

Summary of Results

The building heat loss and energy usage calculations have been undertaken based on the worst-case scenario. e.g. the coldest outside temperature and the whole building heated to its highest design temperature(s).

External Temperature	-3.40 °C
Internal Temperature	18.00 °C - 22.00 °C
Total Building Heat Loss	7296.16 W
Heat Pump Model	

Worst Performing Room (based on area)

Heat Loss Per Area: $\geq 75 \text{ W/m}^2$ $< 75 \text{ W/m}^2$ $< 35 \text{ W/m}^2$

Room Name	W/C
Total Room Heat Loss	227.47 W
Room Area	1.80 m ²
Heat Loss Per Area	126.39 W/m ²

Room Material

Walls

Room Name	External Wall	Internal Wall
Kitchen	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
W/C	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
Lounge	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
Hall	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
Bedroom 1	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
Bed 1 Ensuite	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
Bedroom 2	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
Bathroom	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)
Landing	External Wall (0.61 W)	Building Regs 2022 Limit (0.26 W)

Windows & Doors

Room Name	Window	External Door	Internal Door
Kitchen	Window (1.40 W)		
W/C	Window (1.40 W)		
Lounge	Window (1.40 W)		
Hall	Window (1.40 W)	Door (3.00 W)	
Bedroom 1	Window (1.40 W)		
Bed 1 Ensuite	Window (1.40 W)		
Bedroom 2	Window (1.40 W)		

Bathroom	Window (1.40 W)		
Landing	Window (1.40 W)		

Floor & Ceiling/Roof

Room Name	Floor	Ceiling/Roof
Kitchen	Floor (1.20 W)	Roof (0.13 W)
W/C	Floor (1.20 W)	Roof (0.13 W)
Lounge	Floor (1.20 W)	Roof (0.13 W)
Hall	Floor (1.20 W)	Roof (0.13 W)
Bedroom 1	Building Regs 2022 Limit (0.18 W)	Roof (0.13 W)
Bed 1 Ensuite	Building Regs 2022 Limit (0.18 W)	Roof (0.13 W)
Bedroom 2	Building Regs 2022 Limit (0.18 W)	Roof (0.13 W)
Bathroom	Building Regs 2022 Limit (0.18 W)	Roof (0.13 W)
Landing	Building Regs 2022 Limit (0.18 W)	Roof (0.13 W)

Room-by-Room Heat Loss Calculations

Worcester Bosch

Cotswold Way, Warndon, Worcester, WR4 9SW

01905751464

imira.mutkova@uk.bosch.com

Date of Calculation: 31 Mar 2026

Site Address:

7543.1.1 - Plot 48 (Rev 1)

Caerleon Rd, Newport, UK

Heat Loss Per Area: ≥ 75 W/m² < 75 W/m² < 35 W/m²

Name	Design Temp	Air Changes / Hour	Thermal Bridging	Area	Volume	Fabric Heat Loss	Ventilation Heat Loss	Spare Capacity Heat Loss	Total Heat Loss	W/m²	Annual Energy
Kitchen	18.0 °C	1.50	0.05	11.53 m²	34.59 m³	455.79 W	372.34 W	85.09 W	936.01 W	81.18 W/m²	2045.72 kWh
W/C	18.0 °C	1.50	0.05	1.80 m²	5.40 m³	141.59 W	58.12 W	20.68 W	227.47 W	126.39 W/m²	497.16 kWh
Lounge	21.0 °C	1.00	0.05	20.49 m²	61.46 m³	1205.33 W	502.83 W	176.84 W	1945.27 W	94.96 W/m²	4251.54 kWh
Hall	18.0 °C	1.00	0.05	15.14 m²	45.42 m³	903.64 W	325.97 W	127.48 W	1402.27 W	92.61 W/m²	3064.77 kWh
Bedroom 1	21.0 °C	1.50	0.05	16.63 m²	39.91 m³	567.85 W	489.81 W	108.61 W	1194.66 W	71.84 W/m²	2611.01 kWh
Bed 1 Ensuite	21.0 °C	1.50	0.05	3.41 m²	8.19 m³	98.58 W	100.53 W	20.40 W	224.44 W	65.76 W/m²	490.52 kWh
Bedroom 2	18.0 °C	1.00	0.05	10.87 m²	26.09 m³	282.70 W	187.26 W	48.41 W	532.50 W	48.98 W/m²	1163.82 kWh
Bathroom	22.0 °C	1.50	0.05	5.67 m²	13.62 m³	113.66 W	173.99 W	29.33 W	322.66 W	56.86 W/m²	705.21 kWh

Landing	18.0 °C	1.00	0.05	9.62 m ²	23.10 m ³	284.46 W	165.75 W	46.44 W	510.88 W	53.08 W/m ²	1116.56 kWh
Total/Avg.	NA	NA	NA	95.17 m²	257.78 m³	4053.60 W	2376.60 W	663.29 W	7296.16 W	76.67 W/m²	15946.30 kWh

