PART O
2021
COMPLIANT

Plasmor
CONCRETE PRODUCTS

Approved Document O – Overheating risk
Dynamic Thermal Modelling report
For
Proposed Development – 2 plots at 549 Manchester Road, Linthwaite, Huddersfield, HD7 5RH

DesignBuilder

PART O - OVERHEATING (2021) Building Regulation
Dynamic Thermal Modelling Method Report

Assessment date: 23.04.2026

Assessor: Wiktor Aleksiejczyk

Project: 2 plots at 549 Manchester Road, Linthwaite, Huddersfield, HD7 5RH

The above project complies with Part O Dynamic Thermal Modelling Method based on the information provided on drawings*

- **(0-) 02 Scheme as Proposed**
- **2018-91003 Noise Assessment 683782**

and the proposed fabric and heating specifications for the development

**Any changes to the design of the dwelling will requirement a re-assessment for compliance to Part O – please contact the Technical Office on 01977 673221*

Summary of Overheating Mitigation Strategy

- Windows U-value **1.30 W/m^{2}K, g-value of 0.63,**
- **Ground floor windows** are closed during the night as they are "easily accessible**".** Ground floor front elevation windows to **Living / Kitchen** and first floor windows to **Bedroom 1** are closed **during day and night** as recommended by **Noise Impact Assessment,**
- **Plot 1** - To achieve compliance with Part O, first floor **Bedroom 1** to have an intermittent extract fan capable of extracting a minimum of **40 litres / second,**
- **Plot 2** - To achieve compliance with Part O, first floor **Bedroom 1** to have an intermittent extract fan capable of extracting a minimum of **36 litres / second**
- Dwelling to have System 1 ventilation (intermittent extract), ventilation strategy for the dwelling to be designed by ventilation supplier/engineer with suitable qualification.

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Protection from falling

Approved Document O gives additional guidance on increased levels of protection from falling (when compared to Part K) for any opening that is included in the overheating strategy. Where the difference between the internal floor level and the outside floor level exceeds 600mm, guarding should be provided at a height of 1100mm (+0mm/-100mm) and could include, but is not limited to, the following:-

- Shutters with a child proof lock
- Fixed internal guarding (minimum of 600mm above inside floor level if horizontal bars)
- Fixed external guarding

As the windows open outwards, internal guarding is the most suitable way to comply with Part O where window heights dictate that it is required.

Interaction with other Approved Documents

This document only demonstrates compliance with Part O Overheating (2021 edition). The following Approved Documents still need to be complied with; Part B, Part F, Part J, Part K, Part L, Part M and Part Q. Any overlap with these documents need to be addressed by the Principle Designer for the scheme

Key terms

Cross-ventilation The ability to ventilate using openings on opposite facades of a dwelling. Openings that are not opposite does not allow for cross-ventilation e.g. corner flat

Effective area The area through which air flows after the resistance of airflow has been taken into account

Equivalent area A measure of aerodynamic performance of an opening. It is the area of a sharp-edged circular orifice through which air would pass at the same volume flow rate, under an identical applied pressure difference, as through the opening under consideration

Floor area The area of the residential unit, measured to the internal face of the perimeter walls at each floor level

Floor area of the room The area of the room measured to the internal face of the perimeter walls. Where a room serves more than one activity e.g. open plan kitchen and living room, the area with the largest glazing area should be assessed and the room area calculated based on a room depth no greater than 4.5m from the glazed façade

Free area The geometric open area of ventilation opening. This area assumes a clear sharp-edged orifice that would have a coefficient of discharge of 0.62

Glazing area The area of transparent material, not including the window frame

Building and Site Details	
Site Name	
Site Address	549 Manchester Road, Linthwaite, Huddersfield, HD7 5RH
Building Use	Residential
Are there any security, noise, or pollution	Noise Impact Assessment
Date of Assessment	23.04.2026
Assessors Details	
Assessors Name	Wiktor Aleksiejczyk
Assessors Organisation	Plasmor Ltd
Assessors Address	PO Box 44 Womersley Road Knottingley West Yorkshire WF11 0DN
Modelling Details	
Dynamic software name and version	DesignBuilder v2025. 1
Weather file location used, including any additional, more extreme weather files	Leeds_DSY1_2020High50_
TM59: Occupant Category	Category II (normal)
Has the building construction proposal been modelled accurately	YES
Have the analysed rooms passed the assessment for Approved Doc O Dynamic Thermal Modelling Method (CIBSE TM 59)?	YES

Building Regulations: Approved Document O

Building Regulations Part O applies to new residential dwellings and covers the overheating mitigation requirements of the building regulations set out in Approved Document Part O
The aim of the requirement Approved Document O is to protect the health and welfare of occupants of new residential buildings, by reducing the occurrence of high indoor temperatures.

Criteria to meet compliance

CIBSE TM59 overheating methodology for predominantly naturally ventilated rooms assesses against two criteria, (a) and (b) (for Category I occupancy criterion A, Tmax is reduced by 1K):
Criterion (a) states that for living rooms, kitchens and bedrooms, the number of hours during which ΔT is greater than or equal to 1K from May to September (or November to March for southern hemisphere locations) shall not exceed 3% of occupied hours.
Criterion (b) states that the operative temperature of the bedrooms from 22:00-07:00 shall not exceed 26°C for more than 1% of annual hours (33 hours is therefore recorded as a fail). Approved document O applies limits to CIBSE TM59 section 3.3 (openings); these requirements are applied by appropriate assignment scripted profiles in the model.
CIBSE TM59 overheating methodology for predominantly mechanically ventilated rooms states the operative temperature of all rooms shall not exceed 26°C for more than 3% of annual occupied hours.
CIBSE TM59 also states that the inclusion of corridors in the overheating analysis is mandatory where community heating pipework runs through them. While there is no mandatory target for communal corridors, if an operative temperature of 28°C is exceeded for more than 3% of the total annual hours this should be identified as a significant risk.

