

OVERHEATING ASSESSMENT REPORT

69 DICKINSON ROAD

Manchester City Council

Document No. 27/067/OA/01

June 2024

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Approved By: 	Stephen Levell BEng (Hons) CEng MCIBSE MIET Managing Director - ECS Consultants Ltd For and on behalf of ECS Consultants Ltd	
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Report Title: 69 Dickenson Road, Overheating Assessment

Produced By: Gerard Mitchell

Approved By: Steve Levell

Revision History:

Revision	Date of Issue	Reason(s) for Issue
1 st	28/06/2024	Initial issue in support of planning approval.

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The assessment detailed in this report has been carried out by ECS Consultants Limited based on the design information provided by the Client and project team. Some assumptions are made as part of this process which may not occur in practice, the details of which are included in the report. Whilst ECS Consultants Limited take great care in carrying out these assessments, certain variables are difficult to predict, therefore higher or lower temperatures than those calculated are likely to occur. It therefore remains the responsibility of others to design and construct the building appropriately to ensure a comfortable internal environment for occupants is guaranteed throughout the year. ECS Consultants Limited accept no liability should occupants be dissatisfied with internal temperatures during in use performance.

Project Information Provided

Manchester City Council provided the following documentation and drawings to assist ECS with the thermal comfort assessment of the proposed development and planning approval process. The documentation and drawings were as follows.

- Noise Impact Assessment Report carried out by E3P
- 69D-MCC-B01-GF-DR-B-0015-S4C - Proposed Site Plan
- 69D-MCC-B01-GF-DR-B-0010-S5 - GF Existing
- 69D-MCC-B01-01-DR-B-0010-S5 - FF Existing
- 9D-MCC-B01-GF-DR-B-0011-S4C - GF Proposed
- 9D-MCC-B01-01-DR-B-0011-S5A - FF Proposed
- 69D-MCC-B01-ZZ-DR-B-0013-S4C - Window Schedule
- Number of existing and proposed elevations drawings

Confirmation was also provided by Manchester City Council that the apartments were being provided with individual extract ventilation to the following areas.

- Bathroom wall/ceiling mounted with integral humidity and run on timer
- Kitchen/ Living Areas wall/ceiling mounted extract fan with booster control

Executive Summary

This report was prepared by ECS Consultants Limited to present the results of an overheating assessment for 69 Dickenson Road, Longsight, Manchester. This assessment has been carried out considering the constraints of the noise impact assessment report.

The objective was to establish the mechanical ventilation flow rates required to mitigate the risk of overheating. Two assessments have been performed:

- Scenario 1: Windows always closed
- Scenario 2: Windows open during day and closed during sleeping hours

To complete the assessment, a dynamic thermal simulation model was created of the building. This is considered the most sophisticated approach for predicting and improving building performance as it combines building physics with real-world data to create a virtual replica of a building that looks and behaves like its real-world counterpart. The physics-based simulations assess whole-building performance against both current and future climate data, down to every minute of the year to provide an extremely granular prediction profile of how the building performs.

As an existing development, we have aligned our assessment with guidance under the CIBSE TM59, given it provides a robust calculation methodology for dynamic simulation modelling.

The results of the assessment are provided in Appendices A and B and demonstrate compliance when the minimum mechanical ventilation flow rates are provided as detailed in Section 5 of this report.

It should be noted that the mechanical ventilation flow rates advised in this report are for compliance with the overheating assessment criteria. Any additional fresh air requirements (i.e. controlling CO₂ levels, purge ventilation, trickle ventilation etc.) are excluded from this report.

This report details the methodology, specifications, assumptions, and results of the assessments.

Scenario 1: Windows Always Closed

All windows have been modelled as being continually closed. Internal bedroom, living/kitchen and bathroom doors have been modelled as open during daytime hours (08:00 – 23:00). All other doors have been modelled as continuously closed.

Section 5.1 details the results this scenario performed against the CIBSE TM59 overheating assessment for homes that are predominantly mechanically ventilated. To achieve compliance, the following continuous mechanical ventilation supply flow rates are required, as a minimum to the majority of apartments.

Scenario 2: Windows open during day and closed during sleeping hours

All bedroom, living room and bathroom windows have been modelled as open during daytime hours. All other windows and doors have been modelled as continuously closed. Openable windows have been modelled as top-hung, as indicated on the elevation drawings provided. The opening profile is based on the following strategy:

- i. Start to open when the internal temperature exceeds 22°C.
- ii. Be fully open when the internal temperature exceeds 26°C.
- iii. Start to close when the internal temperature falls below 26°C.
- iv. Be fully closed when the internal temperature falls below 22°C.

Internal bedroom, living/kitchen and bathroom doors have been modelled as open during daytime hours (08:00 – 23:00). All other doors have been modelled as continuously closed.

Section 5.2 & Modelled Ventilation Chart details the results for this scenario performed against the CIBSE TM59 overheating assessment for homes that are predominantly mechanically ventilated. To achieve compliance, the following continuous mechanical ventilation supply flow rates are required, as a minimum to 7No bedrooms (units 02,04,07,08,12,19)

If planning approval is granted based on this scenario, then it is proposed that small individual mechanical ventilation heat recovery units (MVHR) may be used to meet the fresh air requirements for the 7No bedrooms

Manchester City Council commissioned E3P consultations to undertake a Noise Impact Assessment in order to provide sufficient information to discharge conditions 7a and 8a in relation to the planning permission (138801/VO/2023).

ECS have provided extracts from this report to provide a complete executive report

The objectives of this Noise Impact Assessment are as follows.

- Establish and measure the existing sound levels across the site, day and night.
- Consider the potential sources of sound impacting the site and to measure source sound levels of all applicable sources.
- Assess internal and external noise levels associated with road traffic in accordance with criteria given in BS 8233.
- Set plant noise emission limits in the absence of detail.
- Provide advice on mitigation measures, where required.

The Noise Impact Assessment consultant included for two long term unattended surveys to capture road traffic associated with Dickenson Road, school yard usage and baseline levels of noise at existing and proposed receptors.

This assessment looked to determine the key noise sources that has the potential to impact upon the noise sensitive development and to assess their impact, if any, upon proposed receptors and to specify mitigation measures, where required.

The assessment report recommended several appropriate mitigation measures to control internal noise levels.

Overheating Condition

Within the E3P assessment report E3P considered the potential impact of noise, internally, should windows be opened to mitigate overheating, as per the criteria stipulated in ADO.

Any plots/facades that pass this test can open windows for this without resulting in unacceptable internal noise levels. Those that fail the test would be subject to a Part O Overheating Assessment by a suitably qualified consultant.

Part O only applies to bedrooms at night in relation to the average 8-hour noise level and 10th highest maximum noise level.

Given that the site is within a **moderate risk location**, as per guidance within Approved Document O the external noise limit threshold is 49 dB during the night-time ($L_{Aeq,8hr}$) and 64 dB more than 10 times a night ($L_{Af,max}$).

It was highlighted in Table 6, the following apartments would experience an exceedance and will require a Part O full overheating assessment:

- Apartments 1 and 2.
- Apartments 8 to 10.
- Apartments 15 to 24.

E3P highlighted that for the overheating aspect, it was found that open windows were sufficient for most plots Except apartments 1, 2, 8 to 10 and 15 to 24. These plots should be subject to an overheating assessment on the assumption that bedroom windows cannot be opened to mitigate overheating without exceeding the ADO internal noise level criteria at night.

It is assumed that Manchester City Council will review and consider both the overheating assessment and noise impact assessment in full as part of their planning approval process and way forward.

1. Assessment Methodology

For the purposes of this report, the IES Virtual Environment software was used to carry out the thermal comfort assessment. IES VE is a 3D modelling software package that allows many aspects of building performance to be assessed for example, energy efficiency, thermal performance, and daylighting.

A virtual model of the building was constructed in IES VE using the latest design information as detailed in later sections. Information such as the building geometry, fabric performance, mechanical ventilation, and window opening profiles were included within this model.

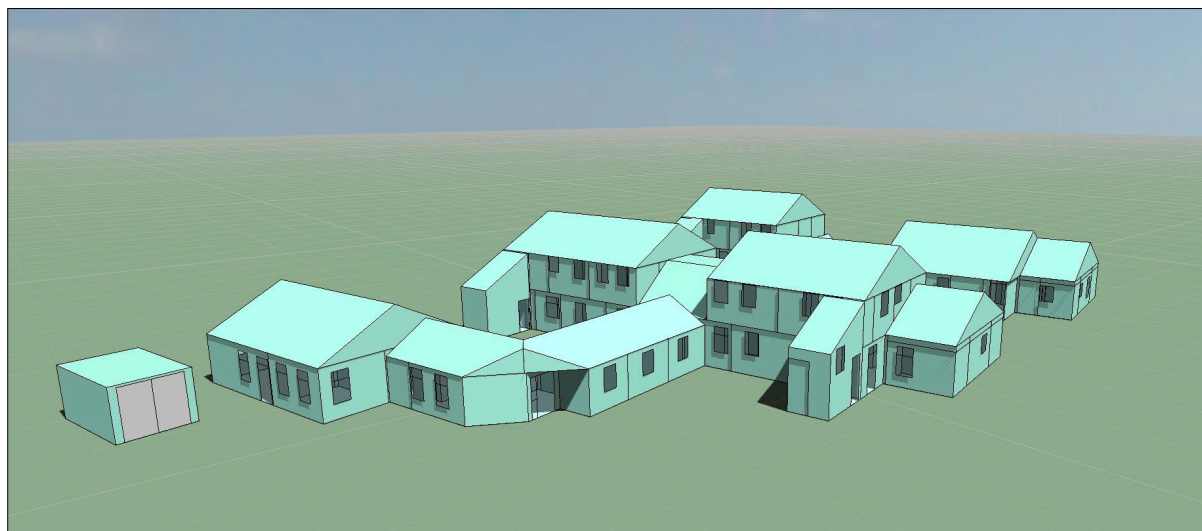


Figure 1. 3D model representation of the building within the IES VE assessment software.

As an existing development, we have aligned our assessment with guidance under the *Chartered Institution of Building Services Engineers Technical Memorandum 59: Design methodology for the assessment of overheating risk in homes* (hereinafter referred to as CIBSE TM59), given it provides a robust calculation methodology for dynamic simulation modelling.

CIBSE TM59 was primarily a response to the recognition that overheating in homes is becoming an increasingly common occurrence.

