

Former Particular Baptist Church

35 Rochdale Road, Manchester

Overheating and Ventilation Statement



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Executive Summary

Futureserv have been commissioned by City Point Developments Ltd to assess the overheating risk and prepare a strategy for ventilation for the new proposed residential-led mixed use scheme at the site of the Particular Baptist Church, Rochdale Road, M4 4HT.

The development consists of a partial demolition of the existing building, and erection of a 23-storey residential building comprising 133 modern dwelling. The ground floor also features a commercial unit (Class E) with associated works.

CIBSE TM59 methodology has been utilised to assess the overheating risk with key residential floors of the building assessed against the TM59 criteria and approved building regulation document Guide O 2021.

Compliance with TM59 minimum criteria has been analysed using the Manchester weather Centre data.

Futureserv understands that some facades of the development are exposed to high noise levels which may limit the use of natural ventilation for reducing the risk of overheating within the affected dwellings.

The proposed development is compliant with Building Regulation Guide O Overheating and CIBSE TM59 overheating assessment inline with consideration with the following acoustic site constraints.

- Day to day general background ventilation inline with approved document Part F shall be provided by a Mechanical Ventilation Heat Recovery System (MVHR), therefore no requirement for trickle ventilation or opening windows to provide day to day background ventilation.
- Lower G values have been applied to the glass specification to reduce solar gain.
- Inline with the acoustic report assessment, the windows on all levels have only been simulated as openable for limited periods of time depending on location on the elevation inline with the colour coded acoustic banding based on Jameson Acoustic – Noise Impact Assessment Report findings in 22144-RP-1-R3 27 October 2024.

Façade Zone (ref. Figure in Section 7.2.2)	Maximum number of hours windows can be open during the day (07:00-23:00)
RED	4 hours
ORANGE	7 hours
BLUE	10 hours

The window opening periods have been set as below.

Bedrooms

Red zone 4 hrs (19:00-23:00), Orange zone 7hrs (16:00 - 23:00), Blue zone 10 hrs (13:00 - 23:00)

Living Areas

Red zone 4 hrs (14:30-18:30), Orange zone 7hrs (12:30 - 19:30), Blue zone 10 hrs (12:00 - 22:00)

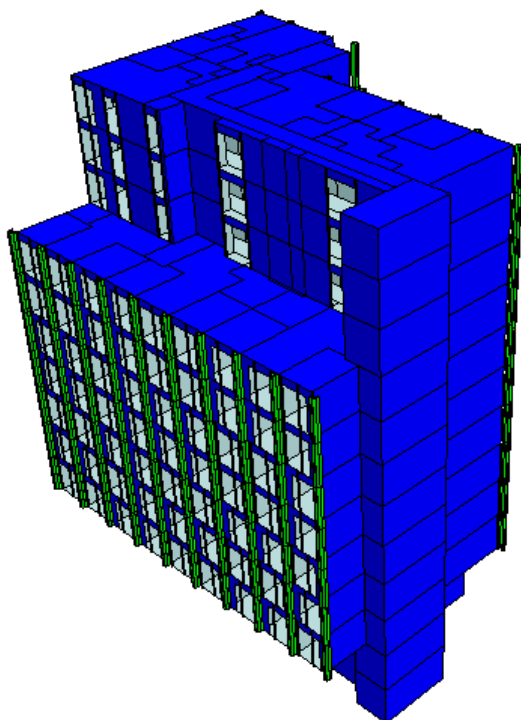
- All Apartments have been simulated with windows closed throughout the night (11pm to 8am) for the overheating assessment with the MVHR system incorporating increased ventilation overheating flowrates available via a boost switch within each apartment during the night time hours.
- Windows have been set to begin to open when the internal temperature exceeds 22°C with a gradually opening profile and fully open when the internal temperature reaches 26°C.

1.0 Introduction

The following floors have been modelled to represent to full extent of apartments within the building under realistic adjacent thermal conditions.

2F, 3F, 4F, 5F (to represent up to level 18 repeated floors) 19F, 20F, 21F, 22F

These levels of the new proposed residential-led mixed use scheme were simulated against TM59 Overheating criteria inline with Guide O of the building regulations 2021.



The criteria states that:

1. Living Rooms, Kitchens and Bedrooms – Hours of exceedance

The number of hours during which ΔT is greater than or equal to one degree ($^{\circ}\text{K}$) during the period May to September inclusive shall not be more than 3% of occupied hours. ΔT is defined as operative temperature less the maximum acceptable temperature. ΔT is rounded to the nearest whole degree (CIBSE TM52, criteria 1). In this the 3% of occupied hours, amounts to 59.7 Hours for Living/Kitchen/Dining areas and 110.2 hours for bedrooms. Therefore for criterion A to be complied with, the hours found must be less than this figure.

2. Bedrooms Only – Sleeping Conditions

During the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26°C for more than 1% of annual hours. This has been determined as being 32 hours a year.

The TM59 criteria set out above provides a basis for assessing the risk of perceived overheating. The criteria above and results contained within this technical note are estimates of the temperatures that may be experienced in a typical year based on the CIBSE Cardiff DSY1 (Design Summer Year) weather file for the 2020's, high emissions, 50% percentile scenarios.

1.1 Software

The model was created using IES VE 2024 software. The 'Suncast' solar shading software has been used to model the sun path and solar shading effect for the proposed building. 'Macroflo' software has been used to simulate the natural ventilation openings using a selection of appropriate control profiles.

1.2 Drawings

The model is based on the drawings by Hodder and Partners. Consisting of site plan, elevations and GA Floor plans as issued for planning.

1.3 Ventilation

Natural Ventilation

In the residential areas, all the Living/Kitchen and Bedrooms have access to natural ventilation via openable windows, side hung glazed doors or side hung glazed full height openings behind a perforated fixed screen. An infiltration rate of 0.12 ach/hr has been applied to all areas.

Auxiliary Ventilation

The apartment areas are ventilated with MVHR units. These extract air from the Kitchen/Living areas, bathrooms and utility cupboards and supply air to the bedrooms and Kitchen/Living spaces.

In order for the rooms to comply, a summertime mechanical ventilation boost rate has been applied, as triggered by a manual push button by the occupant.