Material Heat Loss

Room Name	External Wall	Internal Wall	Party Wall	Window	External Door	Internal Door	Floor	Ceiling/ Roof
Kitchen	260.60 W	0.00 W	0.00 W	14.38 W	0.00 W	0.00 W	179.87 W	0.94 W
W/C	53.60 W	0.00 W	0.00 W	59.92 W	0.00 W	0.00 W	28.08 W	0.00 W
Lounge	461.82 W	12.17 W	0.00 W	327.94 W	0.00 W	0.00 W	393.31 W	10.09 W
Hall	266.93 W	0.00 W	0.00 W	10.79 W	385.20 W	0.00 W	236.21 W	4.51 W
Bedroom 1	325.09 W	3.48 W	0.00 W	184.46 W	0.00 W	0.00 W	2.07 W	52.75 W
Bed 1 Ensuite	61.82 W	0.00 W	0.00 W	24.60 W	0.00 W	0.00 W	1.34 W	10.83 W
Bedroom 2	174.18 W	0.00 W	0.00 W	75.50 W	0.00 W	0.00 W	2.77 W	30.25 W
Bathroom	49.66 W	14.71 W	0.00 W	25.60 W	0.00 W	0.00 W	4.95 W	18.74 W
Landing	200.11 W	0.00 W	0.00 W	53.93 W	0.00 W	0.00 W	3.65 W	26.77 W
Total	1853.80 W	30.36 W	0.00 W	777.11 W	385.20 W	0.00 W	852.25 W	154.87 W

Heat Emitter Summary

Worcester Bosch

Cotswold Way, Warndon, Worcester, WR4 9SW

01905751464

imira.mutkova@uk.bosch.com

Site Address:

7543.1.1 - Plot 48 (Rev 1)

Caerleon Rd, Newport, UK

Date of Calculation: 31 Mar 2026

Demand Met: < 50% < 100% ≥ 100%

Room Summary:

Room Name	Design Temperature	Heat Loss	Heat Supplied
Kitchen	18.0 °C	936 W	1092 W (116.64%) 
W/C	18.0 °C	227 W	229 W (100.54%) 
Lounge	21.0 °C	1945 W	2165 W (111.28%) 
Hall	18.0 °C	1402 W	1529 W (109.02%) 
Bedroom 1	21.0 °C	1195 W	1344 W (112.48%) 
Bed 1 Ensuite	21.0 °C	224 W	231 W (103.06%) 
Bedroom 2	18.0 °C	533 W	574 W (107.86%) 
Bathroom	22.0 °C	323 W	323 W (100.00%) 
Landing	18.0 °C	511 W	546 W (106.91%) 

Room Summary by Emitter Type:

Room Name	Emitter Type	Design Temperature	Heat Loss	Heat Supplied
Kitchen	RAD	18.0 °C	1092 W	1092 W (116.64%) 
W/C	RAD	18.0 °C	229 W	229 W (100.54%) 
Lounge	RAD	21.0 °C	2165 W	2165 W (111.28%) 
Hall	RAD	18.0 °C	1529 W	1529 W (109.02%) 
Bedroom 1	RAD	21.0 °C	1344 W	1344 W (112.48%) 
Bed 1 Ensuite	RAD	21.0 °C	231 W	231 W (103.06%) 
Bedroom 2	RAD	18.0 °C	574 W	574 W (107.86%) 
Bathroom	RAD	22.0 °C	323 W	323 W (100.00%) 
Landing	RAD	18.0 °C	546 W	546 W (106.91%) 

Radiators:

Room Name	Design Temp	Heat Loss	Mean Water Temp	Delta T	Emitter Name	Emitter Height	Emitter Width	Emitter Type	Output @ 50°C Delta T	Output @ System Delta T	Flow Rate	Demand Met
Kitchen	18.0 °C	936 W	50.0 °C	10.0 °C	Towelrad Compact Compact T22 Double	700 mm	1000 mm	RAD	1959.0 W	1092 W	0.03 L/s	116.64% 
W/C	18.0 °C	227 W	50.0 °C	10.0 °C	Towelrad Pisa Pisa Chrome Straight	1400 mm	450 mm	RAD	400.0 W	229 W	0.01 L/s	100.54% 
Lounge	21.0 °C	1945 W	50.0 °C	10.0 °C	Towelrad Compact Compact T33 Triple	700 mm	1600 mm	RAD	4419.0 W	2165 W	0.06 L/s	111.28% 
Hall	18.0 °C	1402 W	50.0 °C	10.0 °C	Towelrad Compact Compact T22 Double	700 mm	1400 mm	RAD	2743.0 W	1529 W	0.04 L/s	109.02% 
Bedroom 1	21.0 °C	1195 W	50.0 °C	10.0 °C	Towelrad Compact Compact T22 Double	700 mm	1400 mm	RAD	2743.0 W	1344 W	0.03 L/s	112.48% 
Bed 1 Ensuite	21.0 °C	224 W	50.0 °C	10.0 °C	Towelrad Pisa Pisa Chrome Straight	1600 mm	450 mm	RAD	460.0 W	231 W	0.01 L/s	103.06% 
Bedroom 2	18.0 °C	533 W	50.0 °C	10.0 °C	Towelrad Compact Compact T22 Double	600 mm	600 mm	RAD	1026.0 W	574 W	0.02 L/s	107.86% 

Bathroom	22.0 °C	323 W	50.0 °C	10.0 °C	Towelrad Pisa Pisa Chrome Straight	1800 mm	600 mm	RAD	673.0 W	323 W	0.01 L/s	100.00%
Landing	18.0 °C	511 W	50.0 °C	10.0 °C	Towelrad Compact Compact T22 Double	700 mm	500 mm	RAD	980.0 W	546 W	0.01 L/s	106.91%