

# Mechanical Ventilation Report

Arthur Stanley House, London

Prepared on behalf of:  
4K Contracts Ltd

BE2799

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## Contents

Executive Summary .....	3
Introduction .....	4
Background .....	4
Site Location and Context .....	4
Dispersion Modelling .....	5
Ventilation Strategy .....	6
Introduction .....	6
Façade Ventilation Locations .....	6
Conclusion .....	8
Abbreviations .....	9
Figures .....	10

## Executive Summary

Build Energy was commissioned by 4K Contracts Ltd to produce a Mechanical Ventilation Report in support of a mixed-use development at Arthur Stanley House, London.

Planning consent for the development was granted by London Borough of Camden subject to a number of conditions, including Condition 24 relating to air quality. A Mechanical Ventilation Report was therefore instructed to address the requirements of condition and allow the local planning authority to discharge the condition.

A mechanical ventilation system for the development has been designed by Allford Hall Monaghan Morris. This includes a number of inlets to provide clean air for future residents. The proposed positioning was therefore considered in the context of the results of a dispersion modelling assessment. This indicated that the air inlets and wider mechanical ventilation strategy are considered sufficient to ensure future occupants of the site are not exposed to elevated pollutant concentrations and the system complies with the requirements of Condition 24.

# Introduction

## Background

Build Energy was commissioned by 4K Contracts Ltd to produce a Mechanical Ventilation Report in support of a mixed-use development at Arthur Stanley House, London.

Planning consent for the development was granted by London Borough of Camden (LBoC) subject to a number of conditions, including one relating to air quality. This report was therefore instructed to address the relevant requirements of Condition 24 and allow LBoC to discharge the condition.

## Site Location and Context

The site is located at Arthur Stanley House, 40 - 50 Tottenham Street, London, at approximate National Grid Reference (NGR): 529332, 181764. Reference should be made to Figure 1 for a map of the site and surrounding area.

The proposals comprise the redevelopment of Arthur Stanley House, an eight-storey building. This will include the reconfiguration of the seventh floor together with the construction of a new four-storey structure at the rear of the building to enable the change of use from healthcare (Class D1) to a mixed-use development. The scheme consists of office land-use (Class B1) with flexible office (Class B1)/healthcare (Class D1) floorspace at ground and first floor levels and 10 residential units (Class C3) above, with associated landscaping. The development also includes a XRG16 CHP plant with associated stack which discharges at roof level.

Planning consent for the scheme was granted by London Borough of Camden (LBoC) in August 2018 subject to a number of conditions (reference: 2017/4306/P). These include the following in relation to air quality:

"Condition No.24:

Prior to commencement of development (excluding demolition and site preparation works), full details of the mechanical ventilation system including air inlet locations shall be submitted to and approved by the local planning authority in writing. Air inlet locations should be located away from busy roads and the boiler stack and as close to roof level as possible, to protect internal air quality. The development shall thereafter be constructed and maintained in accordance with the approved details."

A document outlining the Mechanical Ventilation Strategy<sup>1</sup> for the scheme was produced and submitted to LBoC to address the Planning Condition. Subsequent to submission, a number of comments were received from the Environmental Health Officer at LBoC requiring additional information in relation to air quality. A Mechanical Ventilation Report has therefore been produced to assist in discharging Planning Condition No.24 by summarising the relevant information in the context of the mechanical ventilation system design.

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<sup>1</sup> Arthur Stanley House, Planning Conditions Response\_24 Mechanical Ventilation, Allford Hall Monaghan Morris, 2021.

## Dispersion Modelling

An Air Quality Assessment<sup>2</sup> (ref: BE2799) was produced in support of the proposed development. This included dispersion modelling to determine concentrations of the following pollutants at the mechanical ventilation system inlets:

- Nitrogen dioxide (NO<sub>2</sub>)
- Particulate matter with an aerodynamic diameter of less than 10µm (PM<sub>10</sub>)
- Particulate matter with an aerodynamic diameter of less than 2.5µm (PM<sub>2.5</sub>)

The dispersion modelling was undertaken using a methodology discussed with Tom Parkes, Air Quality Programmer Manage at LBC, on 12<sup>th</sup> December 2022.