The problem overheating presents to occupants, other than general discomfort, can include stress, anxiety, and sleep deprivation. In some cases, particularly during heatwaves and amongst vulnerable occupants, extreme overheating can result in death. The Committee on Climate Change has estimated that mortality rates arising from overheating could rise from 2000 per year in 2015 to 7000 per year by the 2050s.

CIBSE TM59 dynamic modelling requires the use of 'Design Summer Year' (DSY) weather files for the assessment of overheating. Specifically, the 2020s high emissions DSY file must be used to accurately assess the risk of overheating.

CIBSE TM59 also requires the use of a set of standardised occupancy and heat gain profiles. These heat gain profiles account for the following sources of heat:

- Lighting
- Occupants (i.e. heat gains from people)

- Equipment (e.g. heat gains from cooking appliances, TVs, fridges, etc)

Although how a dwelling is occupied, and the type of equipment which is present, varies from dwelling-to-dwelling, this accounts for the above in a manner which represents what it is typical. This also ensures consistency and comparability between assessments which follow the methodology.

The other principal impact on internal heat gains and levels of overheating comes from the influence of the weather. Higher external air temperatures and higher levels of solar radiation through glazing increases the likelihood of overheating. Overheating is therefore more likely to occur during the summer months. The IES VE Dynamic Simulation Modelling software accounts for the influence of these heat gains in a robust manner through advanced simulation and building physics calculation algorithms.

The software also accounts for the influence of the wind and movement of air through windows. It models wind pressure across the building fabric including windows. Where windows are open then this pressure difference will have the effect of allowing air to move in and out of the building which will affect internal temperatures. Openable windows therefore have a strong influence on the ability to cool a building, particularly for those which do not have mechanical air conditioning systems specified, which is the case for most new housing in the UK.

External air can also enter the building via the use of mechanical ventilation systems. This report accounts for these systems as well.

1.1 Test Criteria

For a dwelling to comply with CIBSE TM59 the following the dynamic thermal modelling approach, it must meet the following criteria:

For homes predominantly naturally ventilated:

- For living rooms, kitchens, and bedrooms: the number of hours during which ΔT is greater than or equal to one degree Celsius above the maximum acceptable temperature during the period May to September inclusive shall not be more than 3 percent of occupied hours.
- For bedrooms only: to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26 °C for more than 1% of annual hours. (Note: 1% of the annual hours between 22:00 and 07:00 for bedrooms is 32 hours, therefore 33 or more hours above 26 °C will be recorded as a fail).

For homes predominantly mechanically ventilated:

For homes with restricted window openings, the CIBSE fixed temperature test must be followed, i.e. all occupied rooms should not exceed an operative temperature of 26 °C for more than 3% of the annual occupied annual hours.

The dynamic modelling focusses on the above rooms within a dwelling since these are the rooms which are typically occupied for long periods of time and as such overheating is more of an issue. Other rooms such as bathrooms, halls, and cupboards are not included in the assessment.

RESIDENTIAL UNIT No.11 29m²

RESIDENTIAL UNIT No.12 27m²

RESIDENTIAL UNIT No.13 24m²

RESIDENTIAL UNIT No.14 23m²

RESIDENTIAL UNIT No.15 27m²

RESIDENTIAL UNIT No.16 29m²

RESIDENTIAL UNIT No.17 24m²

RESIDENTIAL UNIT No.8 25m²

RESIDENTIAL UNIT No.9 29m²

RESIDENTIAL UNIT No.7 28m²

RESIDENTIAL UNIT No.6 30m²

RESIDENTIAL UNIT No.5 25m²

RESIDENTIAL UNIT No.4 27m²

RESIDENTIAL UNIT No.3 29m²

RESIDENTIAL UNIT No.2 26m²

RESIDENTIAL UNIT No.1 (ACCESSIBLE) 56m²

Main Building B01

KEY

- PROPOSED NEW RESIDENTIAL UNITS (23No)
- PROPOSED NEW ACCESSIBLE RESIDENTIAL UNIT (11No)
- PROPOSED STAFF ACCOMMODATION
- PROPOSED STAFF / RESIDENT / VISITOR SHARED ACCOMMODATION
- CIRCULATION ANCILLARY SPACE
- M&E / PLANT SPACE
- DEMOLISHED WALLS
- NEW BLOCKWORK WALLS AS STRUCTURAL ENGINEERS DETAILS
- NEW STUD PARTITION WALLS (REFER TO WALL DETAIL DRAWING & FIRE PLAN FOR DETAILS)

69 Dickenson Road
69 Dickenson Road
10023060225
Total site area:
Gross external area: 1267.3
Gross internal area: 1123.4
Total net area: 1054.5
Net internal area: 638.0
Building footprint area 942.9

MANCHESTER CITY COUNCIL
Capital Programmes Division
Project Manager: [Name]
Design Team: [Names]

June 2024

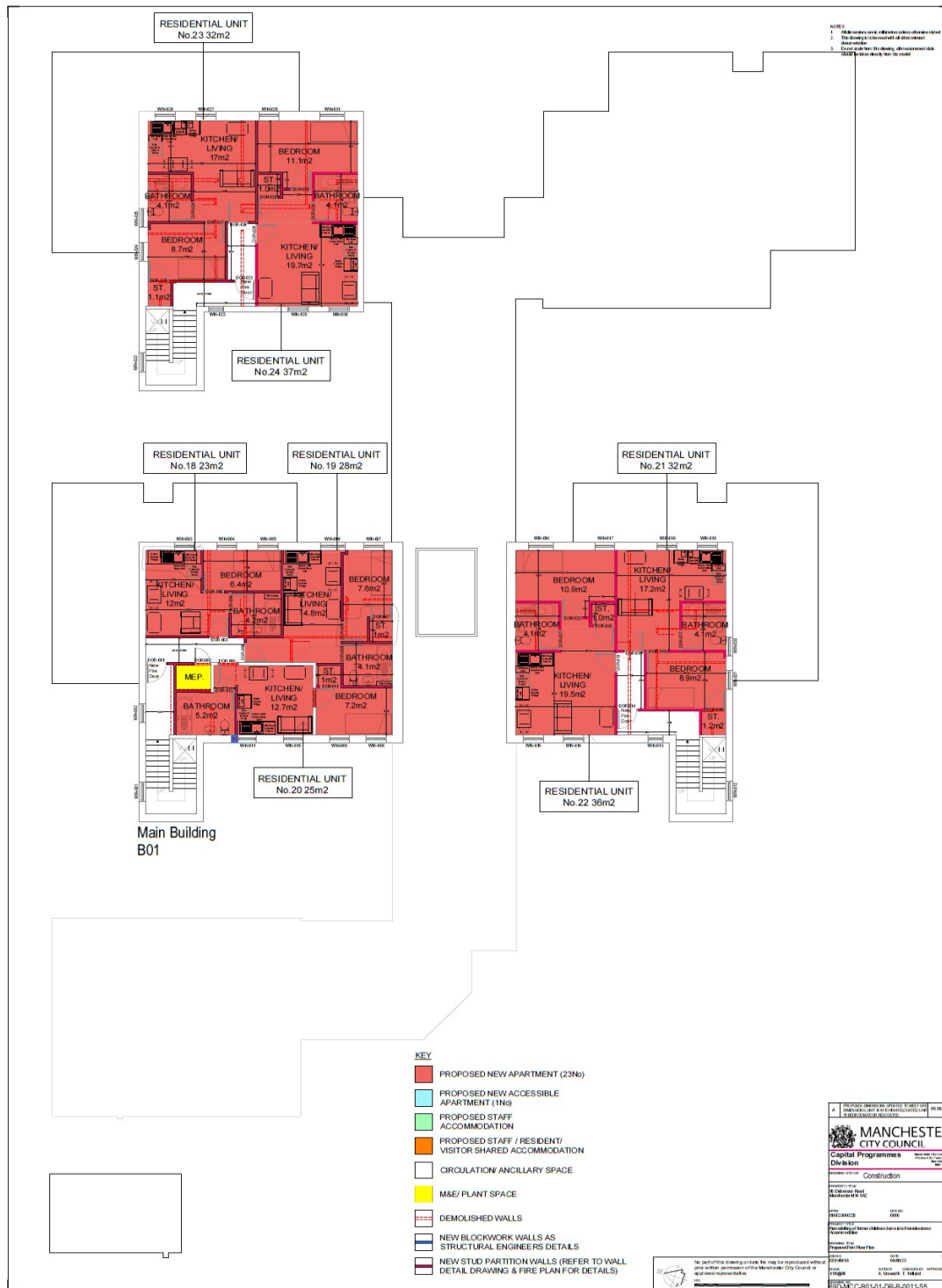


Figure 3. First Floor Plan

3. Project Specification

3.1 Weather File

This report follows the minimum requirements of CIBSE TM59. That is, it uses the DSY 1 2020s High Emissions 50 Percentile scenario weather files only. The Manchester weather file was used for the assessment.

3.2 Fabric Specification

The table below details the fabric specification used within the model. This is based on the latest information provided by the project team.

Table 1. Fabric specification

Element	Specification	U-value (W/m²K)
External walls	Standard uninsulated cavity wall with nominal 50mm cavity	1.40
Internal partitions	Not provided (U-value assumed)	0.61
Roof	300mm mineral wool insulation laid horizontally to the loft floor/on top of ceiling	0.16
Ground floor	Uninsulated solid concrete floor	0.30
Windows and Glazed Doors	New triple glazed windows to south and west facades Solar transmittance g-value: 0.35	0.70
	New triple glazed windows to north and east facades Solar transmittance g-value: 0.63	
Roof lights	No roof lights on development	-
Solid doors	Not provided (U-value assumed)	2.20

3.3 Ventilation Strategy

Table 2. Ventilation strategy

Element	Specification
Air infiltration	0.25ach
Mechanical Ventilation System	Mechanical Ventilation with Heat Recovery
Summer Bypass	Yes
Modelled Ventilation Rates*	Refer to section 5

3.4 Solar Shading Strategy

External forms of solar shading have been accounted for in the model. No internal shading has been allowed for in the assessment.

3.5 Window Openings

Scenario 1: Window Always Closed

All windows have been modelled as being continually closed. Internal bedroom, living/kitchen and bathroom doors have been modelled as open during daytime hours (08:00 – 23:00). All other doors have been modelled as continuously closed.

