

AUGUST 2024

35-39 FRIAR STREET READING

ACOUSTIC and AIR QUALITY MITIGATION

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LONDON



Aerial view highlighting site in red adjacent to the under construction Station Hill Development

 Site

1.1 EXECUTIVE SUMMARY

1.1.1 Purpose of Report

This report addresses noise and **air quality** issues related to the building's orientation and proximity to the busy Friar Street. High ambient noise levels, especially along the Southern Facade, may affect acoustic comfort and privacy for residents. Additionally, traffic emissions result in elevated levels of Nitrogen Dioxide (NO2), pose risks of poor air quality in residential and commercial spaces.

To tackle these challenges, Acoustic Ventilation Panels, such as the NAT Vent Acoustic Ventilation Panels by Tek Ltd, have been proposed. These panels optimize indoor air quality and reduce noise pollution, offering the dual benefits of natural ventilation and sound insulation. Strategically placed across exterior walls, windows, and façades, the panels allow efficient air exchange between indoor and outdoor environments. This integration ensures a constant supply of fresh air, significantly improving indoor air quality by removing pollutants and regulating humidity levels. This reduces the risk of mold growth and enhances overall health and comfort for residents.

AAC NITROSORB filtration systems are also proposed to address the NO2 concerns. Designed behind mesh screens within the facade, this system significantly reduces NO2 concentrations indoors, ensuring a healthier environment. The panels have been designed to absorb and block external noise, providing acoustic comfort and privacy. By facilitating passive cooling and reducing reliance on mechanical ventilation systems, the Vent panels contribute to increased energy efficiency, resulting in lower energy bills and a reduced carbon footprint.

The aesthetic design of the panel front integrates seamlessly with the building's architectural style, enhancing both functionality and visual appeal. Incorporating these panels supports a sustainable and environmentally friendly approach, adding to the property's environmental and social sustainability by ensuring a healthier and more comfortable living environment.

1.1.2 Summary of Illustrations

- Illustrations within the report include
- Illustrative Plan of Acoustic Ventilation Panels within the external facade of the building.
- Elevation of Acoustic Ventilation Panels within the external facade of the building.
- Illustrative CGI of proposals and precedent images of as built acoustic Ventilation Panels within the external facade of a building.

1.1.3 Overview of Mitigation measures

- Ventilation & Filtration with Acoustic Mitigation:
 - Opting for ventilation and filtration, with acoustic mitigation provided through acoustic ventilation panels similar to the Nat Vent and AAC NITROSORB filtration systems at the locations indicated on plans/elevations.
- Locations Requiring Mitigation:
 - South Facing Apartments (Levels 1-4) Adjacent to Friar Street:
 - Acoustic Ventilation Panels and NO2 filter system behind mesh screens, with openable triple glazed windows.
 - South Facing Apartments (Level 5-6) Adjacent to Friar Street:
 - Acoustic Ventilation Panels behind mesh screens, with openable triple glazed windows.
 - South Facing Apartments (Levels 7-10) Adjacent to Friar Street:
 - Mesh screens with openable triple glazed windows.
- Air Quality Mitigation:
 - Mitigation required for occupants along the southern, street-facing façade up to and including the fourth floor. Opting for a ventilation and filtration solution to be integrated within the glazing fitting.

1.2 PRODUCTS PRECEDENT

1.2.1 NAT Vent Acoustic Ventilation Panels by Tek Ltd

The NAT Vent Acoustic Ventilation Panels by Tek Ltd offer a practical solution for maintaining indoor air quality while reducing noise pollution. Designed to optimize natural ventilation and acoustic performance, they provide several benefits for residents.

General Use and Application

- Ventilation: NAT Vent panels allow fresh air to enter the building naturally, improving indoor air quality without relying on mechanical systems, essential for a healthy living environment.
- Noise Reduction: These panels block and absorb external noise, ideal for the new residential building at Friars Walk and Friar Street, located in a noisy area near a busy road.

Installation Area

- Exterior Walls: The vents will be installed in exterior walls, enabling air exchange between the interior and exterior.
- Windows and Façades: Integrated into window systems on the southern facade, they complement the architectural design while providing ventilation and soundproofing.

