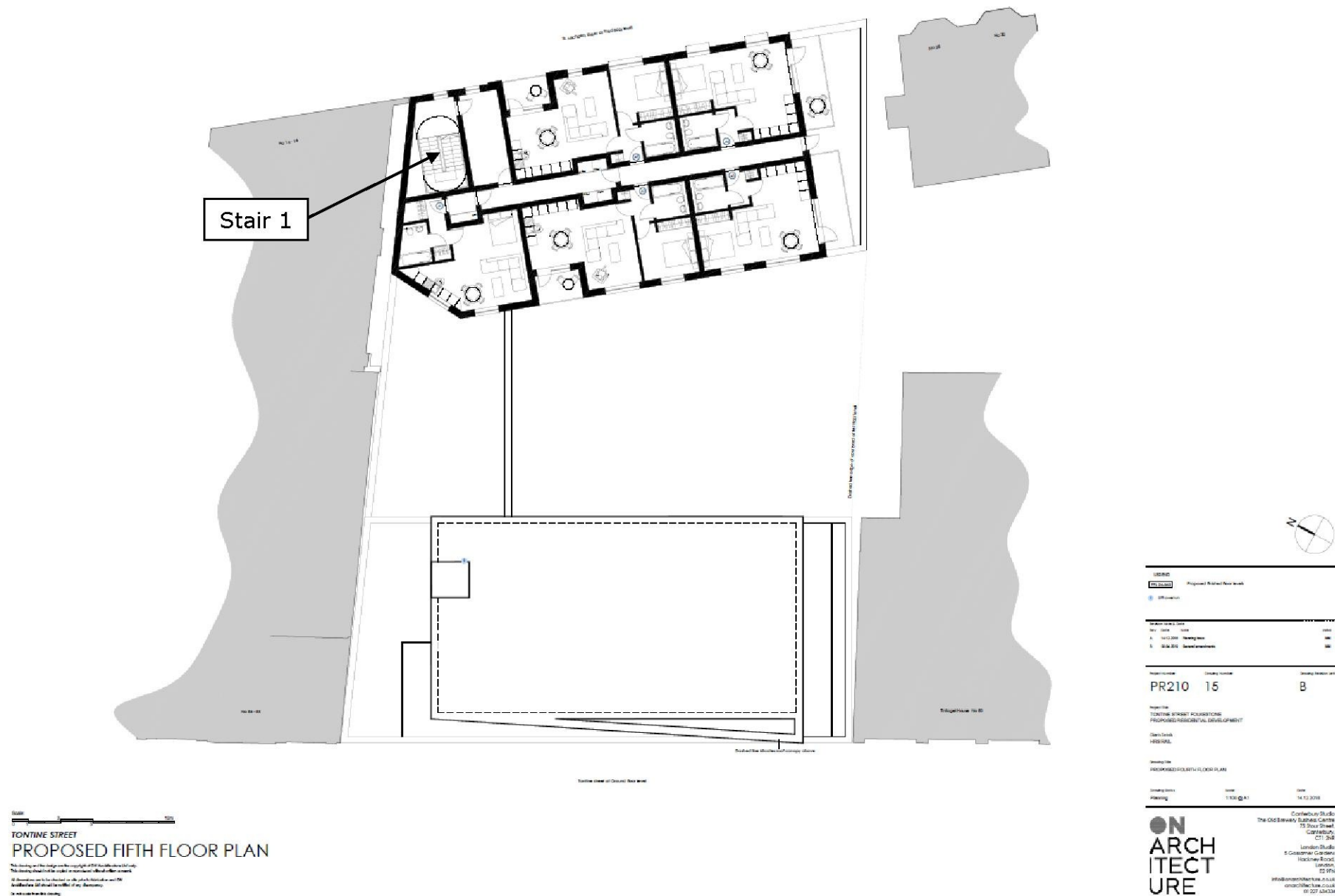


Figure 1 is a schematic representation of the experimental design. It shows a horizontal timeline with a total duration of 10 minutes. The timeline is divided into two main sections: 'Stimulus' (0 to 5 minutes) and 'Response' (5 to 10 minutes). A vertical line at the 5-minute mark separates the two sections. The 'Stimulus' section is further divided into two sub-sections: 'Stimulus 1' (0 to 2.5 minutes) and 'Stimulus 2' (2.5 to 5 minutes). The 'Response' section is also divided into two sub-sections: 'Response 1' (5 to 7.5 minutes) and 'Response 2' (7.5 to 10 minutes). A '5 min rest' period is indicated between the end of the 'Response' section and the start of the next 'Stimulus' section.