Reference should be made to the full Air Quality Assessment<sup>3</sup> for details of the dispersion modelling inputs and associated results. However, for the purposes of this report a summary of the findings is provided as follows:

- Annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations were classified as APEC- A at all air inlet locations between the lower ground to eighth floor.

Based on the results, the design is considered appropriate from an air quality perspective.

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<sup>2</sup> Arthur Stanley House Air Quality Assessment, Redmore Environmental Ltd, 2023.

<sup>3</sup> Arthur Stanley House Air Quality Assessment, Redmore Environmental Ltd, 2023.

# Ventilation Strategy

## Introduction

The Ventilation Strategy for the scheme comprises a number of a ventilation arrangements, including inlets for the intake of air. Reference should be made to Figure 2 for details of the location of the air inlets.

## Façade Ventilation Locations

Air ventilation locations are described in the following Sections.

### *1. Ground Floor Mews*

Ventilation to the basement plant rooms is provided along Tottenham Mews via bespoke louvres detailed into the architectural metal work at ground floor. The positioning of the louvres away from the main road is likely to reduce concentrations at the proposed receptor location.

Dispersion modelling results presented in the accompanying Air Quality Assessment<sup>4</sup> indicated that annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations were classified as APEC - A at the inlets. As such, the location was considered suitable from an air quality perspective.

Reference should be made to Figure 3 for details of the arrangement.

### *2. Cornice Hit and Miss*

Ventilation is provided at high level and the louvre is integrated into the cladding. The louvre is positioned at roof level to the rear of the development.

Dispersion modelling results presented in the accompanying Air Quality Assessment<sup>5</sup> indicated that annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations were classified as APEC - A. As such, the location was considered suitable from an air quality perspective.

Reference should be made to Figure 4 for details of the arrangement.

### *3. Extract Louvre behind Plant Screen*

The louvre positioned behind the residential plant screen extracts air, and therefore, has not been considered further in the context of this report.

### *4. Ventilation Louvre at Rear of Residential Riser*

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<sup>4</sup> Arthur Stanley House Air Quality Assessment, Redmore Environmental Ltd, 2023.

<sup>5</sup> Arthur Stanley House Air Quality Assessment, Redmore Environmental Ltd, 2023.

Ventilation will be provided to the rear of the residential properties, near the residential riser. The positioning of louvre panel away from the main road, and Tottenham Mews, is likely to reduce concentrations at the proposed receptor location.

Dispersion modelling results presented in the accompanying Air Quality Assessment<sup>6</sup> indicated that annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations were classified as APEC - A. As such, the location was considered suitable from an air quality perspective.

Reference should be made to Figure 5 for details of the arrangement.

#### *5. Ventilation Louvres in B1 & B2 Rear Lightwell*

Louvre panels will be located above the windows in Basement 1 and Basement 2 on the elevation which faces into the rear lightwell.

Dispersion modelling results presented in the accompanying Air Quality Assessment<sup>7</sup> indicated that annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations were classified as APEC - A. As such, the location was considered suitable from an air quality perspective.

Reference should be made to Figure 6 for details of the arrangement.

#### *6. Residential Apartment Air Inlets on Rear Façade*

The ventilation strategy for the rear residential building has been designed to keep Tottenham Mews free from any air inlets. Both intake and extract occurs through the a lightwell between the residential building and office building.

Dispersion modelling results presented in the accompanying Air Quality Assessment<sup>8</sup> indicated that annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations were classified as APEC - A. As such, the location was considered suitable from an air quality perspective.

Reference should be made to Figure 7 for details of the arrangement.

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<sup>6</sup> Arthur Stanley House Air Quality Assessment, Redmore Environmental Ltd, 2023.

<sup>7</sup> Arthur Stanley House Air Quality Assessment, Redmore Environmental Ltd, 2023.

