PART O COMPLIANCE CHECKLIST

SHERWOOD, CASTLE VIEW

JSP SUSTAINABILITY LTD
SEPTEMBER 2025

1 BUILDING DETAILS & DECLARATION

1.1 Building & site details	
Residential building name or number	Sherwood – plot 250
Street	Moor Road
Town	Netherton
County	West Yorkshire
Postcode	HD4
Proposed building use/type of building	Residential
Are there any security, noise or pollution issues?	Noise – Openings in bedroom 1 must be closed at night.
1.2 Designer's details	
Designer's name	
Company	Persimmon Homes
Address line 1	Persimmon House
Address line 2	Lingcroft Lane, Fulford
Postcode	YO19 4FE
Telephone number	
Email address	
1.3 Assessor's details	
Designer's name	James Browbank
Company	JSP Sustainability Limited
Address line 1	IT Centre, York Science Park
Address line 2	York
Postcode	YO10 5NP
Telephone number	01904 217325
Email address	admin@jspsustainability.co.uk
1.4 Designer's declaration	
Has the building geometry, fabric & services specification been modelled accurately?	Yes
Assessor's name	James Browbank
Assessor's organisation	JSP Sustainability Limited
Date of assessment	09/09/2025

2 DESIGN DETAILS (DYNAMIC MODEL)

2b.1 Modelling details	
Dynamic software name & version	DesignBuilder Energy Plus 7.3.1.3
Weather file location used, including any additional, more extreme weather files	CIBSE Leeds DSY1 (2020 50th percentile, high emissions)
Number of sample units modelled, including an explanation of why the size selection has been chosen	House type modelled in the orientation plotted.
2b.2 Modelled occupancy	
Has the project passed the assessment described in CIBSE TM59, taking into account the limits detailed in paragraphs 2.5 and 2.6?	Yes
Details of the occupancy profiles used	TM59 occupancy profiles
Details of the equipment profiles used	TM59 equipment profiles
Details of the opening profiles used	AD O opening protocols
2b.3 Modelled overheating mitigation strategy	
Free areas	See section 3
Infilitration and mechanical flow rates	See section 3
Window g-value	0.71 (glass centre pane)
Shading strategy	None
Mechanical cooling	None
2b.4 Modelling results	
Has the project passed the assessment described in CIBSE's TM59, taking into account the limits detailed in paragraphs 2.5 and 2.6?	Yes
What is the overall overheating strategy (i.e. what design features are key to the project passing)?	Ability to open windows in warm weather. Mechanical purge ventilation in bedrooms (See 3.4.4).

3 MODEL INPUTS

3.1 Drawings

The house type drawings were provided by Persimmon Homes with full reference;

Sherwood_Trad_Det_R21G_Rev09

3.2 Building Fabric

Element	Description	U-Value
External Wall	Traditional construction including aircrete block inner leaf with 100mm blown fibre insulation and 12.5mm plasterboard finish.	0.24
Ground Floor	Suspended beam and block EPS floor system	0.12
Roof	500mm loft roll insulation between & over roof joists.	0.09
Internal Wall	Plasterboard on dabs on concrete block	N/A
Internal Wall	Plasterboard on timber framework	N/A
Windows	uPVC double glazed achieving centre pane g-value of 0.71	1.30
Thermal Mass	Calculated.	N/A
Air Leakage	Good crack template selected within DSM.	N/A

3.3 Building Fabric

The assessment is based on the window opening schedules contained within the TM59: 2017 methodology, as amended by Part O of the Building Regulations. Furthermore, the dynamic modelling accounts for windows opening no more than 650mm from the inside face of the plasterboard to the window handle and the presence of guarding where necessary to comply with paragraphs 3.8, 3.9 and 3.10 of Approved Document O. The following window openings & equivalent free areas have been modelled;

Dimensions	No of Panes Openable	Top or Side Hung	Openable Angle (subject to 650mm reach)	Equivalent Free Area per Pane
1585 x 1500	2	Side	44.2	0.788
1585 x 1200	2	Side	44.2	0.619
1135 x 1200	2	Side	72.9	0.474
1135 x 1050	1	Side	72.9	0.425
460 x 1050	1	Side	90.0	0.305
460 x 900	1	Side	90.0	0.257

3.4 Building Services

3.4.1 Space Heating

The home will be heated using an efficient natural gas boiler, distributed in radiators designed to operate at a 55 degree flow temperature.