The background (lower) rates are applied as a constant trickle, with boosted rates applied when the internal temp >22degC. Bedroom boost vent rates are applied during the day and also during the night and therefore need to be available for extended periods as required.

The following trickle and overheating boost ventilation rates were applied to bedrooms and living areas, to be supplied by the MVHR unit.

Zone (acoustic)	Apartment Type	Bed Trickle Rate (l/s)	Living Trickle Rate (l/s)	Bed Boost rate (l/s)	Living Boost rate (l/s)	Total Boost rate (l/s)
Blue	1 Bed	8	16	15	29	44
Orange	1 Bed	8	16	19	36	55
Red	1 Bed	8	16	18	34	52

Zone (acoustic)	Apartment Type	Bed Trickle Rate (l/s)	Living Trickle Rate (l/s)	Bed Boost rate (l/s)	Living Boost rate (l/s)	Total Boost rate (l/s)
Blue	2 Bed	10	11	19	21	59
Orange	2 Bed	10	11	22	23	67
Red	2 Bed	10	11	26	29	81

1.4 Internal Gains

TM59

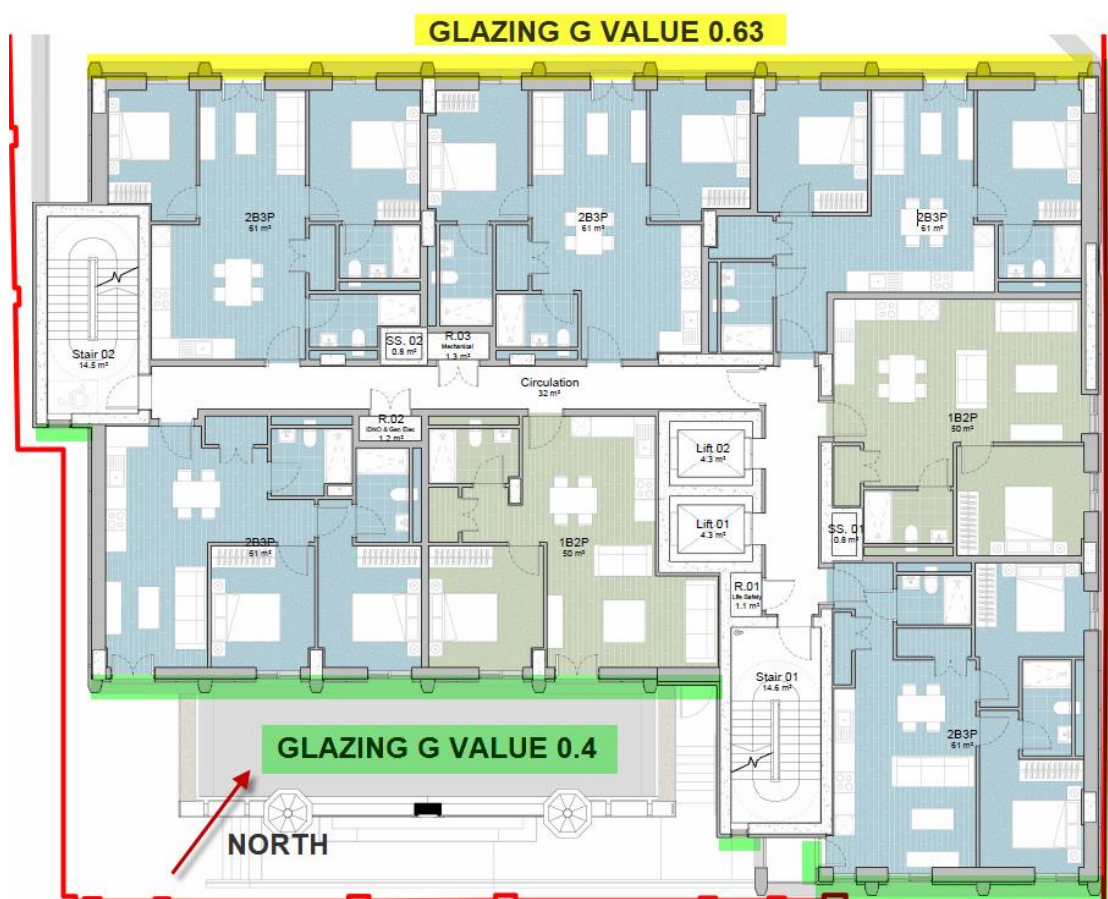
The internal gains and profiles that have been used for the internal temperature analysis model have been taken from CIBSE TM59.

1.5 Building Fabric Specification

- Exposed Floor $U = 0.12 \text{ W/m}^2\text{K}$
- External Wall $U = 0.13 \text{ W/m}^2\text{K}$
- Insulated Wall between heated/unheated zones $U = 0.13 \text{ W/m}^2\text{K}$
- Roof $U = 0.12 \text{ W/m}^2\text{K}$
- Windows/Glazed Doors $U = 1.2 \text{ W/m}^2\text{K}$ Nett incl Frame

- Glazing G Values simulated as 0.4 (North East, South East, South West facades)
- Glazing G Values simulated as 0.63 (North West façade)

No Blinds have been simulated.



1.6 Window Openings

Window opening is manual. Inline with Guide O, Windows have been set to begin to open when the internal temperature exceeds 22°C. The Windows will be fully open when the internal temperature reaches 26°C.

All apartments

Window opening is manual. Inline with Guide O, Windows have been set to begin to open when the internal temperature exceeds 22°C. The Windows will be fully open when the internal temperature reaches 26°C.

The glazed doors and side ventilation openings have been modelled as openable for ventilation purposes, using the same opening profile as the windows.

For all openable windows, the estimated openable areas have been measured from elevations, taking into consideration the frame areas.

1.7 Window Free areas tabulated for various window types

Window Type Ref	Description	Window width (m) (Excluding Fixed Panes) *	Window Height (m) (Excluding Fixed Panes)	% of window area that is openable	Equivalent Orifice area % **	Equivalent Orifice area m2 **	NOTE
WT 1	Vent door behind perforated screen (50%) Door Side Hung, 90 deg angle opening	0.6	2.45	43	44.4	0.65	
WT 2	Top Hung Window, 30 deg angle opening	0.625	1.345	86	83.23	0.7	
WT 3	Balcony Door Side Hung, 90 deg angle opening (SGL)	0.8	2.1	86	88.77	1.49	
WT 4	Top Hung Window, 30 deg angle opening	0.56	1.36	86	83.23	0.63	

* Includes frames.

