



Parma House, Clarendon Road, N22 6UL

Overheating Strategy

1. Introduction

Parma House, located in London N22 6UL, is an existing commercial building proposed to be converted into residential apartments. Addressing potential overheating is crucial to ensure occupant comfort and adherence to the London Plan's cooling hierarchy. This report outlines the strategies to mitigate overheating using the cooling hierarchy: natural ventilation, solar shading, mechanical ventilation, and mechanical cooling. The strategy is tailored to the building's specific needs and is aimed at compliance with the CIBSE TM59 criteria. Full dynamic modelling for TM59 compliance will be carried out for all proposed flats.

2. Natural Ventilation

An acoustic report has been undertaken by Clement Acoustics Ltd, which indicates, that internal noise levels will meet the Approved Document O guidelines (40dB LAeq,T and 55dB LAFmax) with windows partially open during sleeping hours. Although possibility of natural ventilation through openable windows has not been ruled out by acoustic assessment, compliance with TM59 will be based on mechanical ventilation. This will be designed to meet TM59 criteria, so that the occupants don't need to rely on opening the windows to achieve acceptable thermal comfort.

3. Solar Shading

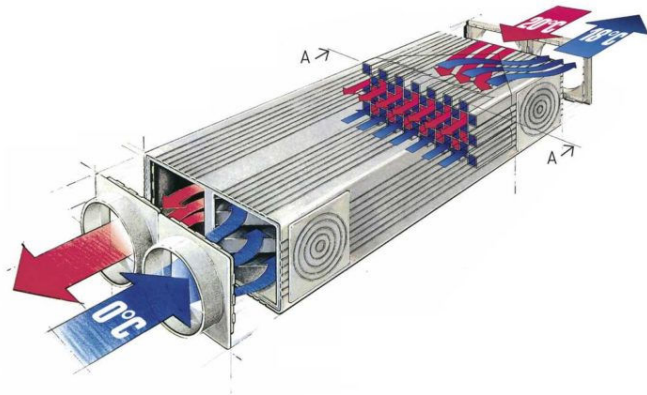
Glazing Specification To minimize solar gain, glazing with a g-value of 0.5 will be specified throughout the development. This choice of glazing will:

- Significantly reduce the amount of solar radiation entering the apartments.
- Maintain adequate daylight levels while limiting heat ingress.

Internal Shading Devices High reflectance, low transmittance internal blinds or shades will be installed to further control solar gain. These shades will:

- Reflect a substantial portion of incoming solar radiation, reducing the internal heat load.
- Be adjustable to allow residents to control the amount of light and heat entering their apartments.

4. Mechanical Ventilation



MVHR Systems Each apartment will be equipped with a whole house Mechanical Ventilation with Heat Recovery (MVHR) system featuring a summer bypass mode. This system will:

- Provide continuous ventilation, improving indoor air quality and thermal comfort.
- Utilize the summer bypass function to prevent heat recovery during warmer months, thus reducing internal temperatures.

The air change rate from the MVHR systems will be factored into the TM59 assessment to evaluate their effectiveness in maintaining acceptable indoor temperatures. For units failing to meet TM59 criteria with MVHR alone, additional measures will be taken.



High Flow Purge Ventilation Units For apartments that do not meet the TM59 criteria with MVHR alone, high flow purge ventilation units will be specified. These units will:

- Provide rapid ventilation to quickly reduce indoor temperatures during peak heat periods.
- Be used strategically, such as during night-time cooling periods, to enhance overall cooling effectiveness.

5. Mechanical Cooling



Hybrid Cooling Systems After implementing natural ventilation, solar shading, and mechanical ventilation, any remaining flats not meeting the TM59 criteria will have a low-energy hybrid cooling system specified. The proposed solution is the Nuaire MRXBOX Hybrid Cooling System or a similar unit. This system will:

- Integrate with the proposed MVHR units to provide cooling through the MVHR supply air, eliminating the need for external condensing units.
- Offer an energy-efficient cooling option, maintaining occupant comfort while minimizing energy consumption.

6. Acoustic Control

Mechanical ventilation units (MVHR) shall be acoustically controlled through duct mounted attenuators on ducts to external louvres and on internal ducts to meet room noise ratings with details to be confirmed by Acoustic specialist.

7. Conclusion

The proposed overheating mitigation strategies for Parma House leverage a comprehensive approach aligned with the London Plan's cooling hierarchy. By integrating natural ventilation, solar shading, mechanical ventilation, and potentially a hybrid mechanical cooling, the development aims to create a comfortable living environment that will meet CIBSE TM59 criteria. Continuous assessment and adaptation of these measures will ensure long-term effectiveness in mitigating overheating risks in the newly converted residential apartments.

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