
Foras (Sparkle Street) Ltd

Ventilation Strategy

Sparkle Street

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Index

1	Introduction	4
2	Site Description	5
3	Ventilation Design Standards	6
4	Ventilation Strategy	7
4.1	Mechanical ventilation and Part O Overheating	8
4.2	Purge ventilation	8
4.3	Background ventilation.	8
4.4	Amenity, and BOH Spaces.	9
5	Conclusion	10

1 Introduction

This report outlines the ventilation strategy for the proposed development at Sparkle Street Manchester.

The scheme includes for the full planning permission for demolition of existing low rise commercial units and erection of ground + 27 storey residential development with supporting residential amenity, private terraces and private shared garden.

As part of the development works, the building shall be provided with new mechanical & electrical services, including a ventilation system to comply with consideration of the building design standards:

- Approved Document F
- Approved Document O
- AVO guidance (acoustics)
- Planning and noise guidance from MCC

2 Site Description

The site is located in a mixed-use area bounded by Store Street to the north and Sparkle Street to the west. Approximately 100 metres south is Manchester Piccadilly Railway Station and 100 metres southeast is a tram line.

The scheme includes for the full planning permission for demolition of existing low rise commercial units and erection of ground + 27 storey residential development with supporting residential amenity, private terraces and private shared garden.

3 Ventilation Design Standards

The proposed ventilation systems for the development are driven by the below design standards:

- Approved Document F
- Approved Document O
- AVO guidance (acoustics)
- Planning and noise guidance from MCC

The Ventilation Strategy for the scheme has been developed in line with the above standards including consideration of the Acoustic Reports and Part O Assessment referenced below:

- **Cass Allen**
 - Stage 2 Design Report
 - Project: SPARKLE STREET, MANCHESTER
 - Report reference: RP01-23244-R0
- **Cass Allen:**
 - Noise Impact Assessment
 - Project: SPARKLE STREET, MANCHESTER
 - Report reference: RP02-23244-R0
- **Midguard Design Services**
 - PART O:
 - SPARKLE STREET
 - OVERHEATING ASSESSMENT

4 Ventilation Strategy

The ventilation requirements for the site are dictated by the standards set out in Section 3 of this report and consideration of the referenced consultants and reports.

The primary requirement for the development is to provide a naturally ventilated solution which is the most preferable solution for residential use.

However, due to the requirement to avoid summertime overheating and as per Part O of the Building Regulations, supplementary mechanical ventilation has been considered. The Part O Assessment must also be reviewed against to the acoustic conditions of the site.

The Acoustic Report it was established that some windows could not be opened overnight. Following this a Part O assessment has been carried out by Midguard Design Services that concludes that, based on the current design, acoustic restrictions and on a representative sample of the dwellings, that MVHR can be boosted to comply with Part O requirements.

The MDS Report established the following Part O Solution.

- Windows – 1.4 W/m²K, 0.43 g-value. (Assumed that occupants will open windows at their own discretion when internal temperature exceeds 22°C).
- External wall – 0.15 W/m²K
- External floors – 0.11 W/m²K
- Roof - 0.11 W/m²K
- Openable Juliette balcony doors in: Kitchen/Living/Dining
- Openable side-hung windows in: Kitchen/Living/Dining
- Openable sash windows in: Bedroom 1 and Bedroom 2 (sash windows used to get openable area of window relative to the floor area as per acoustic requirements).
- MVHR Boosted to 75l/s

In summary and as a result of the above, the proposed ventilation system for the new apartments will consist of two parts:

1. A whole house mechanical ventilation system with heat recovery.
 - a. Used to mitigate Part O Overheating
2. Purge ventilation via openable windows to rapidly clear odours and for summer-time cooling.

4.1 Mechanical Ventilation and Part O Overheating

The ventilation rates for the development shall comply with the current Building Regulations Approved Document F.

A Whole House Mechanical Ventilation system with Heat Recovery (MVHR) system will be provided in each apartment to provide supply and extract to habitable spaces, wet rooms, kitchen and utility cupboard.

Internal supply and extract grilles to be standard white plastic air grilles to be balanced locally during commissioning. The intake and exhaust vents will be serviced by louvres at the head of the windows.

As concluded in the MDS Part O Report in order to mitigate the Part O Overheating in room risk where windows cannot be opened for noise restrictions the system will need to be boosted to 75l/s.

The MVHR will operate continuously but will be capable of being boosted via a switch located within the kitchen and an integral humidistat controls.

4.2 Purge ventilation

Purge ventilation for rapid clearance of odours will be achieved through opening windows.

The new opening windows will be openable to provide free area equivalent to 1/20th of the floor area of the habitable room as detailed below:

- Openable Juliette balcony doors in: Kitchen/Living/Dining
- Openable side-hung windows in: Kitchen/Living/Dining
- Openable sash windows in: Bedroom 1 and Bedroom 2 (sash windows used to get openable area of window relative to the floor area as per acoustic requirements).

The expectation is that occupants will require the purge only to clear the build-up of odours.

4.3 Background ventilation.

Background ventilation to provide a continuous supply of fresh air to occupants will be achieved with the MVHR unit.

4.4 Amenity, and BOH Spaces.

Mechanical ventilation will need to be provided to the below landlord's areas:

- Refuse store
- FF lobby
- Cleaners store
- Management office
- Comms room

Natural Ventilation via louvres/louvred doors will need to be provided to the below landlord's areas:

- Cycle store
- Generator room
- Substation
- Plant rooms

Mechanical ventilation to the amenity spaces will be served by high level louvres to the façade to accommodate the future amenity space fit out.

5 Conclusion

Watt Energy & consulting engineers carried out a desktop study to assess the opportunities for ventilating the proposed development at Sparkle Street.

In conjunction with the Part O and Acoustic requirements for site the proposed ventilation strategy is to provide a Whole House Mechanical Ventilation system with Heat Recovery (MVHR) for background ventilation and to utilise openable windows to provide purge ventilation and overheating.

The MVHR unit will also boost to 75l/s to mitigate the risk of overheating in dwellings where windows cannot open due to noise restrictions.