** Where equivalent orifice area is calculated automatically using:-

4.2.1.2 All Hung Windows / Doors

$$f = \frac{C_v}{C_D} * f_a / 100$$

where:

C_v is a discharge coefficient

C_D is the discharge coefficient for a sharp edge orifice (0.62)

f_a is the openable area %

Where the discharge coefficient is used based on opening angle, proportions (L/H and hanging type).

The equivalent area: It is the area of a sharp edged orifice through which air would pass at the same volume flow rate, under an identical applied pressure difference, as the opening under consideration. Typically for windows even when fully open the opening will perform with a higher pressure drop than a sharp edged orifice. For window, door and grille/louvre opening categories in MacroFlo this is given by the aerodynamic area divided by the coefficient of discharge for a sharp edge orifice ($C_D = 0.62$).

The resulting free areas have been estimated based on what is assumed to be the openable area of the windows/glazed doors. i.e. the throat area that remains nett of the surrounding frames.

2.0 Results

The results from the overheating simulation show that with the parameters applied as stated within this assessment, all of the assessed bedrooms and Kitchen/Living/Dining areas comply with the TM59 overheating criteria.

- Summertime Boost mechanical ventilation for all apartments.
- Windows only openable for limited periods in the daytime based on their designated acoustic banding
- Windows triggered to open >22 deg C (internal) and fully open at 26 degC (internal).

Location	Criterion a				Criterion b		Overall
	May-Sept				Annual 10pm - 7am		
	Occupied Summer Hours	3% of Occupied Summer Hours	No. of hours Top - Tmax ≥ 1K	Pass/Fail criterion A	< 32 Hrs above 26°C (Top)	Pass/Fail criterion B	Pass/Fail Overall
03_APT 01_2B_LKD BL	1989	59.7	15	Pass	N/A	N/A	Pass
03_APT 02_2B_LKD BL	1989	59.7	18	Pass	N/A	N/A	Pass
03_APT 03_2B_LKD BL	1989	59.7	20	Pass	N/A	N/A	Pass
03_APT 04_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
03_APT 05_2B_LKD RE	1989	59.7	17	Pass	N/A	N/A	Pass
03_APT 06_1B_LKD RE	1989	59.7	0	Pass	N/A	N/A	Pass
03_APT 07_2B_LKD RE	1989	59.7	16	Pass	N/A	N/A	Pass
02_APT 02_2B_LKD RE	1989	59.7	7	Pass	N/A	N/A	Pass
20_APT 03_1B_LKD BL	1989	59.7	17	Pass	N/A	N/A	Pass
02_APT 01_2B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
04_APT 01_2B_LKD BL	1989	59.7	20	Pass	N/A	N/A	Pass
04_APT 02_2B_LKD BL	1989	59.7	19	Pass	N/A	N/A	Pass
04_APT 03_2B_LKD BL	1989	59.7	24	Pass	N/A	N/A	Pass
04_APT 04_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
04_APT 05_2B_LKD RE	1989	59.7	26	Pass	N/A	N/A	Pass
04_APT 06_1B_LKD RE	1989	59.7	0	Pass	N/A	N/A	Pass
04_APT 07_2B_LKD RE	1989	59.7	31	Pass	N/A	N/A	Pass
05_APT 01_2B_LKD BL	1989	59.7	20	Pass	N/A	N/A	Pass
05_APT 02_2B_LKD BL	1989	59.7	26	Pass	N/A	N/A	Pass
05_APT 03_2B_LKD BL	1989	59.7	27	Pass	N/A	N/A	Pass
05_APT 04_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
05_APT 05_2B_LKD RE	1989	59.7	24	Pass	N/A	N/A	Pass
05_APT 06_1B_LKD RE	1989	59.7	0	Pass	N/A	N/A	Pass
05_APT 07_2B_LKD RE	1989	59.7	37	Pass	N/A	N/A	Pass
06_APT 01_2B_LKD BL	1989	59.7	21	Pass	N/A	N/A	Pass
06_APT 02_2B_LKD BL	1989	59.7	21	Pass	N/A	N/A	Pass
06_APT 03_2B_LKD BL	1989	59.7	24	Pass	N/A	N/A	Pass
06_APT 04_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
06_APT 05_2B_LKD RE	1989	59.7	27	Pass	N/A	N/A	Pass
06_APT 06_1B_LKD RE	1989	59.7	0	Pass	N/A	N/A	Pass