<sup>8</sup> Arthur Stanley House Air Quality Assessment, Redmore Environmental Ltd, 2023.



## Conclusion

Build Energy was commissioned by 4K Contracts Ltd to undertake a Mechanical Ventilation Report in support of a mixed-use development at Arthur Stanley House, London.

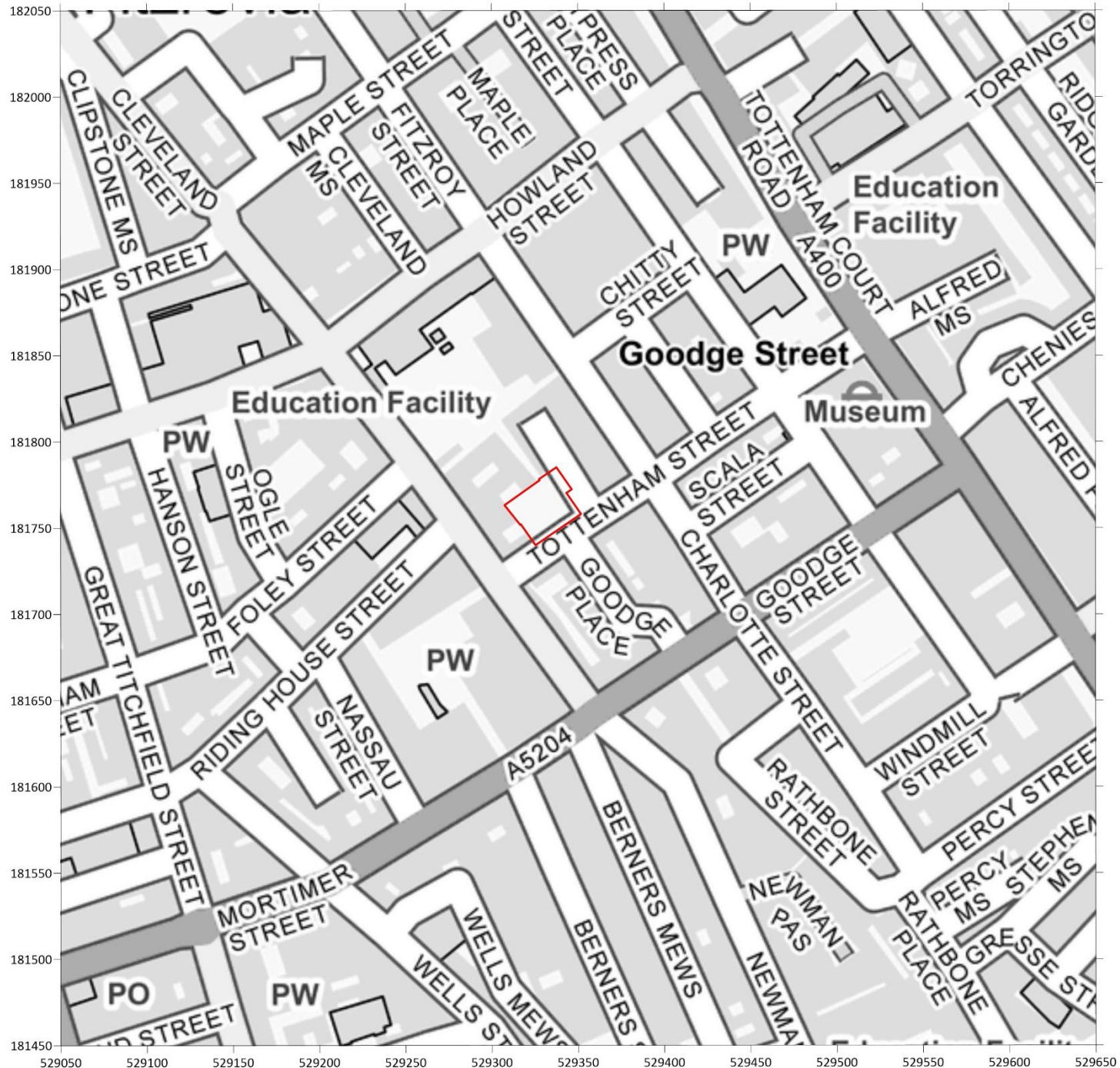
Planning consent for the development was granted by London Borough of Camden subject to a number of conditions, including Condition 24 relating to air quality. A Mechanical Ventilation Report was therefore instructed to address the requirements of condition and allow the local planning authority to discharge the condition.