Scenario 2: Windows Open during Day and Closed during Sleeping Hours

All bedroom, living room and bathroom windows have been modelled as open during daytime hours. All other windows and doors have been modelled as continuously closed. Openable windows have been modelled as top-hung, as indicated on the elevation drawings provided. The opening profile is based on the following strategy:

- i. Start to open when the internal temperature exceeds 22°C.
- ii. Be fully open when the internal temperature exceeds 26°C.
- iii. Start to close when the internal temperature falls below 26°C.
- iv. Be fully closed when the internal temperature falls below 22°C.

Internal bedroom, living/kitchen and bathroom doors have been modelled as open during daytime hours (08:00 – 23:00). All other doors have been modelled as continuously closed.

4. Model Images

The following model images are provided for illustration.



Figure 4. View from North



Figure 5. View from East



Figure 6. View from South



Figure 7. View from West

5. Results

a. Scenario 1: Windows Always Closed

This scenario has been performed against the CIBSE TM59 overheating assessment for homes that are predominantly mechanically ventilated. To achieve compliance, the following continuous mechanical ventilation supply flow rates are required, as a minimum.

Occupied Room	Fresh Supply Air Flow Rate (l/s)
UNIT 01 ACCESSIBLE BEDROOM	20
UNIT 01 ACCESSIBLE KITCHEN / LIVING	20
UNIT 02 BEDROOM	20
UNIT 02 LIVING / KITCHEN	20
UNIT 03 BEDROOM	20
UNIT 03 KITCHEN / LIVING	20
UNIT 04 BEDROOM	20
UNIT 04 KITCHEN / LIVING	20
UNIT 05 BEDROOM	20
UNIT 05 KITCHEN / LIVING	25
UNIT 06 BEDROOM	20
UNIT 06 LIVING / KITCHEN	20
UNIT 07 BEDROOM	20
UNIT 07 KITCHEN / LIVING	20
UNIT 08 BEDROOM	20
UNIT 08 KITCHEN / LIVING	20
UNIT 09 BEDROOM	20
UNIT 09 KITCHEN / LIVING	20
UNIT 10 BEDROOM	20
UNIT 10 KITCHEN / LIVING	20
UNIT 11 BEDROOM	20
UNIT 11 KITCHEN / LIVING	20
UNIT 12 BEDROOM	20
UNIT 12 KITCHEN / LIVING	20
UNIT 13 BEDROOM	20
UNIT 13 KITCHEN / LIVING	20
UNIT 14 BEDROOM	20
UNIT 14 KITCHEN / LIVING	20
UNIT 15 BEDROOM	20
UNIT 15 KITCHEN / LIVING	20
UNIT 16 BEDROOM	20
UNIT 16 KITCHEN / LIVING	20
UNIT 17 BEDROOM	20
UNIT 17 KITCHEN / LIVING	20
UNIT 18 BEDROOM	30

UNIT 18 KITCHEN / LIVING	45
UNIT 19 BEDROOM	35
UNIT 19 KITCHEN / LIVING	45
UNIT 20 BEDROOM	30
UNIT 20 KITCHEN / LIVING	60
UNIT 21 BEDROOM	30
UNIT 21 KITCHEN / LIVING	50
UNIT 22 BEDROOM	30
UNIT 22 KITCHEN / LIVING	35
UNIT 23 BEDROOM	30
UNIT 23 KITCHEN / LIVING	35
UNIT 24 BEDROOM	30
UNIT 24 KITCHEN / LIVING	70

b. Scenario 2: Windows Open during Day and Closed during Sleeping Hours

This scenario has been performed against the CIBSE TM59 overheating assessment for homes that are predominantly naturally ventilated. To achieve compliance, the following mechanical ventilation supply flow rates are required, as a minimum.

Occupied Room	Fresh Supply Air Flow Rate (l/s)
UNIT 01 ACCESSIBLE BEDROOM	0
UNIT 01 ACCESSIBLE KITCHEN / LIVING	0
UNIT 02 BEDROOM	5
UNIT 02 LIVING / KITCHEN	0
UNIT 03 BEDROOM	0
UNIT 03 KITCHEN / LIVING	0
UNIT 04 BEDROOM	5
UNIT 04 KITCHEN / LIVING	0
UNIT 05 BEDROOM	0
UNIT 05 KITCHEN / LIVING	0
UNIT 06 BEDROOM	0
UNIT 06 LIVING / KITCHEN	0
UNIT 07 BEDROOM	5
UNIT 07 KITCHEN / LIVING	0
UNIT 08 BEDROOM	10
UNIT 08 KITCHEN / LIVING	0
UNIT 09 BEDROOM	0
UNIT 09 KITCHEN / LIVING	0
UNIT 10 BEDROOM	0
UNIT 10 KITCHEN / LIVING	0
UNIT 11 BEDROOM	0
UNIT 11 KITCHEN / LIVING	0

UNIT 12 BEDROOM	5
UNIT 12 KITCHEN / LIVING	0
UNIT 13 BEDROOM	0
UNIT 13 KITCHEN / LIVING	0
UNIT 14 BEDROOM	0
UNIT 14 KITCHEN / LIVING	0
UNIT 15 BEDROOM	5
UNIT 15 KITCHEN / LIVING	0
UNIT 16 BEDROOM	0
UNIT 16 KITCHEN / LIVING	0
UNIT 17 BEDROOM	0
UNIT 17 KITCHEN / LIVING	0
UNIT 18 BEDROOM	0
UNIT 18 KITCHEN / LIVING	0
UNIT 19 BEDROOM	15
UNIT 19 KITCHEN / LIVING	0
UNIT 20 BEDROOM	0
UNIT 20 KITCHEN / LIVING	0
UNIT 21 BEDROOM	0
UNIT 21 KITCHEN / LIVING	0
UNIT 22 BEDROOM	0
UNIT 22 KITCHEN / LIVING	0
UNIT 23 BEDROOM	0
UNIT 23 KITCHEN / LIVING	0
UNIT 24 BEDROOM	0
UNIT 24 KITCHEN / LIVING	0

Appendix A. Scenario 1: CIBSE TM59 Results

The following report is generated via the IES VE modelling software. Whilst this references Approved Document O of the English Building Regulations, it is based on the CIBSE TM59 methodology.

Approved Document O Report
Overheating risk in residential buildings
for
CIBSE TM59 - Windows shut with continuous mech.
vent.

CIBSE TM59 - Windows shut with continuous mech. vent.

Page 11 of 16

Building details

Project name: CIBSE TM59 - Windows shut with continuous mech. vent.	Date: 19-06-2024 11:24:30
Location: 69 Dickenson Road, Manchester	
Address: 69 Dickenson Road, Longsight, Manchester	
Building use: Homelessness Accommodation	
Are there any security, noise, or pollution issues: Refer to noise impact assessment	

Designer's details

Designer's name:
Designer's organisation: ECS Consultants Limited
Designer's address: 148 Stockport Road Cheadle Cheshire SK8 2DP

Dynamic thermal model

Software: IESVE version 2023.5.1.0	
Weather file: Manchester_DSY1_2020High50_.epw	
Results file: 0455 - TM59_022.aps	
Number of rooms analysed: 48	
TM59: summer elevated air speed: 0.1	
TM59: occupant category: Category II (normal)	
Overheating mitigation strategy: As described in report	
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
Designer's signature:	

CIBSE TM59 - Windows shut with continuous mech. vent. Page 2 of 16

Summary

CIBSE TM59 overheating methodology for predominantly naturally ventilated rooms assesses against two criteria, (a) and (b) (for Category I occupancy, T_{max} 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 of MacroFlo types / scripted profiles in the model (see Modelled Openings Section).

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.

Room name	Naturally ventilated Criterion a check	Naturally ventilated Criterion b check	Mechanically ventilated check	Corridor overheating risk check
L00 : UNIT 01_ACCESSIBLE BEDROOM	-	-	Pass	-
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 02_BEDROOM	-	-	Pass	-
L00 : UNIT 02_LIVING / KITCHEN	-	-	Pass	-
L00 : UNIT 03_BEDROOM	-	-	Pass	-
L00 : UNIT 03_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 04_BEDROOM	-	-	Pass	-
L00 : UNIT 04_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 05_BEDROOM	-	-	Pass	-
L00 : UNIT 05_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 06_BEDROOM	-	-	Pass	-
L00 : UNIT 06_LIVING / KITCHEN	-	-	Pass	-
L00 : UNIT 07_BEDROOM	-	-	Pass	-
L00 : UNIT 07_KITCHEN / LIVING	-	-	Pass	-
L00 : UNIT 08_BEDROOM	-	-	Pass	-

CIBSE TM59 - Windows shut with continuous mech. vent. Page 13 of 16

Room name	Naturally ventilated Criterion a check	Naturally ventilated Criterion b check	Mechanically ventilated check	Corridor overheating risk check
L00 : UNIT 08_KITCHEN / LIVING	-	-	Pass	-
L00 : UNIT 09_BEDROOM	-	-	Pass	-
L00 : UNIT 09_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 10_BEDROOM	-	-	Pass	-
L00 : UNIT 10_KITCHEN / LIVING	-	-	Pass	-
L00 : UNIT 11_BEDROOM	-	-	Pass	-
L00 : UNIT 11_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 12_BEDROOM	-	-	Pass	-
L00 : UNIT 12_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 13_BEDROOM	-	-	Pass	-
L00 : UNIT 13_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 14_BEDROOM	-	-	Pass	-
L00 : UNIT 14_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 15_BEDROOM	-	-	Pass	-
L00 : UNIT 15_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 16_BEDROOM	-	-	Pass	-
L00 : UNIT 16_KITCHEN / LIVING SPACE	-	-	Pass	-
L00 : UNIT 17_BEDROOM	-	-	Pass	-
L00 : UNIT 17_KITCHEN / LIVING	-	-	Pass	-
L01 : UNIT 18_BEDROOM	-	-	Pass	-
L01 : UNIT 18_KITCHEN / LIVING	-	-	Pass	-
L01 : UNIT 19_BEDROOM	-	-	Pass	-
L01 : UNIT 19_KITCHEN / LIVING	-	-	Pass	-

CIBSE TM59 - Windows shut with continuous mech. vent. Page 14 of 16

Room name	Naturally ventilated Criterion a check	Naturally ventilated Criterion b check	Mechanically ventilated check	Corridor overheating risk check
L01 : UNIT 20_BEDROOM	-	-	Pass	-
L01 : UNIT 20_KITCHEN / LIVING	-	-	Pass	-
L01 : UNIT 21_BEDROOM	-	-	Pass	-
L01 : UNIT 21_KITCHEN / LIVING	-	-	Pass	-
L01 : UNIT 22_BEDROOM	-	-	Pass	-
L01 : UNIT 22_KITCHEN / LIVING	-	-	Pass	-
L01 : UNIT 23_BEDROOM	-	-	Pass	-
L01 : UNIT 23_KITCHEN / LIVING	-	-	Pass	-
L01 : UNIT 24_BEDROOM	-	-	Pass	-
L01 : UNIT 24_KITCHEN / LIVING	-	-	Pass	-

Naturally ventilated rooms – criterion (a)

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.