	Criterion a				Criterion b		Overall
	May-Sept				Annual 10pm - 7am		
Location	Occupied Summer Hours	3% of Occupied Summer Hours	No. of hours Top - Tmax ≥ 1K	Pass/Fail criterion A	< 32 Hrs above 26°C (Top)	Pass/Fail criterion B	Pass/Fail Overall
06_APT 07_2B_LKD RE	1989	59.7	39	Pass	N/A	N/A	Pass
16_APT 01_2B_LKD BL	1989	59.7	20	Pass	N/A	N/A	Pass
16_APT 02_2B_LKD BL	1989	59.7	24	Pass	N/A	N/A	Pass
16_APT 03_2B_LKD BL	1989	59.7	25	Pass	N/A	N/A	Pass
16_APT 04_1B_LKD BL	1989	59.7	0	Pass	N/A	N/A	Pass
16_APT 05_2B_LKD OR	1989	59.7	6	Pass	N/A	N/A	Pass
16_APT 06_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
16_APT 07_2B_LKD OR	1989	59.7	33	Pass	N/A	N/A	Pass
19_APT 01_2B_LKD BL	1989	59.7	19	Pass	N/A	N/A	Pass
19_APT 02_2B_LKD BL	1989	59.7	20	Pass	N/A	N/A	Pass
19_APT 03_2B_LKD BL	1989	59.7	22	Pass	N/A	N/A	Pass
19_APT 04_1B_LKD BL	1989	59.7	0	Pass	N/A	N/A	Pass
19_APT 05_2B_LKD OR	1989	59.7	6	Pass	N/A	N/A	Pass
19_APT 06_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
19_APT 07_2B_LKD OR	1989	59.7	34	Pass	N/A	N/A	Pass
20_APT 04_2B_LKD OR	1989	59.7	9	Pass	N/A	N/A	Pass
20_APT 02_1B_LKD OR	1989	59.7	3	Pass	N/A	N/A	Pass
20_APT 01_2B_LKD OR	1989	59.7	42	Pass	N/A	N/A	Pass
21_APT 03_1B_LKD BL	1989	59.7	17	Pass	N/A	N/A	Pass
21_APT 04_2B_LKD OR	1989	59.7	12	Pass	N/A	N/A	Pass
21_APT 02_1B_LKD OR	1989	59.7	5	Pass	N/A	N/A	Pass
21_APT 01_2B_LKD OR	1989	59.7	44	Pass	N/A	N/A	Pass
22_APT 03_1B_LKD BL	1989	59.7	15	Pass	N/A	N/A	Pass
22_APT 04_2B_LKD OR	1989	59.7	6	Pass	N/A	N/A	Pass
22_APT 02_1B_LKD OR	1989	59.7	5	Pass	N/A	N/A	Pass
22_APT 01_2B_LKD OR	1989	59.7	36	Pass	N/A	N/A	Pass
14_APT 01_2B_LKD BL	1989	59.7	21	Pass	N/A	N/A	Pass
14_APT 02_2B_LKD BL	1989	59.7	20	Pass	N/A	N/A	Pass
14_APT 03_2B_LKD BL	1989	59.7	24	Pass	N/A	N/A	Pass
14_APT 04_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
14_APT 05_2B_LKD RE	1989	59.7	11	Pass	N/A	N/A	Pass
14_APT 06_1B_LKD OR	1989	59.7	0	Pass	N/A	N/A	Pass
14_APT 07_2B_LKD RE	1989	59.7	33	Pass	N/A	N/A	Pass
03_APT 01_2B_BED 2 BL	3672	110.2	32	Pass	9	Pass	Pass
03_APT 01_2B_BED 1 BL	3672	110.2	24	Pass	8	Pass	Pass
03_APT 02_2B_BED 1 BL	3672	110.2	30	Pass	8	Pass	Pass
03_APT 02_2B_BED 2 BL	3672	110.2	33	Pass	8	Pass	Pass
03_APT 03_2B_BED 2 BL	3672	110.2	33	Pass	9	Pass	Pass

	Criterion a				Criterion b		Overall
	May-Sept				Annual 10pm - 7am		
Location	Occupied Summer Hours	3% of Occupied Summer Hours	No. of hours Top - Tmax ≥ 1K	Pass/Fail criterion A	< 32 Hrs above 26°C (Top)	Pass/Fail criterion B	Pass/Fail Overall
03_APT 03_2B_BED 1 BL	3672	110.2	33	Pass	13	Pass	Pass
03_APT 04_1B_BED 0R	3672	110.2	0	Pass	10	Pass	Pass
03_APT 05_2B_BED 1 RE	3672	110.2	44	Pass	8	Pass	Pass
03_APT 05_2B_BED 2 OR	3672	110.2	5	Pass	8	Pass	Pass
03_APT 06_1B_BED RE	3672	110.2	50	Pass	6	Pass	Pass
03_APT 07_2B_BED 1 RE	3672	110.2	51	Pass	3	Pass	Pass
03_APT 07_2B_BED 2 RE	3672	110.2	63	Pass	6	Pass	Pass
02_APT 01_2B_BED 2 OR	3672	110.2	0	Pass	0	Pass	Pass
02_APT 01_2B_BED 1 OR	3672	110.2	0	Pass	10	Pass	Pass
02_APT 02_2B_BED 1 RE	3672	110.2	29	Pass	0	Pass	Pass
02_APT 02_2B_BED 2 OR	3672	110.2	0	Pass	0	Pass	Pass
20_APT 03_1B_BED BL	3672	110.2	3	Pass	22	Pass	Pass
20_APT 04_2B_BED 2 OR	3672	110.2	8	Pass	10	Pass	Pass
21_APT 03_1B_BED BL	3672	110.2	4	Pass	25	Pass	Pass
21_APT 04_2B_BED 2 OR	3672	110.2	7	Pass	10	Pass	Pass
04_APT 01_2B_BED 2 BL	3672	110.2	35	Pass	18	Pass	Pass
04_APT 01_2B_BED 1 BL	3672	110.2	28	Pass	15	Pass	Pass
04_APT 02_2B_BED 1 BL	3672	110.2	32	Pass	16	Pass	Pass
04_APT 02_2B_BED 2 BL	3672	110.2	33	Pass	18	Pass	Pass
04_APT 03_2B_BED 2 BL	3672	110.2	34	Pass	17	Pass	Pass
04_APT 03_2B_BED 1 BL	3672	110.2	33	Pass	19	Pass	Pass
04_APT 04_1B_BED 0R	3672	110.2	0	Pass	14	Pass	Pass
04_APT 05_2B_BED 1 RE	3672	110.2	73	Pass	10	Pass	Pass
04_APT 05_2B_BED 2 OR	3672	110.2	9	Pass	12	Pass	Pass
04_APT 06_1B_BED RE	3672	110.2	80	Pass	19	Pass	Pass
04_APT 07_2B_BED 1 RE	3672	110.2	84	Pass	12	Pass	Pass
04_APT 07_2B_BED 2 RE	3672	110.2	100	Pass	15	Pass	Pass
05_APT 01_2B_BED 2 BL	3672	110.2	38	Pass	21	Pass	Pass
05_APT 01_2B_BED 1 BL	3672	110.2	29	Pass	19	Pass	Pass
05_APT 02_2B_BED 1 BL	3672	110.2	33	Pass	19	Pass	Pass
05_APT 02_2B_BED 2 BL	3672	110.2	36	Pass	20	Pass	Pass
05_APT 03_2B_BED 2 BL	3672	110.2	36	Pass	20	Pass	Pass
05_APT 03_2B_BED 1 BL	3672	110.2	34	Pass	20	Pass	Pass
05_APT 04_1B_BED 0R	3672	110.2	0	Pass	14	Pass	Pass
05_APT 05_2B_BED 1 RE	3672	110.2	53	Pass	10	Pass	Pass
05_APT 05_2B_BED 2 OR	3672	110.2	7	Pass	13	Pass	Pass
05_APT 06_1B_BED RE	3672	110.2	99	Pass	23	Pass	Pass
05_APT 07_2B_BED 1 RE	3672	110.2	92	Pass	16	Pass	Pass