Benefits

- Fresh Air Supply: Facilitating natural airflow helps remove indoor pollutants like VOCs and carbon dioxide, improving overall air quality.
- Humidity Control: Effective ventilation regulates humidity levels, reducing mold risk and related health issues.
- Noise Pollution Reduction and Acoustic Comfort: The panels significantly reduce external noise transmission, enhancing comfort and tranquillity.
- Enhanced Privacy: By limiting sound transmission, these panels help maintain privacy between residential units.

The AAC NITROSORB is an air filtration system that reduces indoor nitrogen dioxide (NO2) levels, a pollutant from traffic emissions that poses health risks. It captures and neutralizes NO2, improving indoor air quality.

General use and application

- AAC NITROSORB is versatile, suitable for various settings, maintaining NO2 levels, especially near busy roads for residential use.

Installation

- The filtration units will be integrated into building ventilation systems within the façades and are to be located behind mesh screens, allowing airflow while filtering NO2.
- Strategic positioning: Placed in pollution-affected areas like windows and ducts.

Benefits

- Improved air quality: Reduces indoor NO2 for a healthier environment.
- Health protection: Minimizes risks from NO2 exposure, like respiratory issues.
- Energy efficiency: Reduces reliance on mechanical systems, lowering costs
- Sustainability: Supports green building efforts by improving air quality.
- Enhanced comfort: Provides a cleaner, more comfortable indoor space.



Precedent image of NAT vents integrated within a building's external facade



Precedent image of AAC NITROSORB air filtration system

Artists impression of South Facade with NAT Vent Acoustic
Ventilation Panels by Tek Ltd and AAC NITROSORB air
filtration systems behind mesh screens