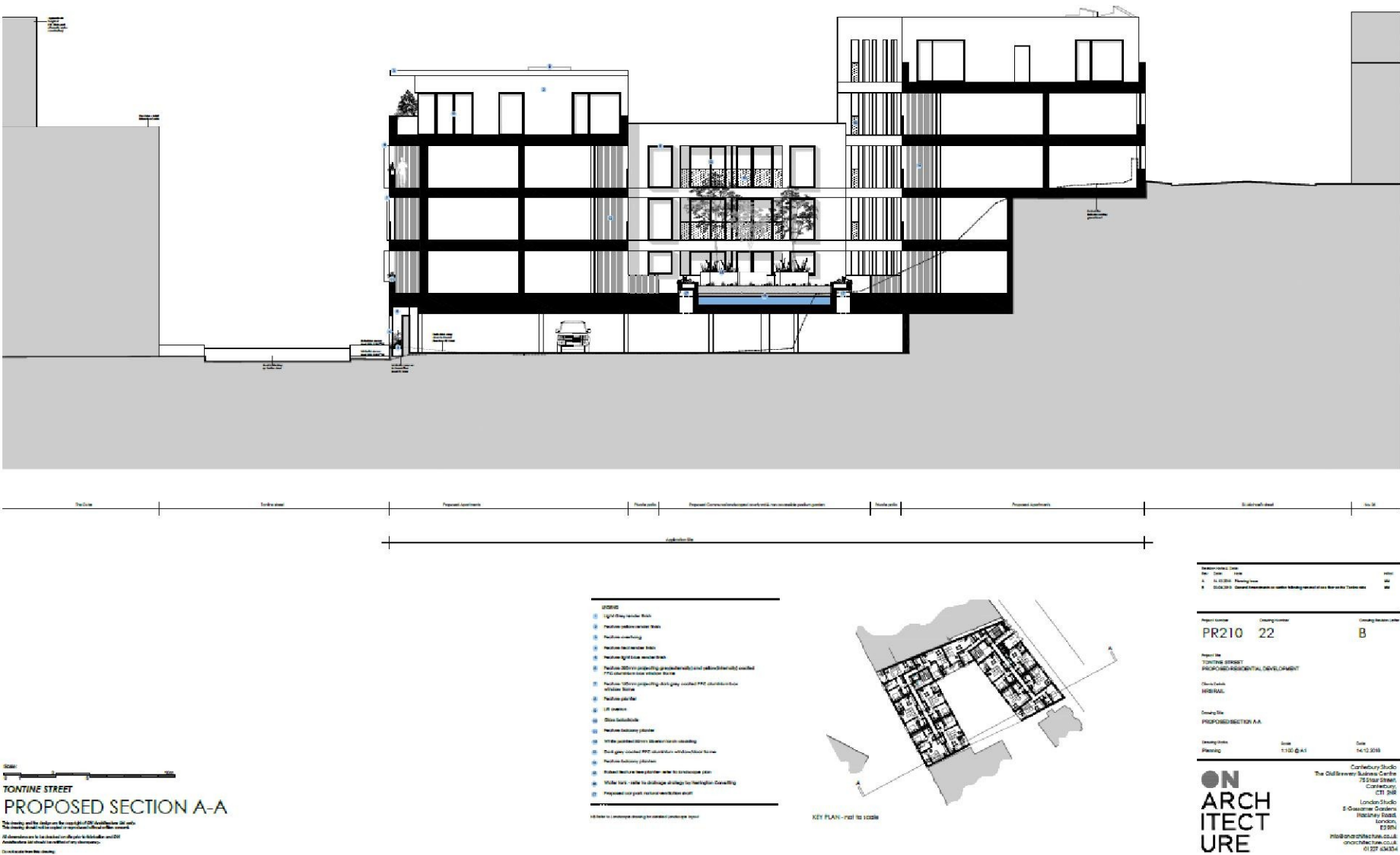
Appendix A – Drawings cont'd...



Appendix A – Drawings cont'd...



Appendix A – Drawings cont’d...



Appendix A – Drawings cont'd...



- REVISIONS**
- 1. Right hand section line
 - 2. Remove where section line is not needed
 - 3. Double line section line to indicate where section line is not needed
 - 4. Remove section line where section line is not needed
 - 5. LIFT section
 - 6. Section line
 - 7. Section line
 - 8. Section line
 - 9. Section line
 - 10. Section line
 - 11. Section line
 - 12. Section line
 - 13. Section line
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 - 16. Section line
 - 17. Section line
 - 18. Section line
 - 19. Section line
 - 20. Section line

1. Refer to section line to indicate where section line is not needed

Rev	Date	By	Check
1	14/12/2018	Planning	14/12/2018
2	14/12/2018	Section line	14/12/2018

Project Name	Drawing Number	Drawing Section Label
PR210	23	B
TONTINE STREET PROPOSED RESIDENTIAL DEVELOPMENT		
Check Date: 14/12/2018		
Drawing Date: 14/12/2018		
Drawing Date	Date	Date
14/12/2018	14/12/2018	14/12/2018

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**TONTINE STREET
PROPOSED SECTION B-B**
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dimensions shall be subject to change without notice.
Do not construct the building.