	Criterion a				Criterion b		Overall
	May-Sept				Annual 10pm - 7am		
Location	Occupied Summer Hours	3% of Occupied Summer Hours	No. of hours Top - Tmax ≥ 1K	Pass/Fail criterion A	< 32 Hrs above 26°C (Top)	Pass/Fail criterion B	Pass/Fail Overall
05_APT 07_2B_BED 2 RE	3672	110.2	100	Pass	18	Pass	Pass
06_APT 01_2B_BED 2 BL	3672	110.2	34	Pass	21	Pass	Pass
06_APT 01_2B_BED 1 BL	3672	110.2	28	Pass	18	Pass	Pass
06_APT 02_2B_BED 1 BL	3672	110.2	32	Pass	18	Pass	Pass
06_APT 02_2B_BED 2 BL	3672	110.2	34	Pass	20	Pass	Pass
06_APT 03_2B_BED 2 BL	3672	110.2	34	Pass	19	Pass	Pass
06_APT 03_2B_BED 1 BL	3672	110.2	32	Pass	20	Pass	Pass
06_APT 04_1B_BED 0R	3672	110.2	0	Pass	14	Pass	Pass
06_APT 05_2B_BED 1 RE	3672	110.2	77	Pass	12	Pass	Pass
06_APT 05_2B_BED 2 OR	3672	110.2	9	Pass	13	Pass	Pass
06_APT 06_1B_BED RE	3672	110.2	86	Pass	22	Pass	Pass
06_APT 07_2B_BED 1 RE	3672	110.2	92	Pass	16	Pass	Pass
06_APT 07_2B_BED 2 RE	3672	110.2	106	Pass	18	Pass	Pass
16_APT 01_2B_BED 2 BL	3672	110.2	35	Pass	21	Pass	Pass
16_APT 01_2B_BED 1 BL	3672	110.2	29	Pass	18	Pass	Pass
16_APT 02_2B_BED 1 BL	3672	110.2	32	Pass	17	Pass	Pass
16_APT 02_2B_BED 2 BL	3672	110.2	34	Pass	19	Pass	Pass
16_APT 03_2B_BED 2 BL	3672	110.2	34	Pass	18	Pass	Pass
16_APT 03_2B_BED 1 BL	3672	110.2	33	Pass	19	Pass	Pass
16_APT 04_1B_BED 0R	3672	110.2	0	Pass	19	Pass	Pass
16_APT 05_2B_BED 1 OR	3672	110.2	45	Pass	11	Pass	Pass
16_APT 05_2B_BED 2 OR	3672	110.2	5	Pass	11	Pass	Pass
16_APT 06_1B_BED OR	3672	110.2	80	Pass	18	Pass	Pass
16_APT 07_2B_BED 1 OR	3672	110.2	91	Pass	19	Pass	Pass
16_APT 07_2B_BED 2 OR	3672	110.2	91	Pass	25	Pass	Pass
19_APT 01_2B_BED 2 BL	3672	110.2	34	Pass	15	Pass	Pass
19_APT 01_2B_BED 1 BL	3672	110.2	26	Pass	13	Pass	Pass
19_APT 02_2B_BED 1 BL	3672	110.2	30	Pass	13	Pass	Pass
19_APT 02_2B_BED 2 BL	3672	110.2	32	Pass	12	Pass	Pass
19_APT 03_2B_BED 2 BL	3672	110.2	31	Pass	13	Pass	Pass
19_APT 03_2B_BED 1 BL	3672	110.2	31	Pass	15	Pass	Pass
19_APT 04_1B_BED 0R	3672	110.2	0	Pass	21	Pass	Pass
19_APT 05_2B_BED 1 OR	3672	110.2	46	Pass	11	Pass	Pass
19_APT 05_2B_BED 2 OR	3672	110.2	5	Pass	10	Pass	Pass
19_APT 06_1B_BED OR	3672	110.2	85	Pass	20	Pass	Pass
19_APT 07_2B_BED 1 OR	3672	110.2	93	Pass	21	Pass	Pass
19_APT 07_2B_BED 2 OR	3672	110.2	95	Pass	25	Pass	Pass
20_APT 04_2B_BED 1 OR	3672	110.2	70	Pass	14	Pass	Pass