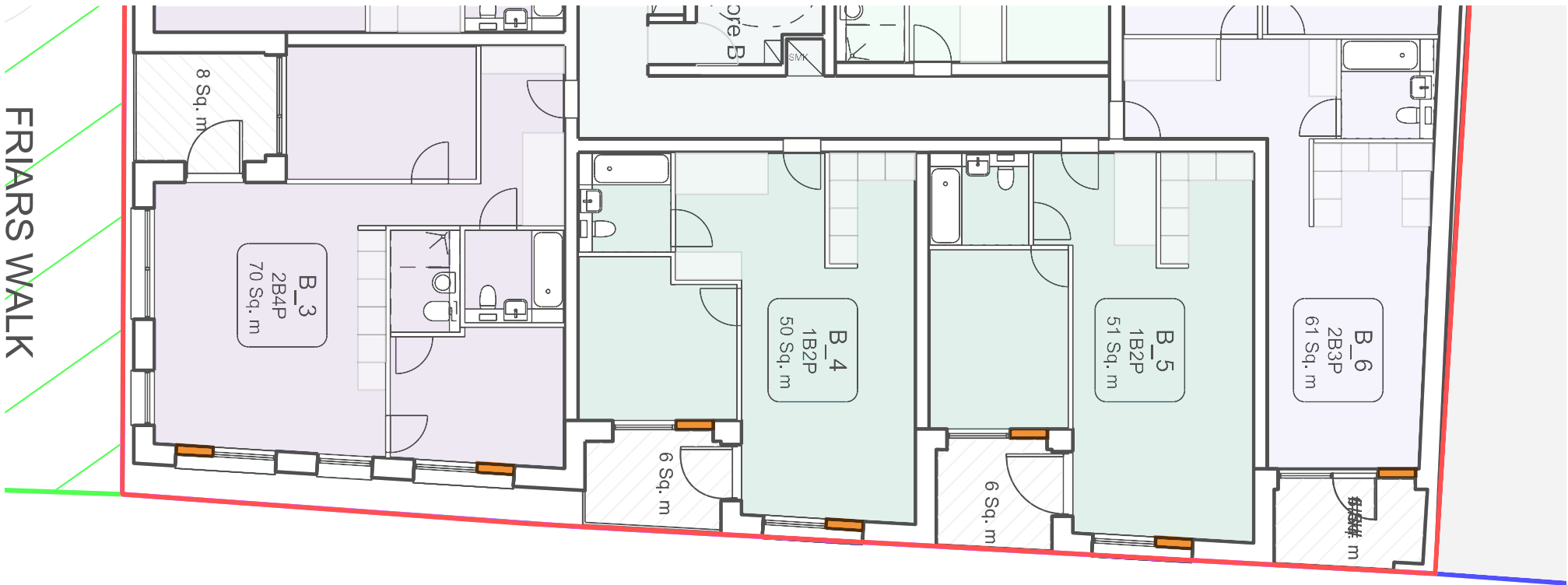


1.3 LEVELS 1-4

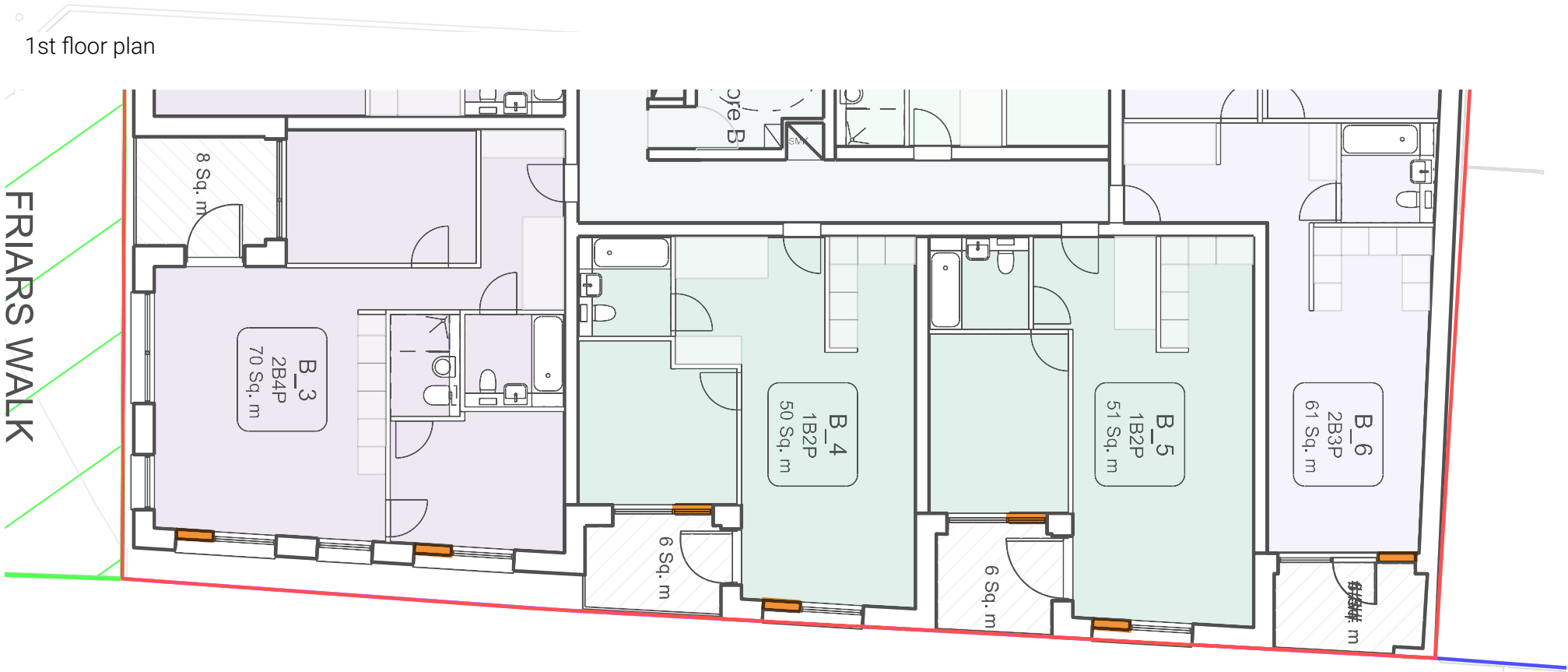
Acoustic Ventilation Panel Location and installation

South facing Apartments directly adjacent to Friar Street between levels 1 and 5 shall incorporate Acoustic Ventilation Panels and NO2 filter systems behind mesh screens, with openable triple glazed windows.