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## Abbreviations

LBoC	London Borough of Camden
NO <sub>2</sub>	Nitrogen dioxide
PM <sub>10</sub>	Particulate matter with an aerodynamic diameter of less than 10µm
PM <sub>2.5</sub>	Particulate matter with an aerodynamic diameter of less than 2.5µm

# Figures



**Legend**



**Title**

Figure 1 - Site Location Plan

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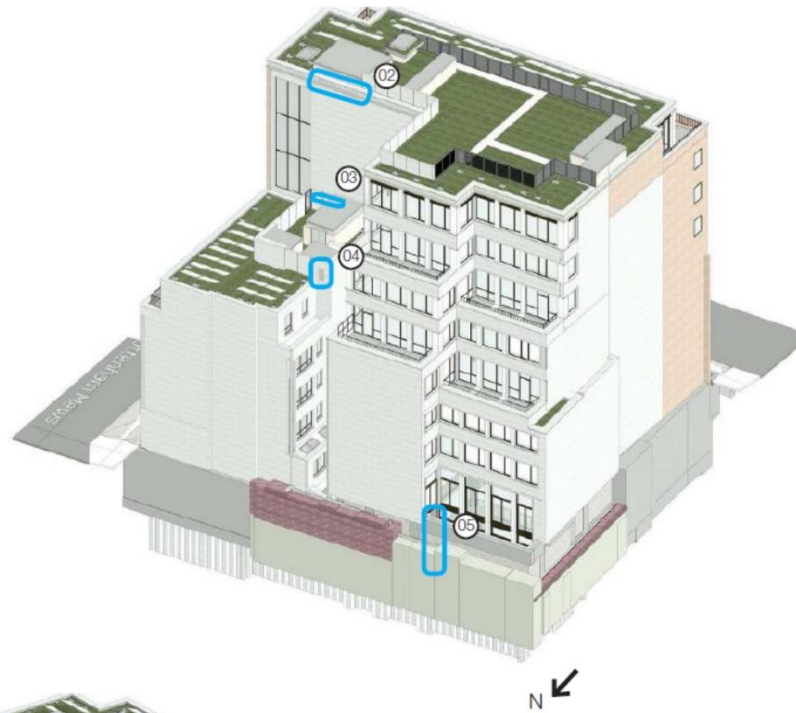
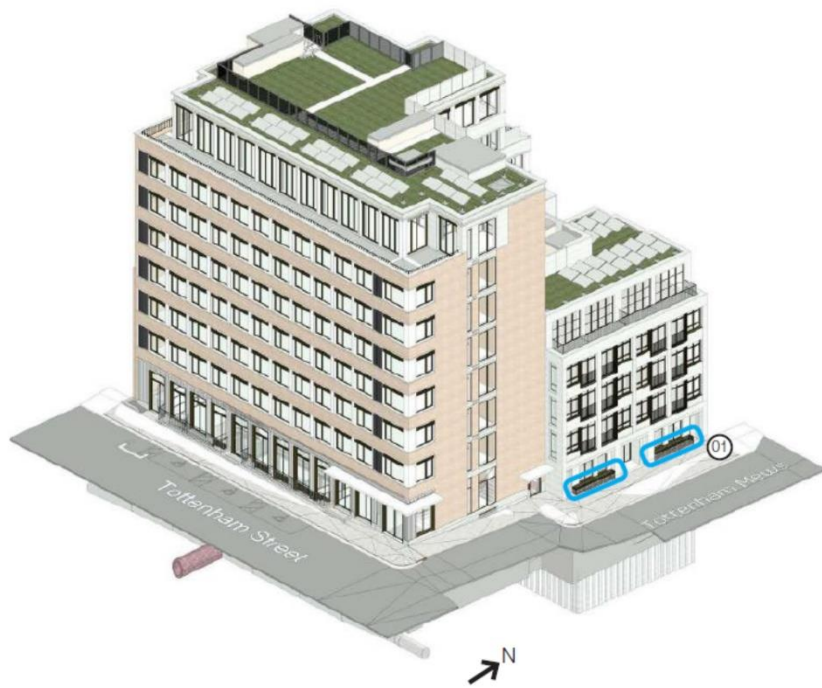
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**Legend**