Room name	Occupied hours	No. hours $\Delta T \geq 1^\circ\text{K}$	% Occupied hours $\Delta T \geq 1^\circ\text{K}$	Criterion a check
No nat vent rooms	N/A	N/A	N/A	N/A

Naturally ventilated rooms – criterion (b)

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). Any rooms that are not bedrooms are therefore not assessed, hence the corresponding N/A values.

Room name	No. hours > 26°C 22:00-24:00	No. hours > 26°C 00:00-07:00	Total hours > 26°C	Criterion b check
No nat vent rooms	N/A	N/A	N/A	N/A

CIBSE TM59 - Windows shut with continuous mech. vent. Page 15 of 16

Mechanically ventilated rooms

CIBSE TM59 overheating methodology for predominantly mech. vent. rooms states the operative temperature of all rooms shall not exceed 26°C for more than 3% of annual occupied hours.

Room name	No. hours > 26°C	% Annual hours > 26°C	Mechanically ventilated check
L00 : UNIT 01_ACCESSIBLE BEDROOM	160	1.8	Pass
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	129	2.7	Pass
L00 : UNIT 02_BEDROOM	93	1.1	Pass
L00 : UNIT 02_LIVING / KITCHEN	73	1.5	Pass
L00 : UNIT 03_BEDROOM	41	0.5	Pass
L00 : UNIT 03_KITCHEN / LIVING SPACE	35	0.7	Pass
L00 : UNIT 04_BEDROOM	80	0.9	Pass
L00 : UNIT 04_KITCHEN / LIVING SPACE	62	1.3	Pass
L00 : UNIT 05_BEDROOM	102	1.2	Pass
L00 : UNIT 05_KITCHEN / LIVING SPACE	121	2.6	Pass
L00 : UNIT 06_BEDROOM	89	1.0	Pass
L00 : UNIT 06_LIVING / KITCHEN	74	1.6	Pass
L00 : UNIT 07_BEDROOM	86	1.0	Pass
L00 : UNIT 07_KITCHEN / LIVING	73	1.5	Pass
L00 : UNIT 08_BEDROOM	64	0.7	Pass
L00 : UNIT 08_KITCHEN / LIVING	67	1.4	Pass
L00 : UNIT 09_BEDROOM	81	0.9	Pass
L00 : UNIT 09_KITCHEN / LIVING SPACE	54	1.1	Pass
L00 : UNIT 10_BEDROOM	88	1.0	Pass
L00 : UNIT 10_KITCHEN / LIVING	76	1.6	Pass
L00 : UNIT 11_BEDROOM	58	0.7	Pass
L00 : UNIT 11_KITCHEN / LIVING SPACE	43	0.9	Pass
L00 : UNIT 12_BEDROOM	94	1.1	Pass
L00 : UNIT 12_KITCHEN / LIVING SPACE	56	1.2	Pass
L00 : UNIT 13_BEDROOM	119	1.4	Pass
L00 : UNIT 13_KITCHEN / LIVING SPACE	112	2.4	Pass
L00 : UNIT 14_BEDROOM	101	1.2	Pass
L00 : UNIT 14_KITCHEN / LIVING SPACE	118	2.5	Pass
L00 : UNIT 15_BEDROOM	136	1.6	Pass
L00 : UNIT 15_KITCHEN / LIVING SPACE	127	2.7	Pass
L00 : UNIT 16_BEDROOM	89	1.0	Pass
L00 : UNIT 16_KITCHEN / LIVING SPACE	75	1.6	Pass
L00 : UNIT 17_BEDROOM	140	1.6	Pass
L00 : UNIT 17_KITCHEN / LIVING	130	2.7	Pass
L01 : UNIT 18_BEDROOM	192	2.2	Pass
L01 : UNIT 18_KITCHEN / LIVING	136	2.9	Pass

CIBSE TM59 - Windows shut with continuous mech. vent.

Page 16 of 16

Room name	No. hours > 26°C	% Annual hours > 26°C	Mechanically ventilated check
L01 : UNIT 19_BEDROOM	209	2.4	Pass
L01 : UNIT 19_KITCHEN / LIVING	136	2.9	Pass
L01 : UNIT 20_BEDROOM	182	2.1	Pass
L01 : UNIT 20_KITCHEN / LIVING	139	2.9	Pass
L01 : UNIT 21_BEDROOM	145	1.7	Pass
L01 : UNIT 21_KITCHEN / LIVING	144	3.0	Pass
L01 : UNIT 22_BEDROOM	173	2.0	Pass
L01 : UNIT 22_KITCHEN / LIVING	144	3.0	Pass
L01 : UNIT 23_BEDROOM	123	1.4	Pass
L01 : UNIT 23_KITCHEN / LIVING	135	2.8	Pass
L01 : UNIT 24_BEDROOM	170	1.9	Pass
L01 : UNIT 24_KITCHEN / LIVING	140	3.0	Pass

Communal corridors

CIBSE TM59 states that whilst there is no mandatory target for communal corridors, if an operative temperature of 28°C is exceeded for more than 3% of annual hours, then this should be identified as a significant risk within the TM59 overheating report.

Room name	No. hours > 28°C	% Annual hours > 28°C	Corridor overheating risk check
No corridors	N/A	N/A	N/A

CIBSE TM59 - Windows shut with continuous mech. vent. Page 17 of 16

Modelled details & overheating mitigation strategy

Approved document O: Providing Information & Appendix B requires information about the model and the overheating mitigation strategy. The following tables detail the modelling method and mitigation strategies applied to each analysed room. Where multiple active openings per space (windows & louvres) exist they are all listed. Occupancy, equipment and lighting profiles for occupied rooms comply with TM59 section 5.

Modelled occupancy

Room name	Floor area m ²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
L00 : UNIT 01_ACCESSIBLE BEDROOM	14.56	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	29.23	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 02_BEDROOM	7.45	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 02_LIVING / KITCHEN	14.04	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 03_BEDROOM	8.24	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 03_KITCHEN / LIVING SPACE	16.03	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 04_BEDROOM	6.67	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 04_KITCHEN / LIVING SPACE	17.38	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 05_BEDROOM	6.77	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 05_KITCHEN / LIVING SPACE	13.33	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 06_BEDROOM	7.32	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 06_LIVING / KITCHEN	18.45	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 07_BEDROOM	7.23	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 07_KITCHEN / LIVING	15.27	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 08_BEDROOM	7.11	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 08_KITCHEN / LIVING	12.6	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h

CIBSE TM59 - Windows shut with continuous mech. vent

Page 18 of 16

Room name	Floor area m ²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
L00 : UNIT 09_BEDROOM	7.83	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 09_KITCHEN / LIVING SPACE	15.62	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 10_BEDROOM	6.71	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 10_KITCHEN / LIVING	12.39	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 11_BEDROOM	7.94	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 11_KITCHEN / LIVING SPACE	17.06	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 12_BEDROOM	6.88	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 12_KITCHEN / LIVING SPACE	18.31	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 13_BEDROOM	6.8	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 13_KITCHEN / LIVING SPACE	12.56	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 14_BEDROOM	6.56	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 14_KITCHEN / LIVING SPACE	11.9	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 15_BEDROOM	6.77	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 15_KITCHEN / LIVING SPACE	17.08	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 16_BEDROOM	8.48	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 16_KITCHEN / LIVING SPACE	16.13	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 17_BEDROOM	7.46	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 17_KITCHEN / LIVING	12.43	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 18_BEDROOM	6.57	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h

CIBSE TM59 - Windows shut with continuous mech. vent.

Page 16 of 16

Room name	Floor area m ²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
L01 : UNIT 18_KITCHEN / LIVING	12.55	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 19_BEDROOM	8.86	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 19_KITCHEN / LIVING	15.49	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 20_BEDROOM	8.01	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 20_KITCHEN / LIVING	12.71	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 21_BEDROOM	9.26	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 21_KITCHEN / LIVING	17.58	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 22_BEDROOM	11.39	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 22_KITCHEN / LIVING	20.17	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 23_BEDROOM	9.32	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 23_KITCHEN / LIVING	18.04	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 24_BEDROOM	11.63	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 24_KITCHEN / LIVING	19.32	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h

CIBSE TM59 - Windows shut with continuous mech. vent.

Page 10 of 16

Modelled openings

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L00 : UNIT 01_ACCESSIBLE BEDROOM	19.87	0.3506, 0.3506	0.95, 0.4, 2.12, 0.4, 0.95, 0.95, 0.4	85.0, 20.0, 90.0, 20.0, 85.0, 85.0, 20.0	31.39	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	20.65	0.3506, 0.3506	2.12, 2.12, 2.12, 2.12, 1.13, 1.13, 0.95, 1.96, 0.36, 0.4	90.0, 20.0, 20.0, 90.0, 85.0, 85.0, 85.0, 20.0, 20.0, 20.0	27.15	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 02_BEDROOM	20.86	0.3506	1.91, 0.87, 0.39	90.0, 85.0, 20.0	34.05	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 02_LIVING / KITCHEN	10.91	0.3506	1.91, 1.91, 1.91, 1.91, 1.09	90.0, 20.0, 20.0, 90.0, 85.0	36.53	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 03_BEDROOM	9.15	0.6298	0.87, 0.39, 1.91	85.0, 20.0, 90.0	30.78	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 03_KITCHEN / LIVING SPACE	9.53	0.6298	1.91, 0.92, 1.91, 1.91, 1.91	90.0, 85.0, 90.0, 20.0, 20.0	31.09	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 04_BEDROOM	23.77	0.6298	0.39, 0.87, 1.91	20.0, 85.0, 90.0	38.03	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 04_KITCHEN / LIVING SPACE	38.7	0.6298	1.91, 1.91, 0.52, 0.49, 0.49, 0.52, 1.91	90.0, 90.0, 85.0, 20.0, 20.0, 85.0, 20.0	28.19	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 05_BEDROOM	11.0	0.6298	0.87, 0.39, 1.91, 1.91	85.0, 20.0, 20.0, 90.0	43.11	off continuously, ADO.AlwaysOff, 0. Internal Doors

CIBSE TM59 - Windows shut with continuous mech. vent.