Location of Acoustic Ventilation Panels and NO2 filter systems



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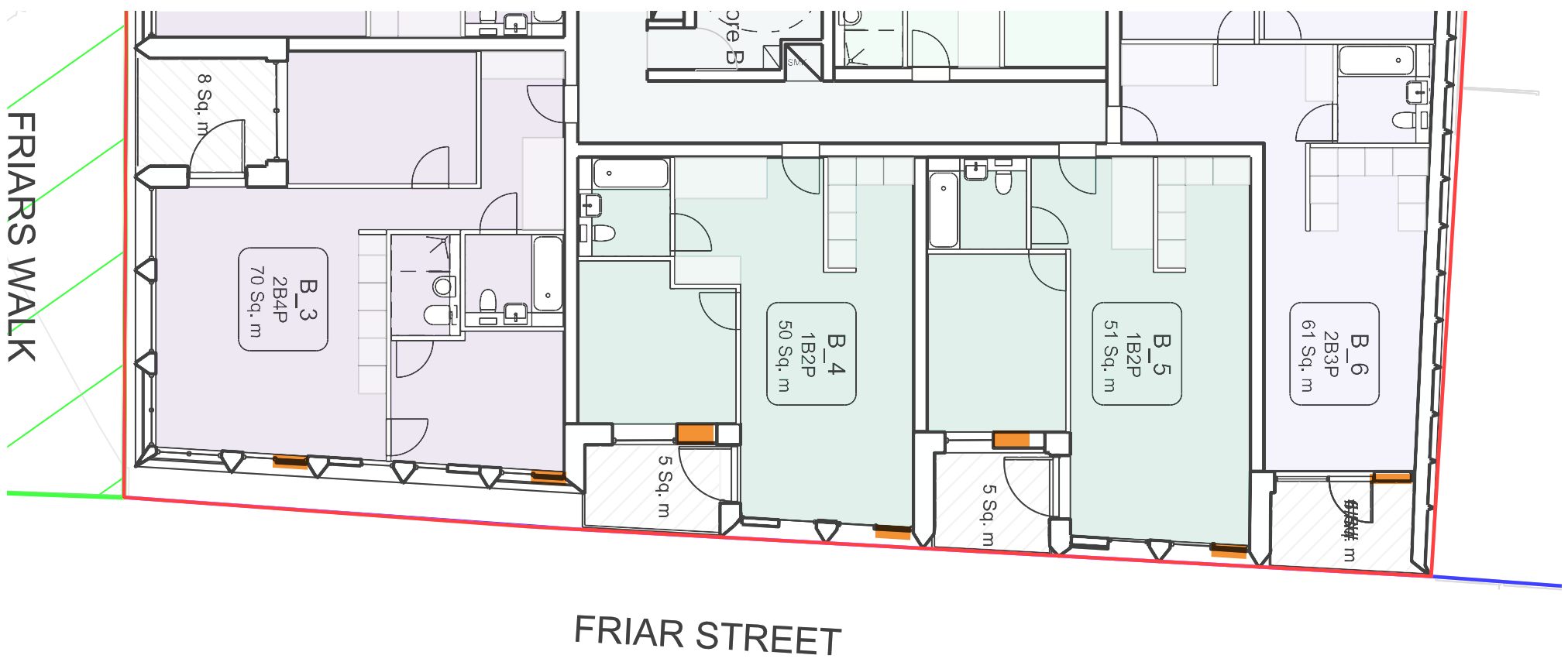
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1.4 LEVELS 5-6

Acoustic Ventilation Panel Location and installation

South facing Apartments directly adjacent to Friar Street on levels 5-6 shall incorporate Acoustic Ventilation Panels behind mesh screens, with openable triple glazed windows.