3.4.2 Lighting

Lighting inputs are based on paragraph 5.2 of TM59: 2017 and is assumed to be proportional to floor area and lighting loads are measure in W/m^2. From 6pm to 11pm, $2W/m^2$ is assumed as the default for an energy efficient new build home.

3.4.3 Mechanical Ventilation

Each WC, kitchen, utility room and family bathroom will be fitted with a continuously running mechanical extract fan, or system 3 fan, compliant with Approved Document F 2021. The dynamic simulations assume an extract rate of $0.006m^3/s$ for WCs, $0.008m^3/s$ for bathrooms and $0.013m^3/s$ for kitchens.

3.4.4 Additional Ventilation

Openings in bedroom 1 are assumed closed at night. To remove the associated summer overheating risk, mechanical ventilation providing an exact rate of **30l/s** will be installed in bedroom 1. Within the dynamic models the ventilation is available during nighttime hours.

3.4.5 Internal Heat Gains

DesignBuilder automatically calculates the solar gains based on the building orientation, window openings and glazing specification. Default equipment gains have been modelled in line with Table 2 of CIBSE TM59: 2017. The Appendix includes a copy of Table 2, extracted from TM59.

3.5 Category Type

In line with section 2.3 of TM59: 2017, the buildings have been assessed as category II for thermal comfort with normal expectations for occupants of residential buildings.

3.6 Internal Doors

Within the models, all internal doors close at 11pm and remain closed during nighttime hours.

4 MODELLING RESULTS

CIBSE TM59: 2017 methodology for the assessment of overheating risk in homes, provides a standardised approach to predicting overheating risk for residential buildings using dynamic thermal analysis. For dwellings that are predominantly naturally ventilated, compliance is based on passing both of the following two criteria;

a) For living rooms, kitchens and bedrooms: the number of hours during which T is greater than or equal to one degree (K) during the period May to September inclusive shall not be more than 3 per cent of occupied hours; and

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 ^{0}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, so 33 or more hours over 26 ^{0}C will be recorded as a fail.)

The table below provides a summary of the CIBSE TM59 outputs from DesignBuilder.

House Type	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
Sherwood	Kitchen	0.00	N/A	Pass
(North)	Living Room	0.00	N/A	Pass
	Bedroom 1	0.00	6.67	Pass
	Bedroom 2	0.01	5.00	Pass
	Bedroom 3	0.02	4.83	Pass