**Title**  
Figure 2 - Facade Ventilation Locations

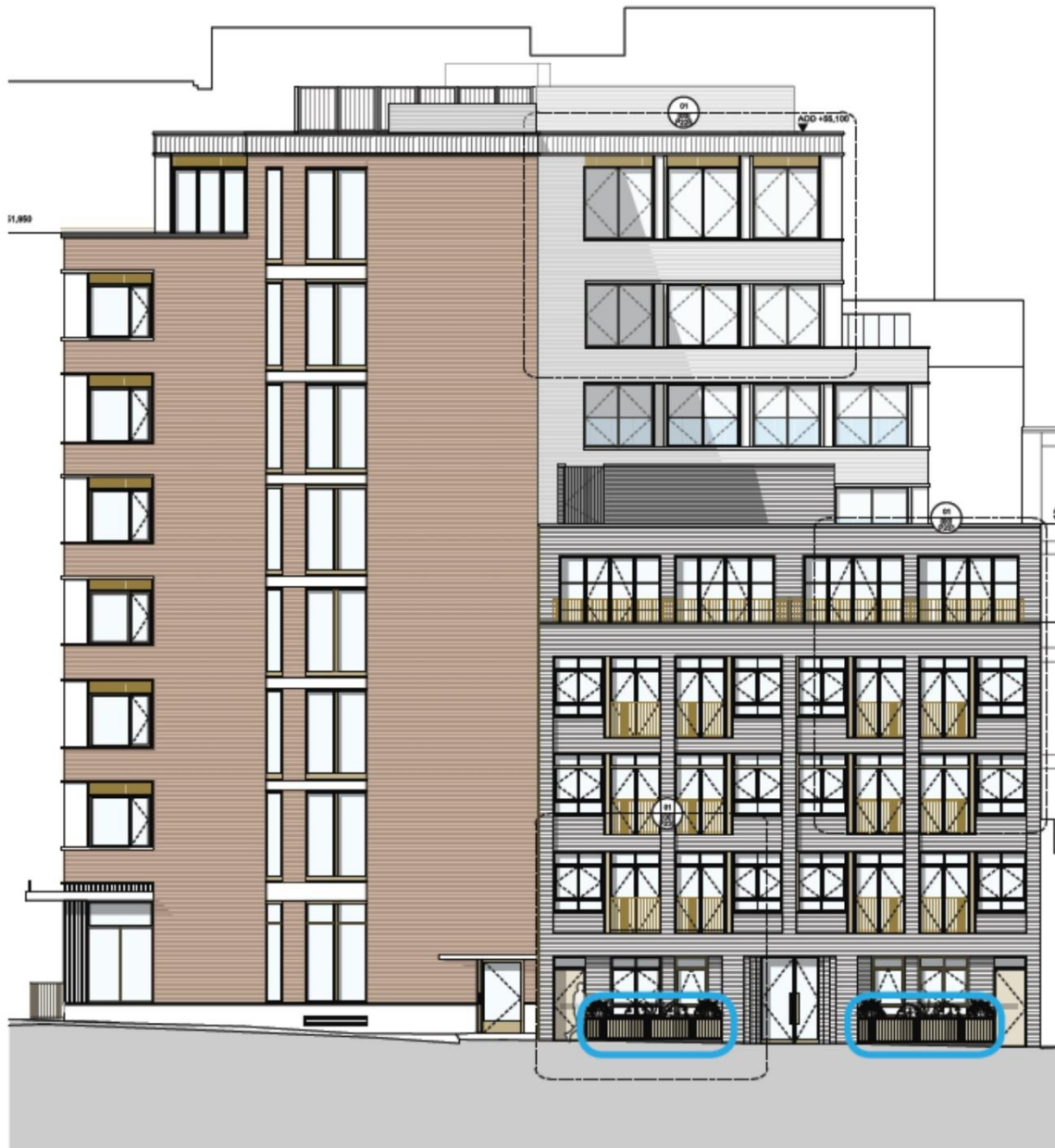
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## Legend