Location of Acoustic Ventilation Panels

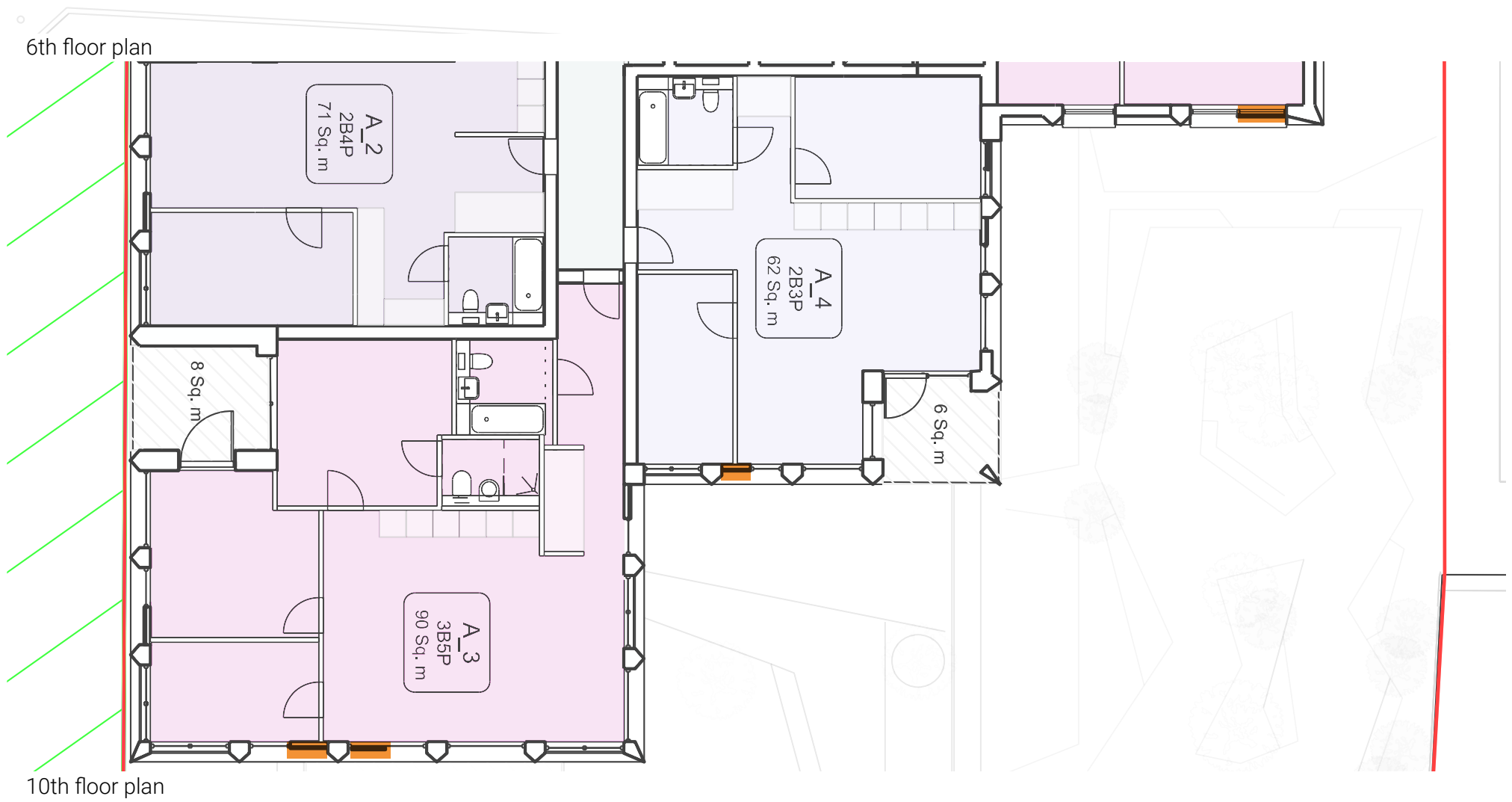


1.5 LEVELS 7-10

Acoustic Ventilation Panel Location and installation

South facing Apartments directly adjacent to Friar Street between levels 7 and 10 shall incorporate Mesh screens with openable triple glazed windows.

Location of Acoustic Ventilation Panels



1.6 SOUTH ELEVATION

- 16A. Anodised aluminium window frame build up consisting of :
- Acoustic Ventilation Panels and NO₂ filter system behind mesh screens, with openable triple glazed windows
- 16B. Anodised aluminium window frame build up consisting of :
- Acoustic Ventilation Panels behind mesh screens, with openable triple glazed windows
- 16C. Anodised aluminium window frame build up consisting of :
- Mesh screens with openable triple glazed windows



South Elevation

2.0. CONCLUSION

The incorporation of acoustic ventilation panels in the design of the residential building on Friar Street will significantly enhance the living environment for future occupants.

Given the building's location adjacent to a busy thoroughfare, the use of these panels will mitigate external noise pollution while ensuring adequate natural ventilation and air quality.

The strategic location and integration of acoustic ventilation panels, along with triple-glazed windows and mesh screens, will provide effective sound attenuation, creating a quiet and comfortable interior atmosphere. This approach not only addresses acoustic challenges but also aligns with sustainable building practices by promoting energy efficiency through passive ventilation.

By protecting residents from the adverse effects of urban noise and enhancing air quality, these solutions contribute to the overall well-being and comfort of the occupants, making the building a desirable and healthy place to live. The thoughtful integration of these features underscores our commitment to creating a high-quality residential development that meets the needs of its residents while harmonizing with the dynamic urban context of Friar Street.



Birds-eye view from Friar Street