	Criterion a				Criterion b		Overall
	May-Sept				Annual 10pm - 7am		
Location	Occupied Summer Hours	3% of Occupied Summer Hours	No. of hours Top - Tmax ≥ 1K	Pass/Fail criterion A	< 32 Hrs above 26°C (Top)	Pass/Fail criterion B	Pass/Fail Overall
20_APT 02_1B_BED OR	3672	110.2	88	Pass	27	Pass	Pass
20_APT 01_2B_BED 1 OR	3672	110.2	96	Pass	29	Pass	Pass
20_APT 01_2B_BED 2 OR	3672	110.2	102	Pass	30	Pass	Pass
21_APT 04_2B_BED 1 OR	3672	110.2	50	Pass	14	Pass	Pass
21_APT 02_1B_BED OR	3672	110.2	84	Pass	30	Pass	Pass
21_APT 01_2B_BED 1 OR	3672	110.2	98	Pass	30	Pass	Pass
21_APT 01_2B_BED 2 OR	3672	110.2	103	Pass	30	Pass	Pass
22_APT 03_1B_BED BL	3672	110.2	1	Pass	21	Pass	Pass
22_APT 04_2B_BED 2 OR	3672	110.2	4	Pass	9	Pass	Pass
22_APT 04_2B_BED 1 OR	3672	110.2	60	Pass	13	Pass	Pass
22_APT 02_1B_BED OR	3672	110.2	86	Pass	26	Pass	Pass
22_APT 01_2B_BED 1 OR	3672	110.2	94	Pass	25	Pass	Pass
22_APT 01_2B_BED 2 OR	3672	110.2	94	Pass	26	Pass	Pass
14_APT 01_2B_BED 2 BL	3672	110.2	34	Pass	21	Pass	Pass
14_APT 01_2B_BED 1 BL	3672	110.2	26	Pass	18	Pass	Pass
14_APT 02_2B_BED 1 BL	3672	110.2	32	Pass	18	Pass	Pass
14_APT 02_2B_BED 2 BL	3672	110.2	34	Pass	19	Pass	Pass
14_APT 03_2B_BED 2 BL	3672	110.2	33	Pass	19	Pass	Pass
14_APT 03_2B_BED 1 BL	3672	110.2	32	Pass	19	Pass	Pass
14_APT 04_1B_BED OR	3672	110.2	0	Pass	14	Pass	Pass
14_APT 05_2B_BED 1 OR	3672	110.2	71	Pass	14	Pass	Pass
14_APT 05_2B_BED 2 OR	3672	110.2	7	Pass	11	Pass	Pass
14_APT 06_1B_BED OR	3672	110.2	67	Pass	18	Pass	Pass
14_APT 07_2B_BED 1 OR	3672	110.2	89	Pass	19	Pass	Pass
14_APT 07_2B_BED 2 OR	3672	110.2	95	Pass	24	Pass	Pass
169				0		0	0

3.0 Acoustic Colour Banding details

Inline with the acoustic report findings, the windows on all levels have only been simulated as openable for limited periods of time depending on location inline with the acoustic banding. This is based on Jameson Acoustic – Noise Impact Assessment Report findings in 22144-RP-1-R3 Oct 2024.

The ventilation boosted rates have been applied according to the acoustic bandings.

Façade Zone (ref. Figure in Section 7.2.2)	Maximum number of hours windows can be open during the day (07:00-23:00)
RED	4 hours
ORANGE	7 hours
BLUE	10 hours

The window opening periods have been set as below.

Bedrooms

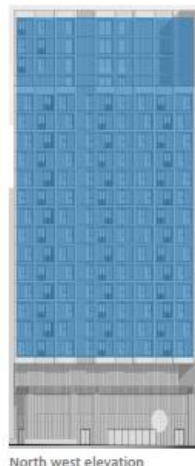
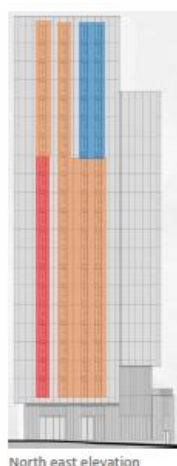
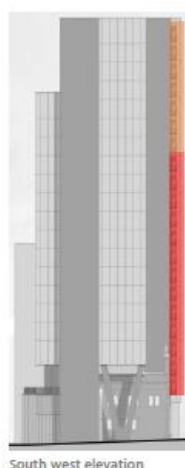
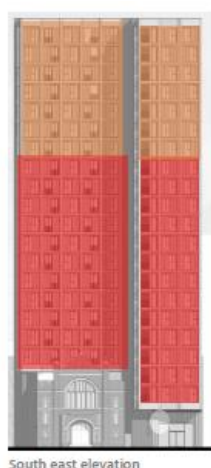
Red zone 4 hrs (19:00-23:00), Orange zone 7hrs (16:00 - 23:00), Blue zone 10 hrs (13:00 - 23:00)

Living Areas

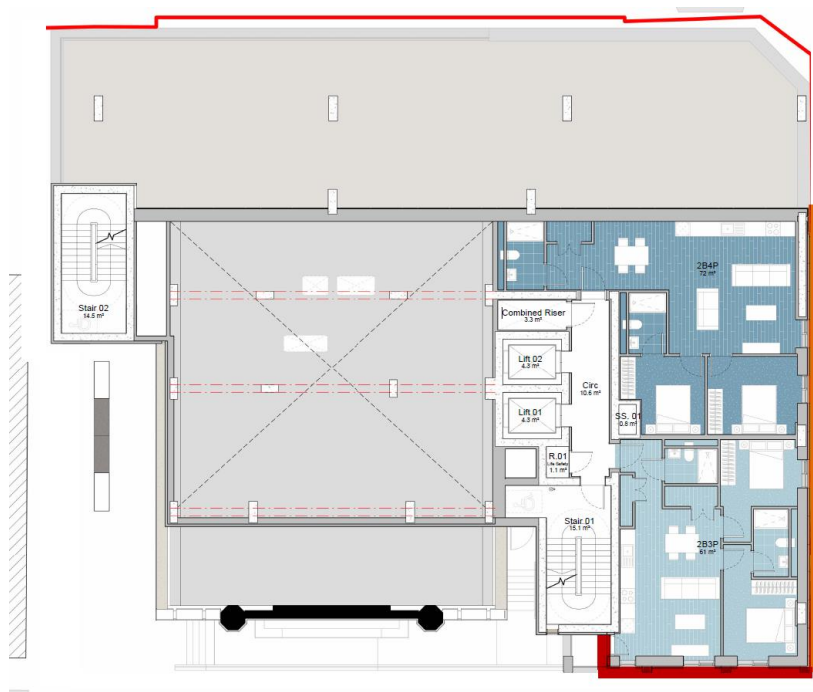
Red zone 4 hrs (14:30-18:30), Orange zone 7hrs (12:30 - 19:30), Blue zone 10 hrs (12:00 - 22:00)

For the living areas these are based on the hottest period throughout the day. For the bedrooms, which are subject to criterion B assessed during the night time period, the window opening is set to end at 11pm to maximise night time temperatures.

Colour Coded Diagram (elevations) from Noise Impact assessment detailing façade zones with different required max. window opening times.



