

TM59 Overheating Assessment

On Behalf of:

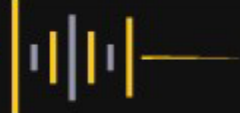
Gold Sketch Studios

For the site at:

125 Droylesden Road, Manchester, M40 1NT

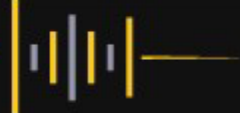
REPORT DATE: 11th August 2025

REPORT REF: AA/25/08/GS/DR/TM59



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1. Introduction

Amber Acoustics has been appointed to provide a TM59 Summary Report for a proposed dwelling at 125 Droylesden Road, Manchester, M40 1NT.

This assessment has been requested based on feedback by the Environmental Health officer in regard to a Noise survey prepared to discharge a planning condition.

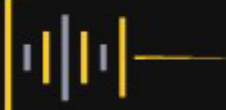
A dynamic thermal simulation model of the proposed dwelling has been created for the analysis which incorporates the proposed glazing specification, areas of the glazing, and doors, and building layout.

1.1. Software Used for Dynamic Thermal Simulation

The simulation tool used for this investigation is Tas Engineering by EDSL.

The calculation methodology adopted was full Dynamic Thermal Simulation over a period of 365 days.

Calculations are based on first-principal models of heat transfer process and are driven by real weather data.



2. Methodology

The thermal modelling for the proposed dwelling incorporates glazing, glazing openable areas and angles, balconies and external shading.

Natural ventilation paths are modelled by algorithms that control the windows and door openings where applicable.

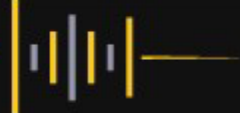
The assessment is undertaken in accordance with methodology and criteria contained within CIBSE TM59: Design Methodology for the Assessment of Overheating Risk in Homes (2017) using current Design Summer Year (Manchester) weather data. This provides a robust method of assessment and is in line with guidance, current industry standard and best practice.

TM59 provides a criterion for assessing comfort and overheating in naturally ventilated buildings:

- a. "For living rooms, kitchens, and bedrooms: the number of hours during which x is greater than or equal to one degree during the period May to September inclusive shall not be more than 3% of occupied hours.
- b. For bedrooms only: to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26 °C for more than 1% of total annual hours."

The purpose of this report is to clearly confirm that:

- The modelling demonstrates that the building design and services strategy can deliver thermal comfort levels in occupied spaces in accordance with the criteria set out in CIBSE design methodology for the assessment of overheating risk in homes.
- The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis.



2.1. Cooling Hierarchy

The development has followed the principles of the cooling hierarchy as set out within the GLA Energy Statement Guidance (2020) document as follows:

- Reduce the Amount of Glazing or Heat Entering the Building – through orientation, shading, high albedo materials, fenestration, insulation, and the provision of green infrastructure. It is also expected that external shading will form part of major proposals.
- Minimise Internal Heat Generation – through energy efficiency design. For example, heat distribution infrastructure within buildings should be designed to minimise pipe lengths, particularly lateral pipework in corridors of apartment blocks, and adopting pipe configurations which minimise heat loss.
- Manage Heat Within the Building – through exposed internal thermal mass and high ceilings. Increasing the amount of exposed thermal mass can help to absorb excess heat within the building.
- Provide Passive Ventilation – For example, through the use of shallow floorplates, dual aspect units or designing in the ‘stack effect’ where possible.
- Provide Mechanical Ventilation – Mechanical ventilation can be used to make use of ‘free cooling’ where the outside air temperature is below that in the building during summer months. This will require a by-pass on the heat recovery system for summer mode operation.



- Provide Active Cooling Systems – The increased use of air conditioning systems is generally not supported, as these have been significant energy requirements and expel hot air, thereby adding to the urban heat island effect. However, once passive measures have been prioritised if there is still a need for active cooling systems, such as air conditioning systems. These should be designed in a very efficient way and should aim to reuse the waste heat they produce.

3. Specification for Model

3.1. Site Description

The assessment has been carried out on the flat marked as Flat A on the plans, which is a ground floor apartment with a bedroom overlooking Droylsden Road.

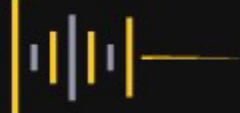
3.2. Drawings



3.3. Weather Data

The weather file applied is the current DSY for Manchester. It is a requirement of TM59 that the most appropriate location file is used for the 2020's High Emissions, 50% scenario.

To demonstrate adaptability to a current climate scenario the Manchester_DSY_2020_High50 has been applied as per guidance in CIBSE TM59.



3.4. Construction Properties

Elements	U Value
External Walls	0.30 W/m2/K
Roofs	0.14 W/m2/K
Ground Floor	0.25 W/m2/K
Windows/Glazed Doors	1.4 W/m2/K
Ventilation	Natural Ventilation
Heating	Gas Combi Boiler
Lighting	Power Density: 2.0 W/m2

3.5. Internal Condition

Defined by dynamic simulation model as per TM59:2017, Section 6, Table 2.

4. Results

Zone Name	Room Use	Occupied Summer Hours	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Annual Night Occupied Hours for Bedroom	Max Exceedable Night Hours	Criterion 2: Number of Night Hours Exceeding 26C for Bedrooms	Result
Flat A_Bedroom	Bedroom	3672	110	18	3285	32	30	Pass
Flat A_Kitchen	Living Room/Kitchen	1989	59	0	N/A	N/A	N/A	Pass
Flat A_Living	Living Room/Kitchen	1989	59	0	N/A	N/A	N/A	Pass

5. Conclusion

Amber Acoustics has been appointed to provide a TM59 Summary Report for a proposed dwelling at 125 Droylsden Road, Manchester, M40 1NT.

This assessment has been requested based on feedback by the Environmental Health officer in regard to a Noise survey prepared to discharge a planning condition.

A dynamic thermal simulation model of the proposed dwelling has been created for the analysis which incorporates the proposed glazing specification, areas of the glazing, and doors, and building layout.

Based on the results of the thermal dynamic modelling it can be demonstrated that the overheating risk within the proposed dwelling does not exceed the standards of CIBSE TM59 and therefore should allay the concerns regarding overheating for this proposed development.