Page 11 of 16

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L00 : UNIT 05_KITCHEN / LIVING SPACE	23.78	0.6298	0.99, 0.93, 1.91, 1.91, 1.91	85.0, 20.0, 90.0, 90.0, 20.0	36.37	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 06_BEDROOM	21.11	0.6298	1.91, 0.86, 0.39, 1.91	20.0, 85.0, 20.0, 90.0	39.75	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 06_LIVING / KITCHEN	11.22	0.6298	1.91, 1.91, 1.91, 0.39, 0.87, 0.86, 0.39	90.0, 20.0, 90.0, 20.0, 85.0, 85.0, 20.0	29.52	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 07_BEDROOM	23.29	0.3506	1.91, 0.69, 0.29	90.0, 85.0, 20.0	32.69	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 07_KITCHEN / LIVING	10.52	0.3506	1.91, 1.91, 1.55, 1.1	90.0, 20.0, 20.0, 85.0	21.91	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 08_BEDROOM	0.0		1.91, 1.91	90.0, 20.0	29.55	ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 08_KITCHEN / LIVING	15.63	0.6298	0.94, 0.4, 0.41, 0.94, 1.91, 1.91, 1.83	85.0, 20.0, 20.0, 85.0, 90.0, 90.0, 20.0	44.16	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 09_BEDROOM	9.95	0.3506	1.91, 0.95, 0.4	90.0, 85.0, 20.0	33.29	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 09_KITCHEN / LIVING SPACE	9.63	0.3506	0.87, 1.91, 1.91, 1.91, 1.91	85.0, 90.0, 20.0, 20.0, 90.0	31.64	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 10_BEDROOM	18.86	0.3506	1.91, 0.4, 0.89	90.0, 20.0, 85.0	38.08	off continuously, ADO.AlwaysOff, 0. Internal Doors

CIBSE TM59 - Windows shut with continuous mech. vent.

Page 2 of 16

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L00 : UNIT 10_KITCHEN / LIVING	26.57	0.3506	1.91, 1.91, 1.91, 1.91, 1.04, 0.39, 0.87	90.0, 20.0, 20.0, 90.0, 85.0, 20.0, 85.0	47.65	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 11_BEDROOM	9.25	0.6298	0.39, 0.87, 1.91	20.0, 85.0, 90.0	31.95	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 11_KITCHEN / LIVING SPACE	12.57	0.6298	1.91, 0.87, 0.39, 1.91, 1.91, 1.91	90.0, 85.0, 20.0, 90.0, 20.0, 20.0	29.42	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 12_BEDROOM	23.82	0.6298	0.39, 0.87, 1.91	20.0, 85.0, 90.0	36.87	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 12_KITCHEN / LIVING SPACE	26.15	0.6298	1.91, 1.91, 0.87, 0.39	90.0, 90.0, 85.0, 20.0	23.24	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 13_BEDROOM	10.83	0.6298	0.87, 0.39, 1.91, 1.91	85.0, 20.0, 20.0, 90.0	42.92	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 13_KITCHEN / LIVING SPACE	10.76	0.6298	0.98, 0.94, 1.91, 1.91, 1.91	85.0, 20.0, 90.0, 90.0, 20.0	38.54	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 14_BEDROOM	11.26	0.6298	0.39, 0.9, 1.76, 1.76	20.0, 85.0, 90.0, 20.0	42.36	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 14_KITCHEN / LIVING SPACE	19.5	0.6298, 0.6298	1.76, 0.98, 0.94, 0.87, 0.65, 1.76	90.0, 85.0, 20.0, 85.0, 20.0, 90.0	42.51	off continuously, ADO.AlwaysOff, 0. Internal Doors

CIBSE TM59 - Windows shut with continuous mech. vent.

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L00 : UNIT 15_BEDROOM	18.45	0.6298	1.76, 0.9, 0.39	90.0, 85.0, 20.0	35.85	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 15_KITCHEN / LIVING SPACE	38.13	0.6298	0.66, 0.37, 0.37, 0.66, 1.76, 1.76, 1.76	85.0, 20.0, 20.0, 85.0, 90.0, 90.0, 20.0	28.04	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 16_BEDROOM	8.52	0.6298	0.94, 0.39, 1.76	85.0, 20.0, 90.0	29.02	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 16_KITCHEN / LIVING SPACE	21.71	0.3506	0.8, 0.39, 0.9, 1.76, 1.76, 1.76, 1.76	85.0, 20.0, 85.0, 90.0, 20.0, 20.0, 90.0	33.45	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 17_BEDROOM	17.05	0.3506	1.76, 0.8, 0.4	90.0, 85.0, 20.0	31.42	off continuously, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 17_KITCHEN / LIVING	25.87	0.3506	1.76, 1.76, 1.76, 0.86, 0.34, 1.04, 1.76	20.0, 20.0, 90.0, 85.0, 20.0, 85.0, 90.0	44.69	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 18_BEDROOM	25.35	0.6298	1.03, 1.03, 1.76	85.0, 85.0, 90.0	50.76	off continuously, 0. Internal Doors
L01 : UNIT 18_KITCHEN / LIVING	6.76	0.6298	1.76, 1.76, 1.03, 1.76	90.0, 90.0, 85.0, 20.0	35.02	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 19_BEDROOM	7.67	0.6298	1.0, 1.91, 1.05, 1.05	85.0, 90.0, 20.0, 20.0	33.74	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 19_KITCHEN / LIVING	20.25	0.6298	1.25, 1.91, 1.91, 1.91	85.0, 20.0, 90.0, 90.0	31.52	off continuously, ADO.AlwaysOff, 0. Internal Doors

CIBSE TM59 - Windows shut with continuous mech. vent. Page 4 of 16

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L01 : UNIT 20_BEDROOM	14.54	0.3506	1.91, 1.91, 1.0, 1.0	20.0, 90.0, 85.0, 85.0	47.45	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 20_KITCHEN / LIVING	22.06	0.3506	1.91, 1.91, 1.91, 0.77, 1.0	90.0, 20.0, 90.0, 85.0, 85.0	41.89	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 21_BEDROOM	18.14	0.3506	1.13, 1.91, 1.91	85.0, 90.0, 20.0	33.06	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 21_KITCHEN / LIVING	12.33	0.6298	1.03, 1.03, 1.91, 1.91, 1.91	85.0, 85.0, 90.0, 20.0, 90.0	31.69	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 22_BEDROOM	14.7	0.6298	1.31, 1.03, 1.91	85.0, 85.0, 90.0	32.55	off continuously, 0. Internal Doors
L01 : UNIT 22_KITCHEN / LIVING	10.64	0.3506	1.91, 1.91, 1.91, 1.91, 1.03, 1.03	20.0, 90.0, 90.0, 20.0, 85.0, 85.0	29.51	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 23_BEDROOM	15.95	0.6298	1.91, 0.07, 0.93, 1.91	90.0, 85.0, 85.0, 20.0	31.66	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 23_KITCHEN / LIVING	14.05	0.6298	1.2, 1.2, 1.91, 1.91, 1.91	85.0, 85.0, 90.0, 90.0, 20.0	32.48	off continuously, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 24_BEDROOM	15.05	0.6298	1.2, 1.2, 1.91	85.0, 85.0, 90.0	32.32	off continuously, 0. Internal Doors
L01 : UNIT 24_KITCHEN / LIVING	10.8	0.3506	1.91, 1.91, 1.91, 1.91, 1.02, 1.02	90.0, 90.0, 20.0, 20.0, 85.0, 85.0	30.72	off continuously, ADO.AlwaysOff, 0. Internal Doors

CIBSE TM59 - Windows shut with continuous mech. vent. Page 15 of 16

Modelled ventilation

Room name	Infiltration rate ACH	Mech vent flow rate ACH
L00 : UNIT 01_ACCESSIBLE BEDROOM	0.25	1.87
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	0.25	0.93
L00 : UNIT 02_BEDROOM	0.25	3.65
L00 : UNIT 02_LIVING / KITCHEN	0.25	1.93
L00 : UNIT 03_BEDROOM	0.25	3.72
L00 : UNIT 03_KITCHEN / LIVING SPACE	0.25	1.91
L00 : UNIT 04_BEDROOM	0.25	4.59
L00 : UNIT 04_KITCHEN / LIVING SPACE	0.25	1.56
L00 : UNIT 05_BEDROOM	0.25	4.53
L00 : UNIT 05_KITCHEN / LIVING SPACE	0.25	2.55
L00 : UNIT 06_BEDROOM	0.25	3.71
L00 : UNIT 06_LIVING / KITCHEN	0.25	1.47
L00 : UNIT 07_BEDROOM	0.25	3.76
L00 : UNIT 07_KITCHEN / LIVING	0.25	1.78
L00 : UNIT 08_BEDROOM	0.25	3.82
L00 : UNIT 08_KITCHEN / LIVING	0.25	2.43
L00 : UNIT 09_BEDROOM	0.25	3.91
L00 : UNIT 09_KITCHEN / LIVING SPACE	0.25	1.96
L00 : UNIT 10_BEDROOM	0.25	4.05
L00 : UNIT 10_KITCHEN / LIVING	0.25	2.19
L00 : UNIT 11_BEDROOM	0.25	3.86
L00 : UNIT 11_KITCHEN / LIVING SPACE	0.25	1.8
L00 : UNIT 12_BEDROOM	0.25	4.45
L00 : UNIT 12_KITCHEN / LIVING SPACE	0.25	1.67
L00 : UNIT 13_BEDROOM	0.25	4.5
L00 : UNIT 13_KITCHEN / LIVING SPACE	0.25	2.16
L00 : UNIT 14_BEDROOM	0.25	4.67
L00 : UNIT 14_KITCHEN / LIVING SPACE	0.25	2.28
L00 : UNIT 15_BEDROOM	0.25	4.52
L00 : UNIT 15_KITCHEN / LIVING SPACE	0.25	1.59
L00 : UNIT 16_BEDROOM	0.25	3.61
L00 : UNIT 16_KITCHEN / LIVING SPACE	0.25	1.9
L00 : UNIT 17_BEDROOM	0.25	3.64
L00 : UNIT 17_KITCHEN / LIVING	0.25	2.19
L01 : UNIT 18_BEDROOM	0.25	7.0
L01 : UNIT 18_KITCHEN / LIVING	0.25	5.49
L01 : UNIT 19_BEDROOM	0.25	6.05
L01 : UNIT 19_KITCHEN / LIVING	0.25	4.45
L01 : UNIT 20_BEDROOM	0.25	5.74
L01 : UNIT 20_KITCHEN / LIVING	0.25	7.23

CIBSE TM59 - Windows shut with continuous mech. vent.