### Title

Figure 3 - Ground Floor Mews ventilation  
(Position 1)

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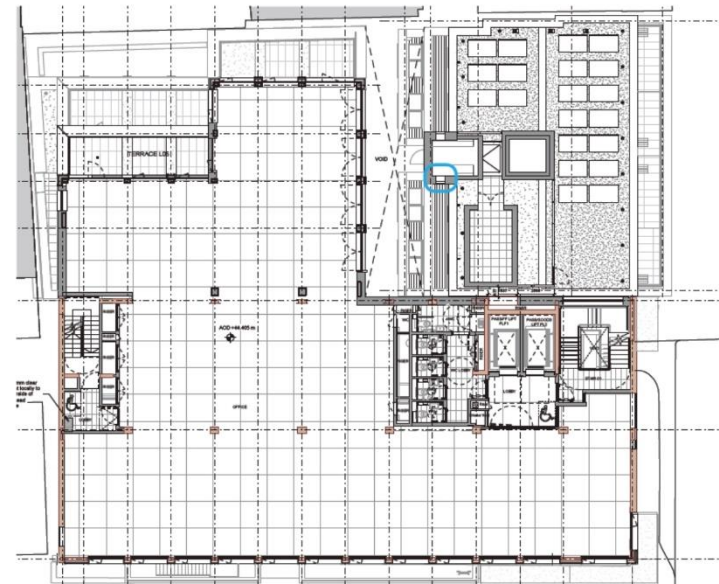
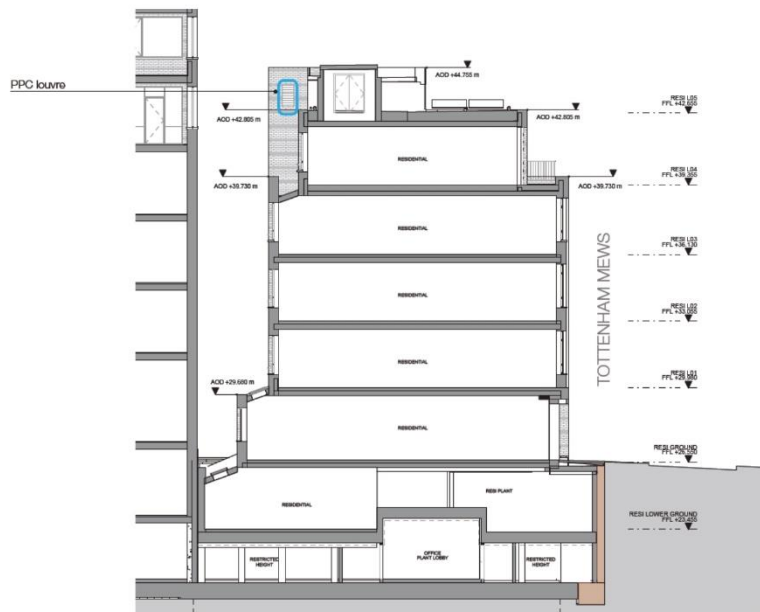
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**Legend**