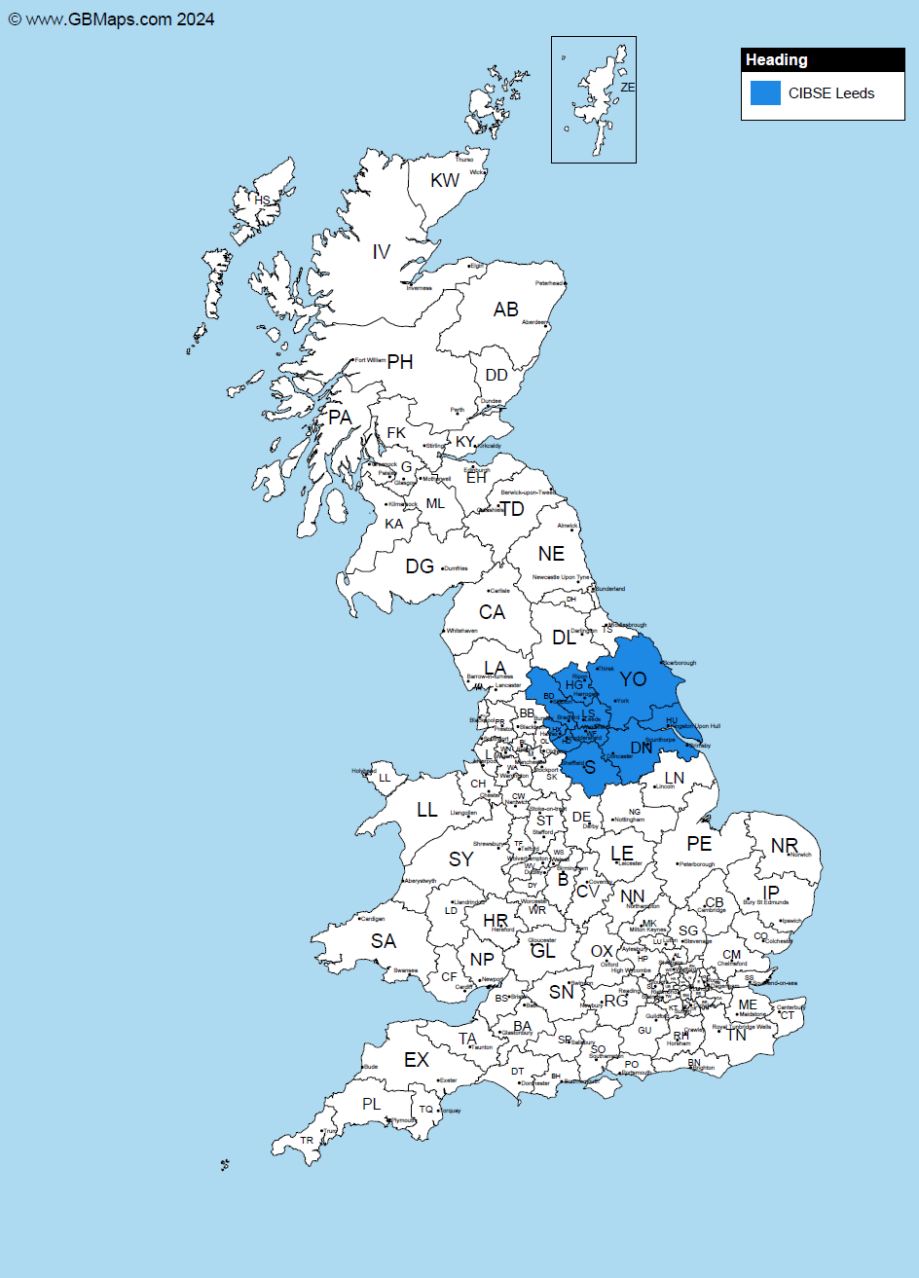
Appendix

CIBSE TM59:2017 Table 2 Occupancy and equipment gain description

Unit/ room type	Occupancy	Equipment load
Studio	2 people at 70% gains from 11 pm to 8 am 2 people at 100% gains from 8 am to 11 pm	Peak load of 450 W from 6 pm to 8 pm*. 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and 10 pm to 12 pm Base load of 85 W for the rest of the day
1-bedroom apartment: living room/kitchen	1 person from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
1-bedroom apartment: living room	1 person at 75% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 150 W from 6 pm to 10 pm 60 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 35 W for the rest of the day
1-bedroom apartment: kitchen	1 person at 25% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 300 W from 6 pm to 8 pm Base load of 50 W for the rest of the day
2-bedroom apartment: living room/kitchen	2 people from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200 W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
2-bedroom apartment: living room	2 people at 75% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 150 W from 6 pm to 10 pm 60 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 35 W for the rest of the day
2-bedroom apartment: kitchen	2 people at 25% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 300 W from 6 pm to 8 pm Base load of 50 W for the rest of the day
3-bedroom apartment: living room/kitchen	3 people from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 450 W from 6 pm to 8 pm 200W from 8 pm to 10 pm 110 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 85 W for the rest of the day
3-bedroom apartment: living room	3 people at 75% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 150 W from 6 pm to 10 pm 60 W from 9 am to 6 pm and from 10 pm to 12 pm Base load of 35 W for the rest of the day
3-bedroom apartment: kitchen	3 people at 25% gains from 9 am to 10 pm; room is unoccupied for the rest of the day	Peak load of 300 W from 6 pm to 8 pm base load of 50 W for the rest of the day
Double bedroom	2 people at 70% gains from 11 pm to 8 am 2 people at full gains from 8 am to 9 am and from 10 pm to 11 pm 1 person at full gains in the bedroom from 9 am to 10 pm	Peak load of 80 W from 8 am to 11 pm Base load of 10 W during the sleeping hours
Single bedroom (too small to accommodate double bed)	1 person at 70% gains from 11 pm to 8 am 1 person at full gains from 8 am to 11 pm	Peak load of 80 W from 8 am to 11 pm Base load of 10 W during sleeping hours
Communal corridors	Assumed to be zero	Pipework heat loss only; see section 3.1 above

Weather File Severity

The map below illustrates the coverage of the **Leeds** weather file data.



DesignBuilder Images