Page 16 of 16

Room name	Infiltration rate ACH	Mech vent flow rate ACH
L01 : UNIT 21_BEDROOM	0.25	4.96
L01 : UNIT 21_KITCHEN / LIVING	0.25	4.36
L01 : UNIT 22_BEDROOM	0.25	4.03
L01 : UNIT 22_KITCHEN / LIVING	0.25	2.66
L01 : UNIT 23_BEDROOM	0.25	4.93
L01 : UNIT 23_KITCHEN / LIVING	0.25	2.97
L01 : UNIT 24_BEDROOM	0.25	3.95
L01 : UNIT 24_KITCHEN / LIVING	0.25	5.55

Appendix B. Scenario 2: CIBSE TM59 Results

The following report is generated via the IES VE modelling software. Whilst this references Approved Document O of the English Building Regulations, it is based on the CIBSE TM59 methodology.

Approved Document O report
Overheating risk in residential buildings
for
CIBSE TM59 - Windows open during daytime and shut
during sleeping hours

CIBSE TM59 - Windows open during daytime and shut during sleeping hours

Building details

Project name: CIBSE TM59 - Windows open during daytime and shut during sleeping hours	Date: 19-06-2024 11:20:49
Location: 69 Dickenson Road, Manchester	
Address: 69 Dickenson Road, Longsight, Manchester	
Building use: Homelessness Accommodation	
Are there any security, noise, or pollution issues: Refer to noise impact assessment	

Designer's details

Designer's name:
Designer's organization: ECS Consultants Limited
Designer's address: 148 Stockport Road Cheadle Cheshire SK8 2DP

Dynamic thermal model

Software: IESVE version 2023.5.1.0	
Weather file: Manchester_DSY1_2020High50_.epw	
Results file: 0455 - TM59_004.aps	
Number of rooms analysed: 48	
TM59: summer elevated air speed: 0.1	
TM59: occupant category: Category II (normal)	
Overheating mitigation strategy: As described in report	
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
Designer's signature:	

CIBSE TM59 - Windows open during daytime and shut during

Summary

CIBSE TM59 overheating methodology for predominantly naturally ventilated rooms assesses against two criteria, (a) and (b) (for Category I occupancy, T_{max} 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 of MacroFlo types / scripted profiles in the model (see Modelled Openings Section).

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.

Room name	Naturally ventilated Criterion a check	Naturally ventilated Criterion b check	Mechanically ventilated check	Corridor overheating risk check
L00 : UNIT 01_ACCESSIBLE BEDROOM	Pass	Pass	-	-
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 02_BEDROOM	Pass	Pass	-	-
L00 : UNIT 02_LIVING / KITCHEN	Pass	N/A	-	-
L00 : UNIT 03_BEDROOM	Pass	Pass	-	-
L00 : UNIT 03_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 04_BEDROOM	Pass	Pass	-	-
L00 : UNIT 04_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 05_BEDROOM	Pass	Pass	-	-
L00 : UNIT 05_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 06_BEDROOM	Pass	Pass	-	-
L00 : UNIT 06_LIVING / KITCHEN	Pass	N/A	-	-
L00 : UNIT 07_BEDROOM	Pass	Pass	-	-
L00 : UNIT 07_KITCHEN / LIVING	Pass	N/A	-	-
L00 : UNIT 08_BEDROOM	Pass	Pass	-	-

CIBSE TM59 - Windows open during daytime and shut during night

Room name	Naturally ventilated Criterion a check	Naturally ventilated Criterion b check	Mechanically ventilated check	Corridor overheating risk check
L00 : UNIT 08_KITCHEN / LIVING	Pass	N/A	-	-
L00 : UNIT 09_BEDROOM	Pass	Pass	-	-
L00 : UNIT 09_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 10_BEDROOM	Pass	Pass	-	-
L00 : UNIT 10_KITCHEN / LIVING	Pass	N/A	-	-
L00 : UNIT 11_BEDROOM	Pass	Pass	-	-
L00 : UNIT 11_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 12_BEDROOM	Pass	Pass	-	-
L00 : UNIT 12_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 13_BEDROOM	Pass	Pass	-	-
L00 : UNIT 13_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 14_BEDROOM	Pass	Pass	-	-
L00 : UNIT 14_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 15_BEDROOM	Pass	Pass	-	-
L00 : UNIT 15_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 16_BEDROOM	Pass	Pass	-	-
L00 : UNIT 16_KITCHEN / LIVING SPACE	Pass	N/A	-	-
L00 : UNIT 17_BEDROOM	Pass	Pass	-	-
L00 : UNIT 17_KITCHEN / LIVING	Pass	N/A	-	-
L01 : UNIT 18_BEDROOM	Pass	Pass	-	-
L01 : UNIT 18_KITCHEN / LIVING	Pass	N/A	-	-
L01 : UNIT 19_BEDROOM	Pass	Pass	-	-
L01 : UNIT 19_KITCHEN / LIVING	Pass	N/A	-	-

CIBSE TM59 - Windows open during daytime and shut during night

Room name	Naturally ventilated Criterion a check	Naturally ventilated Criterion b check	Mechanically ventilated check	Corridor overheating risk check
L01 : UNIT 20_BEDROOM	Pass	Pass	-	-
L01 : UNIT 20_KITCHEN / LIVING	Pass	N/A	-	-
L01 : UNIT 21_BEDROOM	Pass	Pass	-	-
L01 : UNIT 21_KITCHEN / LIVING	Pass	N/A	-	-
L01 : UNIT 22_BEDROOM	Pass	Pass	-	-
L01 : UNIT 22_KITCHEN / LIVING	Pass	N/A	-	-
L01 : UNIT 23_BEDROOM	Pass	Pass	-	-
L01 : UNIT 23_KITCHEN / LIVING	Pass	N/A	-	-
L01 : UNIT 24_BEDROOM	Pass	Pass	-	-
L01 : UNIT 24_KITCHEN / LIVING	Pass	N/A	-	-

CIBSE TM59 - Windows open during daytime and shut during night

Naturally ventilated rooms – criterion (a)

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.

Room name	Occupied hours	No. hours $\Delta T \geq 1^\circ\text{K}$	% Occupied hours $\Delta T \geq 1^\circ\text{K}$	Criterion a check
L00 : UNIT 01_ACCESSIBLE BEDROOM	3672	4	0.1	Pass
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	1989	3	0.2	Pass
L00 : UNIT 02_BEDROOM	3672	6	0.2	Pass
L00 : UNIT 02_LIVING / KITCHEN	1989	8	0.4	Pass
L00 : UNIT 03_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 03_KITCHEN / LIVING SPACE	1989	0	0.0	Pass
L00 : UNIT 04_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 04_KITCHEN / LIVING SPACE	1989	0	0.0	Pass
L00 : UNIT 05_BEDROOM	3672	3	0.1	Pass
L00 : UNIT 05_KITCHEN / LIVING SPACE	1989	9	0.5	Pass
L00 : UNIT 06_BEDROOM	3672	1	0.0	Pass
L00 : UNIT 06_LIVING / KITCHEN	1989	3	0.2	Pass
L00 : UNIT 07_BEDROOM	3672	3	0.1	Pass
L00 : UNIT 07_KITCHEN / LIVING	1989	5	0.3	Pass
L00 : UNIT 08_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 08_KITCHEN / LIVING	1989	0	0.0	Pass
L00 : UNIT 09_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 09_KITCHEN / LIVING SPACE	1989	0	0.0	Pass
L00 : UNIT 10_BEDROOM	3672	8	0.2	Pass

CIBSE TM59 - Windows open during daytime and shut during night

Room name	Occupied hours	No. hours $\Delta T \geq 1^\circ\text{K}$	% Occupied hours $\Delta T \geq 1^\circ\text{K}$	Criterion a check
L00 : UNIT 10_KITCHEN / LIVING	1989	6	0.3	Pass
L00 : UNIT 11_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 11_KITCHEN / LIVING SPACE	1989	0	0.0	Pass
L00 : UNIT 12_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 12_KITCHEN / LIVING SPACE	1989	0	0.0	Pass
L00 : UNIT 13_BEDROOM	3672	3	0.1	Pass
L00 : UNIT 13_KITCHEN / LIVING SPACE	1989	7	0.4	Pass
L00 : UNIT 14_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 14_KITCHEN / LIVING SPACE	1989	4	0.2	Pass
L00 : UNIT 15_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 15_KITCHEN / LIVING SPACE	1989	5	0.3	Pass
L00 : UNIT 16_BEDROOM	3672	0	0.0	Pass
L00 : UNIT 16_KITCHEN / LIVING SPACE	1989	0	0.0	Pass
L00 : UNIT 17_BEDROOM	3672	16	0.4	Pass
L00 : UNIT 17_KITCHEN / LIVING	1989	21	1.1	Pass
L01 : UNIT 18_BEDROOM	3672	26	0.7	Pass
L01 : UNIT 18_KITCHEN / LIVING	1989	26	1.3	Pass
L01 : UNIT 19_BEDROOM	3672	52	1.4	Pass
L01 : UNIT 19_KITCHEN / LIVING	1989	26	1.3	Pass
L01 : UNIT 20_BEDROOM	3672	46	1.3	Pass
L01 : UNIT 20_KITCHEN / LIVING	1989	45	2.3	Pass
L01 : UNIT 21_BEDROOM	3672	4	0.1	Pass
L01 : UNIT 21_KITCHEN / LIVING	1989	6	0.3	Pass

CIBSE TM59 - Windows open during daytime and shut during night

Room name	Occupied hours	No. hours $\Delta T \geq 1^{\circ}\text{K}$	% Occupied hours $\Delta T \geq 1^{\circ}\text{K}$	Criterion a check
L01 : UNIT 22_BEDROOM	3672	6	0.2	Pass
L01 : UNIT 22_KITCHEN / LIVING	1989	11	0.6	Pass
L01 : UNIT 23_BEDROOM	3672	7	0.2	Pass
L01 : UNIT 23_KITCHEN / LIVING	1989	5	0.3	Pass
L01 : UNIT 24_BEDROOM	3672	10	0.3	Pass
L01 : UNIT 24_KITCHEN / LIVING	1989	18	0.9	Pass

CIBSE TM59 - Windows open during daytime and shut during night

Naturally ventilated rooms – criterion (b)

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). Any rooms that are not bedrooms are therefore not assessed, hence the corresponding N/A values.