Level 02 – Acoustic colour banding for window opening Limitations



Level 03 - 13 – Acoustic colour banding for window opening Limitations



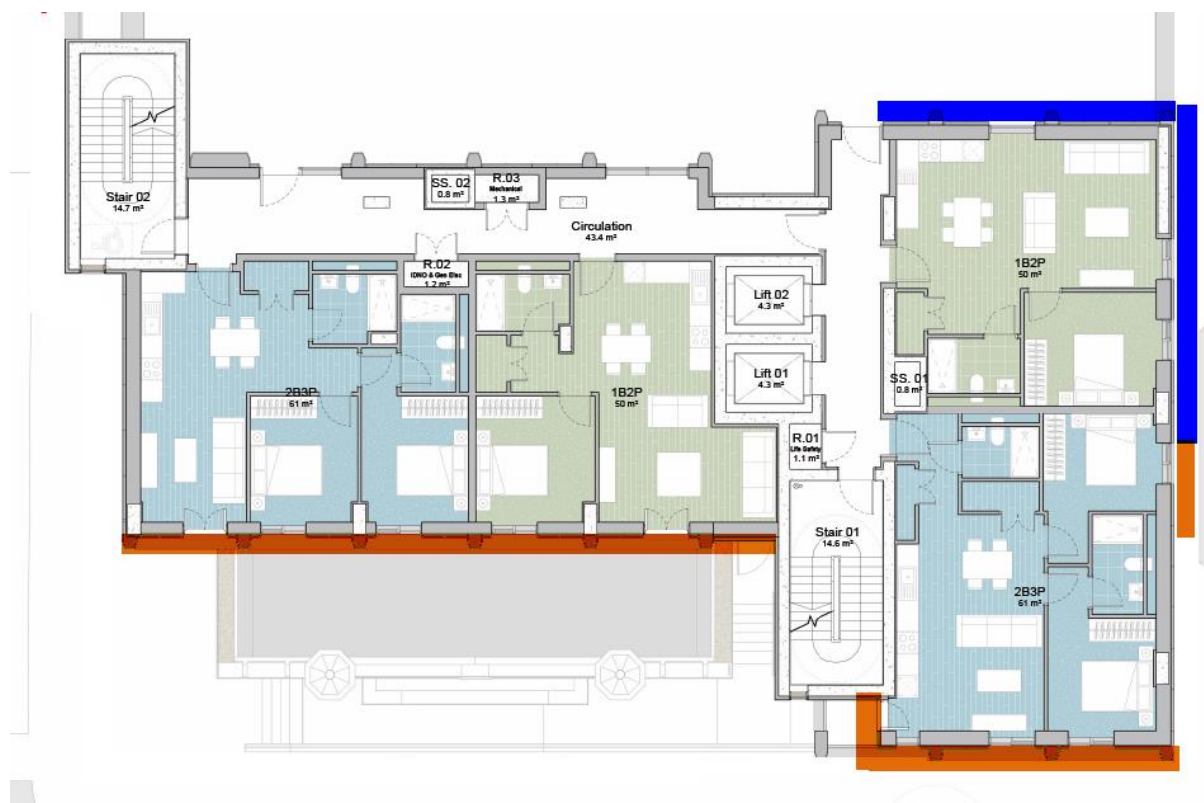
Level 14 - 15 – Acoustic colour banding for window opening Limitations



Level 16-19– Acoustic colour banding for window opening Limitations



Level 20–22 Acoustic colour banding for window opening Limitations



4.0 Apartments Ventilation Strategy

The apartment ventilation systems shall be Continuous mechanical supply and extract with heat recovery inline with Part F 2021.

This will allow the construction of a tightly sealed and correctly ventilated environment reducing thermal heat loss through reduced infiltration, whilst at the same time improving air quality and reducing the occurrence of moisture and mould.

To provide fresh air into the apartments each dwelling will be provided with a whole house mechanical ventilation heat recovery (MVHR) system. This system comprises of a continuous mechanical supply and extract ventilation unit located within a service cupboard within each apartment.

The unit will be provided with heat recovery efficiency in line with part L 2021 compliance of the Building Regulations.

Each unit will intake fresh air and discharge extract air through each apartment façade.

The MVHR unit will be fitted with G3 filters as standard. During occupation the tenants have the option to replace these filters inline with the MVHR installation and user guide replacement with G3 filters or enhanced filtration of M5 or F7. Heat Recovery units require regular maintenance. The unit shall been designed to facilitate access to enable maintenance to be carried out easily. The MVHR unit shall display a warning symbol, code, light or similar to confirm cleaning or replacement filters is overdue.

The ventilation unit will remove air from the bathrooms and kitchens and provide air to the habitable rooms; namely the bedrooms and the living room, this will be via a rigid flat ductwork system with supply and extract air grilles located in the ceilings.

The air volumes will be determined to satisfy the requirements of the Approved Document Part F 2021 of the Building Regulations (refer to table below).

Table 1.2 Minimum extract ventilation rates for continuous extract systems⁽¹⁾

Room	High rate (l/s)	Continuous rate
Kitchen	13	The sum of all extract ventilation in the dwelling on its continuous rate should be at least the whole dwelling ventilation rate given in Table 1.3
Utility room	8	
Bathroom	8	
Sanitary accommodation	6	

NOTE:

1. If the continuous rate of ventilation provided in a room is equal to or higher than the minimum high rate specified in the table, no extra ventilation is needed.

Table 1.3 Minimum whole dwelling ventilation rates determined by the number of bedrooms

Number of bedrooms ⁽¹⁾⁽²⁾	Minimum ventilation rate by number of bedrooms (l/s)
1	19
2	25
3	31
4	37
5	43

NOTES:

1. If the dwelling only has one habitable room, a minimum ventilation rate of 13l/s should be used.
2. For each additional bedroom, add 6l/s to the values in Table 1.3.

The whole dwelling ventilation rate shall be determined in accordance with table 1.3 as the minimum low trickle ventilation rate to habitable rooms and bathrooms/kitchens with a boost high rate as per the continuous extract rate in table 1.2. Cooker hoods shall be of the re-circulation type.