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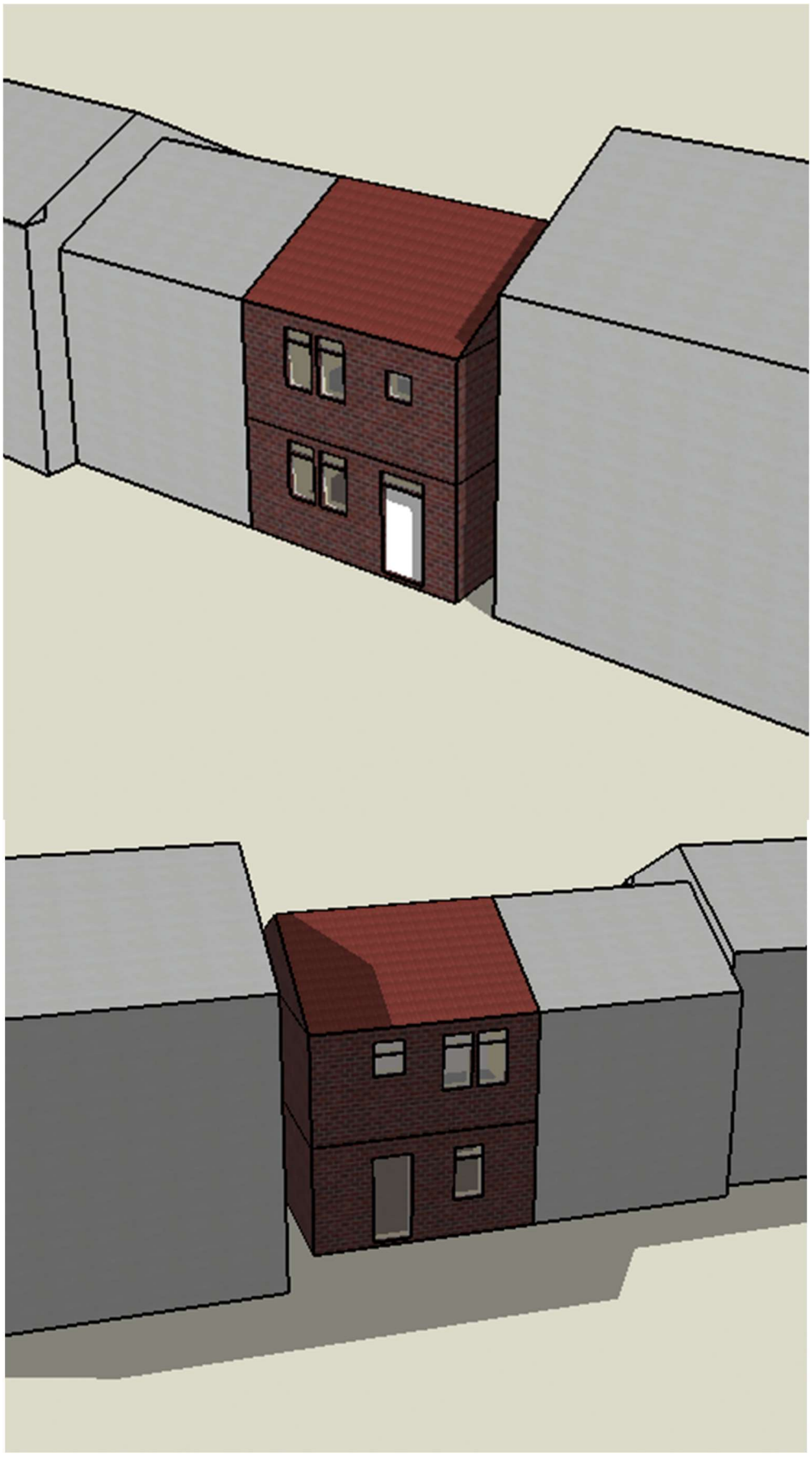
External Model Image:



Results

The table below shows the results obtained from the Part O Dynamic Thermal Modelling assessment of the overheating risk in the occupied areas of the dwelling split by room.

Plot 1 facing Northwest:

Criteria for predominantly naturally ventilated homes

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
FIRSTFLOOR	BEDROOM1	0.07	31.67	Pass
FIRSTFLOOR	BEDROOM2	0.00	3.17	Pass
GROUNDFLOOR	KITCHENXLIVING	0.04	N/A	Pass

Plot 2 facing Northwest:

Criteria for predominantly naturally ventilated homes

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
FIRSTFLOOR	BEDROOM1	0.11	30.33	Pass
FIRSTFLOOR	BEDROOM2	0.00	5.17	Pass
GROUNDFLOOR	KITCHENXLIVING	0.05	N/A	Pass

Conclusion

An overheating assessment has been undertaken for 2 plots at **549 Manchester Road, Linthwaite, Huddersfield, HD7 5RH** on behalf of the developer. The assessment demonstrates the performance of occupied areas against the requirements of Building Regulations Approved Document O (2021) and CIBSE TM59 for predominantly naturally ventilated homes.

This study concludes that all spaces have been able to demonstrate compliance against the Part O Dynamic Thermal Modelling analysis for homes.