Room name	No. hours > 26°C 22:00-24:00	No. hours > 26°C 00:00-07:00	Total hours > 26°C	Criterion b check
L00 : UNIT 01_ACCESSIBLE BEDROOM	0	0	0	Pass
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 02_BEDROOM	8	18	26	Pass
L00 : UNIT 02_LIVING / KITCHEN	N/A	N/A	N/A	N/A
L00 : UNIT 03_BEDROOM	0	0	0	Pass
L00 : UNIT 03_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 04_BEDROOM	8	18	26	Pass
L00 : UNIT 04_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 05_BEDROOM	9	20	29	Pass
L00 : UNIT 05_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 06_BEDROOM	7	21	28	Pass
L00 : UNIT 06_LIVING / KITCHEN	N/A	N/A	N/A	N/A
L00 : UNIT 07_BEDROOM	8	18	26	Pass
L00 : UNIT 07_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L00 : UNIT 08_BEDROOM	14	8	22	Pass
L00 : UNIT 08_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L00 : UNIT 09_BEDROOM	1	1	2	Pass
L00 : UNIT 09_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 10_BEDROOM	8	22	30	Pass

CIBSE TM59 - Windows open during daytime and shut during night

Room name	No. hours > 26°C 22:00-24:00	No. hours > 26°C 00:00-07:00	Total hours > 26°C	Criterion b check
L00 : UNIT 10_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L00 : UNIT 11_BEDROOM	1	2	3	Pass
L00 : UNIT 11_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 12_BEDROOM	8	17	25	Pass
L00 : UNIT 12_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 13_BEDROOM	8	18	26	Pass
L00 : UNIT 13_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 14_BEDROOM	4	8	12	Pass
L00 : UNIT 14_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 15_BEDROOM	8	17	25	Pass
L00 : UNIT 15_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 16_BEDROOM	1	2	3	Pass
L00 : UNIT 16_KITCHEN / LIVING SPACE	N/A	N/A	N/A	N/A
L00 : UNIT 17_BEDROOM	8	22	30	Pass
L00 : UNIT 17_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L01 : UNIT 18_BEDROOM	4	19	23	Pass
L01 : UNIT 18_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L01 : UNIT 19_BEDROOM	11	13	24	Pass
L01 : UNIT 19_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L01 : UNIT 20_BEDROOM	4	4	8	Pass
L01 : UNIT 20_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L01 : UNIT 21_BEDROOM	5	18	23	Pass
L01 : UNIT 21_KITCHEN / LIVING	N/A	N/A	N/A	N/A

CIBSE TM59 - Windows open during daytime and shut during night

Room name	No. hours > 26°C 22:00-24:00	No. hours > 26°C 00:00-07:00	Total hours > 26°C	Criterion b check
L01 : UNIT 22_BEDROOM	0	0	0	Pass
L01 : UNIT 22_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L01 : UNIT 23_BEDROOM	3	10	13	Pass
L01 : UNIT 23_KITCHEN / LIVING	N/A	N/A	N/A	N/A
L01 : UNIT 24_BEDROOM	0	0	0	Pass
L01 : UNIT 24_KITCHEN / LIVING	N/A	N/A	N/A	N/A

Mechanically ventilated rooms

CIBSE TM59 overheating methodology for predominantly mech. vent. rooms states the operative temperature of all rooms shall not exceed 26°C for more than 3% of annual occupied hours.

Room name	No. hours > 26°C	% Annual hours > 26°C	Mechanically ventilated check
No mech vent rooms	N/A	N/A	N/A

Communal corridors

CIBSE TM59 states that whilst there is no mandatory target for communal corridors, if an operative temperature of 28°C is exceeded for more than 3% of annual hours, then this should be identified as a significant risk within the TM59 overheating report.

Room name	No. hours > 28°C	% Annual hours > 28°C	Corridor overheating risk check
No corridors	N/A	N/A	N/A

CIBSE TM59 - Windows open during daytime and shut during night

Modelled details & overheating mitigation strategy

Approved document O: Providing Information & Appendix B requires information about the model and the overheating mitigation strategy. The following tables detail the modelling method and mitigation strategies applied to each analysed room. Where multiple active openings per space (windows & louvres) exist they are all listed. Occupancy, equipment and lighting profiles for occupied rooms comply with TM59 section 5.

Modelled occupancy

Room name	Floor area m ²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
L00 : UNIT 01_ACCESSIBLE BEDROOM	14.56	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	29.23	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 02_BEDROOM	7.45	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 02_LIVING / KITCHEN	14.04	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 03_BEDROOM	8.24	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 03_KITCHEN / LIVING SPACE	16.03	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 04_BEDROOM	6.67	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 04_KITCHEN / LIVING SPACE	17.38	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 05_BEDROOM	6.77	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 05_KITCHEN / LIVING SPACE	13.33	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 06_BEDROOM	7.32	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 06_LIVING / KITCHEN	18.45	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 07_BEDROOM	7.23	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 07_KITCHEN / LIVING	15.27	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 08_BEDROOM	7.11	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 08_KITCHEN / LIVING	12.6	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h

CIBSE TM59 - Windows open during daytime and shut during

Room name	Floor area m ²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
L00 : UNIT 09_BEDROOM	7.83	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 09_KITCHEN / LIVING SPACE	15.62	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 10_BEDROOM	6.71	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 10_KITCHEN / LIVING	12.39	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 11_BEDROOM	7.94	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 11_KITCHEN / LIVING SPACE	17.06	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 12_BEDROOM	6.88	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 12_KITCHEN / LIVING SPACE	18.31	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 13_BEDROOM	6.8	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 13_KITCHEN / LIVING SPACE	12.56	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 14_BEDROOM	6.56	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 14_KITCHEN / LIVING SPACE	11.9	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 15_BEDROOM	6.77	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 15_KITCHEN / LIVING SPACE	17.08	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 16_BEDROOM	8.48	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 16_KITCHEN / LIVING SPACE	16.13	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L00 : UNIT 17_BEDROOM	7.46	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L00 : UNIT 17_KITCHEN / LIVING	12.43	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 18_BEDROOM	6.57	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h

CIBSE TM59 - Windows open during daytime and shut during night

Room name	Floor area m ²	Thermal template	Occupancy profile	Equipment profile	Lighting profile
L01 : UNIT 18_KITCHEN / LIVING	12.55	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 19_BEDROOM	8.86	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 19_KITCHEN / LIVING	15.49	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 20_BEDROOM	8.01	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 20_KITCHEN / LIVING	12.71	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 21_BEDROOM	9.26	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 21_KITCHEN / LIVING	17.58	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 22_BEDROOM	11.39	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 22_KITCHEN / LIVING	20.17	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 23_BEDROOM	9.32	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 23_KITCHEN / LIVING	18.04	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h
L01 : UNIT 24_BEDROOM	11.63	TM59 - Single Bedroom	Single Bedroom Occupancy	Single Bedroom Equipment	18-23h
L01 : UNIT 24_KITCHEN / LIVING	19.32	TM59 - 1 Bedroom - Living / Kitchen	Living / Kitchen Occupancy	Living / Kitchen Equipment	18-23h

CIBSE TM59 - Windows open during daytime and shut during

Modelled openings

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L00 : UNIT 01_ACCESSIBLE BEDROOM	19.87	0.3506, 0.3506	0.95, 0.4, 2.12, 0.4, 0.95, 0.95, 0.4	85.0, 20.0, 90.0, 20.0, 85.0, 85.0, 20.0	31.39	0. Internal Doors, ADO.AlwaysOff, ADO. Section_26a
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	20.65	0.3506, 0.3506	2.12, 2.12, 2.12, 2.12, 1.13, 1.13, 0.95, 1.96, 0.36, 0.4	90.0, 20.0, 20.0, 90.0, 85.0, 85.0, 85.0, 20.0, 20.0, 20.0	27.15	ADO. Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 02_BEDROOM	20.86	0.3506	1.91, 0.87, 0.39	90.0, 85.0, 20.0	34.05	ADO. Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 02_LIVING / KITCHEN	10.91	0.3506	1.91, 1.91, 1.91, 1.91, 1.09	90.0, 20.0, 20.0, 90.0, 85.0	36.53	ADO. Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 03_BEDROOM	9.15	0.6298	0.87, 0.39, 1.91	85.0, 20.0, 90.0	30.78	0. Internal Doors, ADO.AlwaysOff, ADO. Section_26a
L00 : UNIT 03_KITCHEN / LIVING SPACE	9.53	0.6298	1.91, 0.92, 1.91, 1.91, 1.91	90.0, 85.0, 90.0, 20.0, 20.0	31.09	ADO. Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 04_BEDROOM	23.77	0.6298	0.39, 0.87, 1.91	20.0, 85.0, 90.0	38.03	0. Internal Doors, ADO.AlwaysOff, ADO. Section_26a
L00 : UNIT 04_KITCHEN / LIVING SPACE	38.7	0.6298	1.91, 1.91, 0.52, 0.49, 0.49, 0.52, 1.91	90.0, 90.0, 85.0, 20.0, 20.0, 85.0, 20.0	28.19	ADO. Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 05_BEDROOM	11.0	0.6298	0.87, 0.39, 1.91, 1.91	85.0, 20.0, 20.0, 90.0	43.11	0. Internal Doors, ADO.AlwaysOff, ADO. Section_26a
L00 : UNIT 05_KITCHEN / LIVING SPACE	23.78	0.6298	0.99, 0.93, 1.91, 1.91, 1.91	85.0, 20.0, 90.0, 90.0, 20.0	36.37	0. Internal Doors, ADO.AlwaysOff, ADO. Section_26a
L00 : UNIT 06_BEDROOM	21.11	0.6298	1.91, 0.86, 0.39, 1.91	20.0, 85.0, 20.0, 90.0	39.75	0. Internal Doors, ADO.AlwaysOff, ADO. Section_26a