Minimum Overheating Boost Rates

The apartment MVHR Ventilation system shall have the ability via a summer overheating boost switch to boost the mechanical ventilation system to the below minimum boost rates to comply with CIBSE TM59 Overheating Criteria

Zone (acoustic)	Apartment Type	Bed Boost rate (l/s)	Living Boost rate (l/s)	Total Boost rate (l/s)
Blue	1 Bed	15	29	44
Orange	1 Bed	19	36	55
Red	1 Bed	18	34	52

Zone (acoustic)	Apartment Type	Bed Boost rate (l/s)	Living Boost rate (l/s)	Total Boost rate (l/s)
Blue	2 Bed	19	21	59
Orange	2 Bed	22	23	67
Red	2 Bed	26	29	81

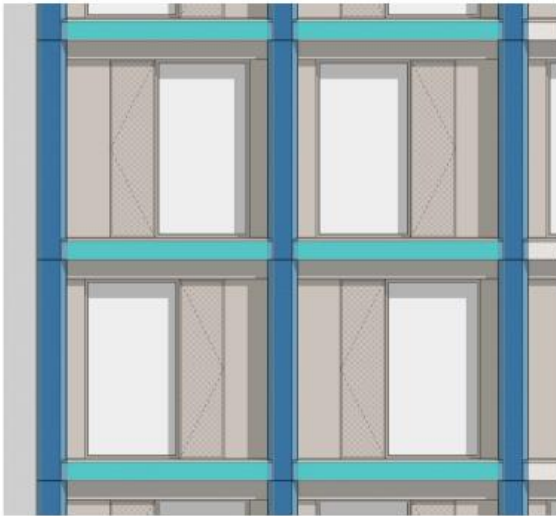
Purge Ventilation

Purge Ventilation shall be achieved by opening windows inline with Table 1.4 below

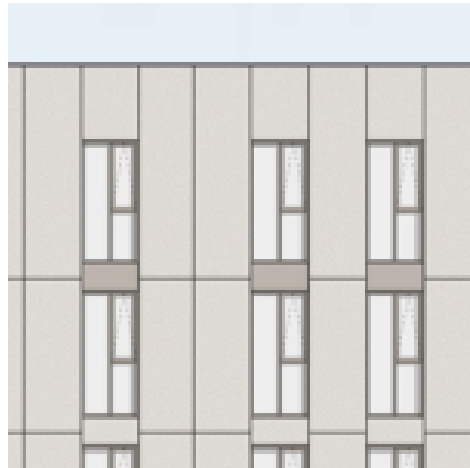
Table 1.4 Purge ventilation openings

Opening type	Minimum total area of openings
Hinged or pivot windows with an opening angle of 15 to 30 degrees	1/10 of the floor area of the room
Hinged or pivot windows with an opening angle of greater than or equal to 30 degrees	1/20 of the floor area of the room
Opening sash windows	
External doors	

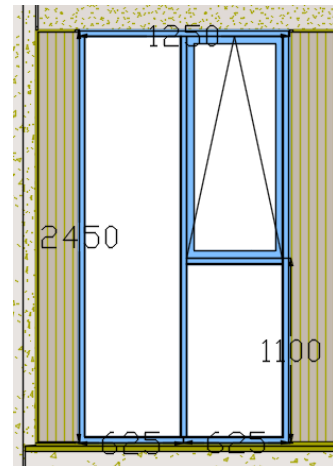
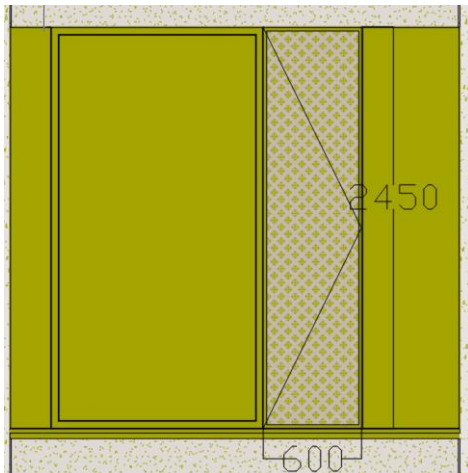
Typical Apartment ventilation openings Elevations



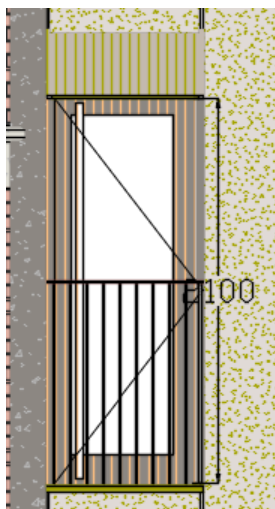
WT1 – Side Hung glazed door behind perforated screen at 50%



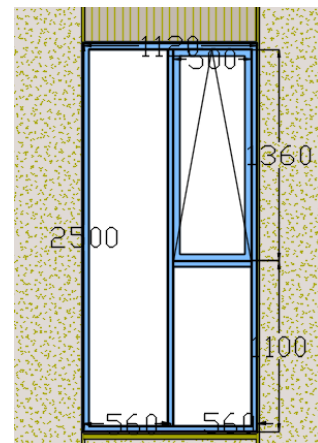
WT 2 – Top hung window



WT3 - SGL balcony door



WT 4 – Top Hung Window



Commercial Unit & Amenity Areas Ventilation Strategy

The commercial area and amenity will be designed to a shell and core for future fit out.

Ventilation systems will be designed in accordance with the Building Regulations approved document Part F and all relevant guidance documentation.

Provision has been made for ventilation panel bands at high level on the façade for the future fit out to connect the general supply and extract ventilation systems which shall take the form of void mounted supply and extract heat recovery ventilation units, no specialised Kitchen Extract systems or provision shall be provided as these spaces.

6.0 Communal Areas Ventilation Strategy

Common landlord areas will be ventilated as follows:

- Electrical Plant Rooms – Natural ventilation
- Entrance - Natural ventilation
- Tank Rooms - Natural ventilation
- Bin Stores – Mechanical Extract Ventilation
- Cycle Rooms – Natural ventilation
- Lift Shafts - Natural ventilation

7.0 Conclusion

The ventilation strategy improves on the fundamental principles of the Building Regulations, and will make a contribution to reducing the annual CO₂ emissions of the development by the use of a Continuous mechanical supply and extract with heat recovery in the apartments to provide background ventilation which omits the requirements for background ventilators. Compliance with CIBSE TM59 Overheating criteria and Part O of the building regulations has been achieved.