**Title**  
Figure 5 - Ventilation louvre at rear of residential riser

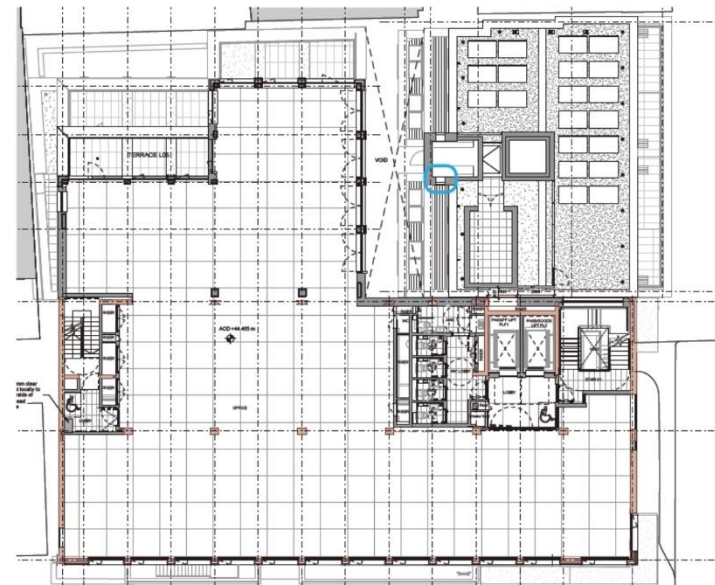
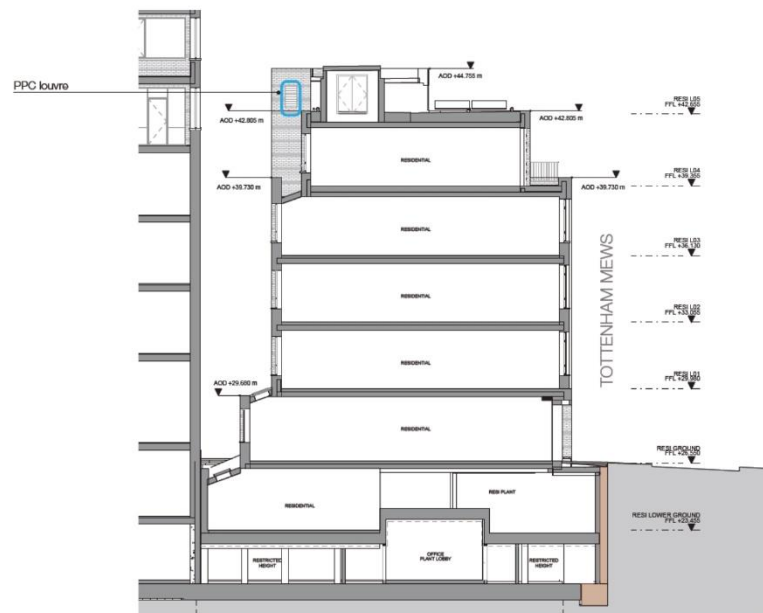
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**Legend**