CIBSE TM59 - Windows open during daytime and shut during

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L00 : UNIT 06_LIVING / KITCHEN	11.22	0.6298	1.91, 1.91, 1.91, 0.39, 0.87, 0.86, 0.39	90.0, 20.0, 90.0, 20.0, 85.0, 85.0, 20.0	29.52	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 07_BEDROOM	23.29	0.3506	1.91, 0.69, 0.29	90.0, 85.0, 20.0	32.69	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 07_KITCHEN / LIVING	10.52	0.3506	1.91, 1.91, 1.55, 1.1	90.0, 20.0, 20.0, 85.0	21.91	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 08_BEDROOM	0.0		1.91, 1.91	90.0, 20.0	29.55	ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 08_KITCHEN / LIVING	15.63	0.6298	0.94, 0.4, 0.41, 0.94, 1.91, 1.91, 1.83	85.0, 20.0, 20.0, 85.0, 90.0, 90.0, 20.0	44.16	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 09_BEDROOM	9.95	0.3506	1.91, 0.95, 0.4	90.0, 85.0, 20.0	33.29	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 09_KITCHEN / LIVING SPACE	9.63	0.3506	0.87, 1.91, 1.91, 1.91, 1.91	85.0, 90.0, 20.0, 20.0, 90.0	31.64	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 10_BEDROOM	18.86	0.3506	1.91, 0.4, 0.89	90.0, 20.0, 85.0	38.08	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 10_KITCHEN / LIVING	26.57	0.3506	1.91, 1.91, 1.91, 1.91, 1.04, 0.39, 0.87	90.0, 20.0, 20.0, 90.0, 85.0, 20.0, 85.0	47.65	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 11_BEDROOM	9.25	0.6298	0.39, 0.87, 1.91	20.0, 85.0, 90.0	31.95	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 11_KITCHEN / LIVING SPACE	12.57	0.6298	1.91, 0.87, 0.39, 1.91, 1.91, 1.91	90.0, 85.0, 20.0, 90.0, 20.0, 20.0	29.42	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 12_BEDROOM	23.82	0.6298	0.39, 0.87, 1.91	20.0, 85.0, 90.0	36.87	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a

CIBSE TM59 - Windows open during daytime and shut during

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L00 : UNIT 12_KITCHEN / LIVING SPACE	26.15	0.6298	1.91, 1.91, 0.87, 0.39	90.0, 90.0, 85.0, 20.0	23.24	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 13_BEDROOM	10.83	0.6298	0.87, 0.39, 1.91, 1.91	85.0, 20.0, 20.0, 90.0	42.92	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 13_KITCHEN / LIVING SPACE	10.76	0.6298	0.98, 0.94, 1.91, 1.91, 1.91	85.0, 20.0, 90.0, 90.0, 20.0	38.54	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 14_BEDROOM	11.26	0.6298	0.39, 0.9, 1.76, 1.76	20.0, 85.0, 90.0, 20.0	42.36	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 14_KITCHEN / LIVING SPACE	19.5	0.6298, 0.6298	1.76, 0.98, 0.94, 0.87, 0.65, 1.76	90.0, 85.0, 20.0, 85.0, 20.0, 90.0	42.51	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 15_BEDROOM	18.45	0.6298	1.76, 0.9, 0.39	90.0, 85.0, 20.0	35.85	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 15_KITCHEN / LIVING SPACE	38.13	0.6298	0.66, 0.37, 0.37, 0.66, 1.76, 1.76, 1.76	85.0, 20.0, 20.0, 85.0, 90.0, 90.0, 20.0	28.04	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 16_BEDROOM	8.52	0.6298	0.94, 0.39, 1.76	85.0, 20.0, 90.0	29.02	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 16_KITCHEN / LIVING SPACE	21.71	0.3506	0.8, 0.39, 0.9, 1.76, 1.76, 1.76, 1.76	85.0, 20.0, 85.0, 90.0, 20.0, 20.0, 90.0	33.45	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L00 : UNIT 17_BEDROOM	17.05	0.3506	1.76, 0.8, 0.4	90.0, 85.0, 20.0	31.42	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L00 : UNIT 17_KITCHEN / LIVING	25.87	0.3506	1.76, 1.76, 1.76, 0.86, 0.34, 1.04, 1.76	20.0, 20.0, 90.0, 85.0, 20.0, 85.0, 90.0	44.69	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 18_BEDROOM	25.35	0.6298	1.03, 1.03, 1.76	85.0, 85.0, 90.0	50.76	0. Internal Doors, ADO.Section_26a

CIBSE TM59 - Windows open during daytime and shut during

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m ²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L01 : UNIT 18_KITCHEN / LIVING	6.76	0.6298	1.76, 1.76, 1.03, 1.76	90.0, 90.0, 85.0, 20.0	35.02	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 19_BEDROOM	7.67	0.6298	1.0, 1.91, 1.05, 1.05	85.0, 90.0, 20.0, 20.0	33.74	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L01 : UNIT 19_KITCHEN / LIVING	20.25	0.6298	1.25, 1.91, 1.91, 1.91	85.0, 20.0, 90.0, 90.0	31.52	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L01 : UNIT 20_BEDROOM	14.54	0.3506	1.91, 1.91, 1.0, 1.0	20.0, 90.0, 85.0, 85.0	47.45	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 20_KITCHEN / LIVING	22.06	0.3506	1.91, 1.91, 1.91, 0.77, 1.0	90.0, 20.0, 90.0, 85.0, 85.0	41.89	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 21_BEDROOM	18.14	0.3506	1.13, 1.91, 1.91	85.0, 90.0, 20.0	33.06	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L01 : UNIT 21_KITCHEN / LIVING	12.33	0.6298	1.03, 1.03, 1.91, 1.91, 1.91	85.0, 85.0, 90.0, 20.0, 90.0	31.69	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L01 : UNIT 22_BEDROOM	14.7	0.6298	1.31, 1.03, 1.91	85.0, 85.0, 90.0	32.55	0. Internal Doors, ADO.Section_26a
L01 : UNIT 22_KITCHEN / LIVING	10.64	0.3506	1.91, 1.91, 1.91, 1.91, 1.03, 1.03	20.0, 90.0, 90.0, 20.0, 85.0, 85.0	29.51	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 23_BEDROOM	15.95	0.6298	1.91, 0.07, 0.93, 1.91	90.0, 85.0, 85.0, 20.0	31.66	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors
L01 : UNIT 23_KITCHEN / LIVING	14.05	0.6298	1.2, 1.2, 1.91, 1.91, 1.91	85.0, 85.0, 90.0, 90.0, 20.0	32.48	0. Internal Doors, ADO.AlwaysOff, ADO.Section_26a
L01 : UNIT 24_BEDROOM	15.05	0.6298	1.2, 1.2, 1.91	85.0, 85.0, 90.0	32.32	0. Internal Doors, ADO.Section_26a

CIBSE TM59 - Windows open during daytime and shut during night

Room name	Window to wall ratio %	Window g-value (EN 410)	Opening gross area m²	Opening free area (avg) %	Opening free area / floor area ratio %	Opening profile(s)
L01 : UNIT 24_KITCHEN / LIVING	10.8	0.3506	1.91, 1.91, 1.91, 1.91, 1.02, 1.02	90.0, 90.0, 20.0, 20.0, 85.0, 85.0	30.72	ADO.Section_26a, ADO.AlwaysOff, 0. Internal Doors

CIBSE TM59 - Windows open during daytime and shut during night

Modelled ventilation

Room name	Infiltration rate ACH	Mech vent flow rate ACH
L00 : UNIT 01_ACCESSIBLE BEDROOM	0.25	0.0
L00 : UNIT 01_ACCESSIBLE KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 02_BEDROOM	0.25	0.91
L00 : UNIT 02_LIVING / KITCHEN	0.25	0.0
L00 : UNIT 03_BEDROOM	0.25	0.0
L00 : UNIT 03_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 04_BEDROOM	0.25	1.15
L00 : UNIT 04_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 05_BEDROOM	0.25	0.0
L00 : UNIT 05_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 06_BEDROOM	0.25	0.0
L00 : UNIT 06_LIVING / KITCHEN	0.25	0.0
L00 : UNIT 07_BEDROOM	0.25	0.94
L00 : UNIT 07_KITCHEN / LIVING	0.25	0.0
L00 : UNIT 08_BEDROOM	0.25	1.91
L00 : UNIT 08_KITCHEN / LIVING	0.25	0.0
L00 : UNIT 09_BEDROOM	0.25	0.0
L00 : UNIT 09_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 10_BEDROOM	0.25	0.0
L00 : UNIT 10_KITCHEN / LIVING	0.25	0.0
L00 : UNIT 11_BEDROOM	0.25	0.0
L00 : UNIT 11_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 12_BEDROOM	0.25	1.11
L00 : UNIT 12_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 13_BEDROOM	0.25	0.0
L00 : UNIT 13_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 14_BEDROOM	0.25	0.0
L00 : UNIT 14_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 15_BEDROOM	0.25	1.13
L00 : UNIT 15_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 16_BEDROOM	0.25	0.0
L00 : UNIT 16_KITCHEN / LIVING SPACE	0.25	0.0
L00 : UNIT 17_BEDROOM	0.25	0.0
L00 : UNIT 17_KITCHEN / LIVING	0.25	0.0
L01 : UNIT 18_BEDROOM	0.25	0.0
L01 : UNIT 18_KITCHEN / LIVING	0.25	0.0
L01 : UNIT 19_BEDROOM	0.25	2.59
L01 : UNIT 19_KITCHEN / LIVING	0.25	0.0
L01 : UNIT 20_BEDROOM	0.25	0.0
L01 : UNIT 20_KITCHEN / LIVING	0.25	0.0

CIBSE TM59 - Windows open during daytime and shut during night

Room name	Infiltration rate ACH	Mech vent flow rate ACH
L01 : UNIT 21_BEDROOM	0.25	0.0
L01 : UNIT 21_KITCHEN / LIVING	0.25	0.0
L01 : UNIT 22_BEDROOM	0.25	0.0
L01 : UNIT 22_KITCHEN / LIVING	0.25	0.0
L01 : UNIT 23_BEDROOM	0.25	0.0
L01 : UNIT 23_KITCHEN / LIVING	0.25	0.0
L01 : UNIT 24_BEDROOM	0.25	0.0
L01 : UNIT 24_KITCHEN / LIVING	0.25	0.0