**Title**  
Figure 5 - Ventilation louvre at rear of residential riser (Position 4)

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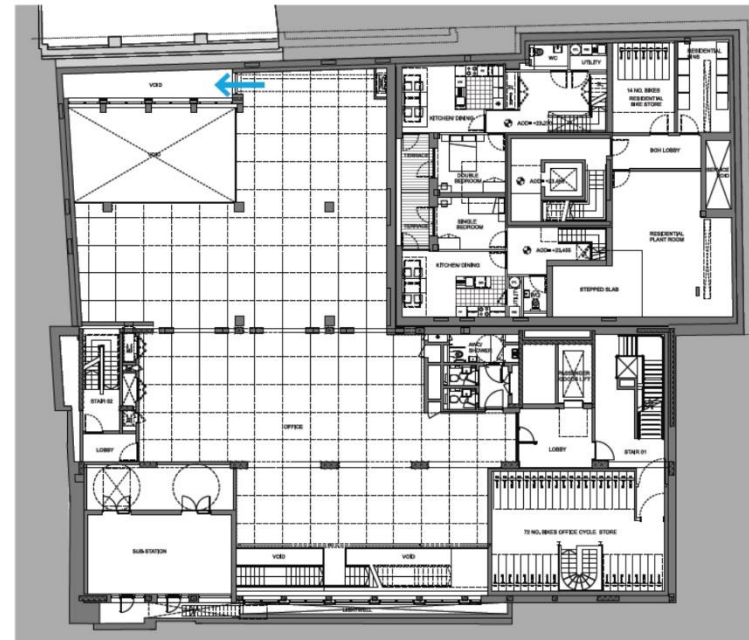
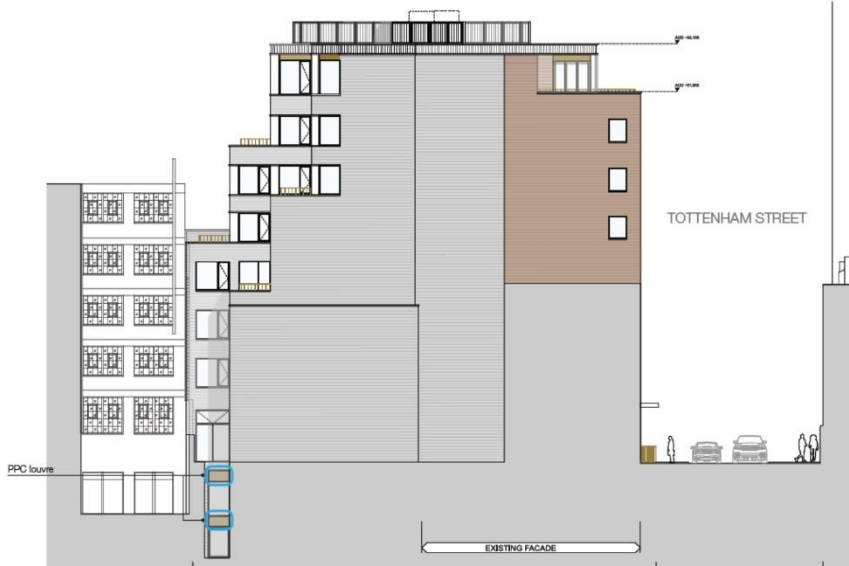
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**Legend**

**Title**  
 Figure 6 - Ventilation louvre at B1 & B2 rear lightwell (Position 5)

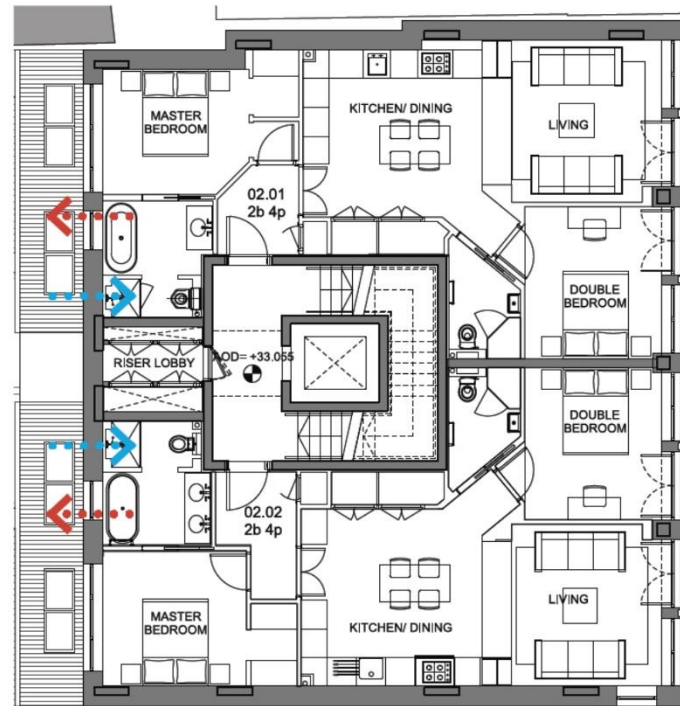
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TOTTENHAM MEWS

**Legend**

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Figure 7 - Residential apartment air inlets on rear facade (Position 6)

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