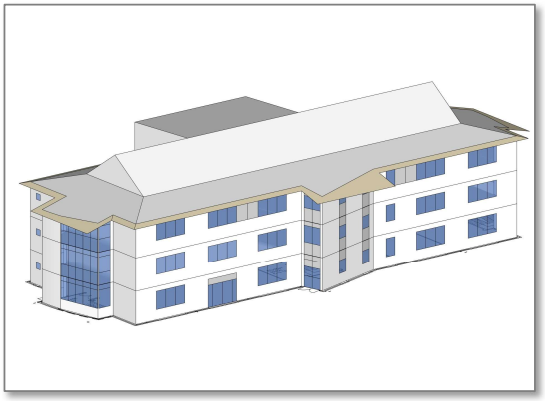
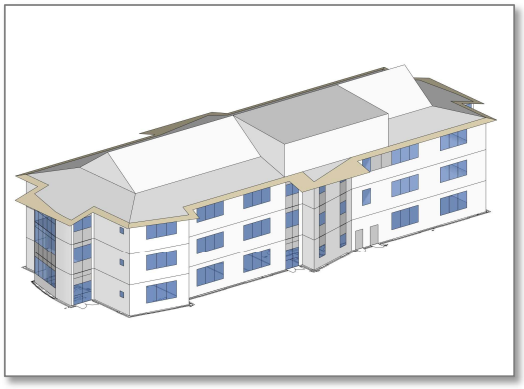
HEAT LOSS & GAIN CALCULATION SUMMARY

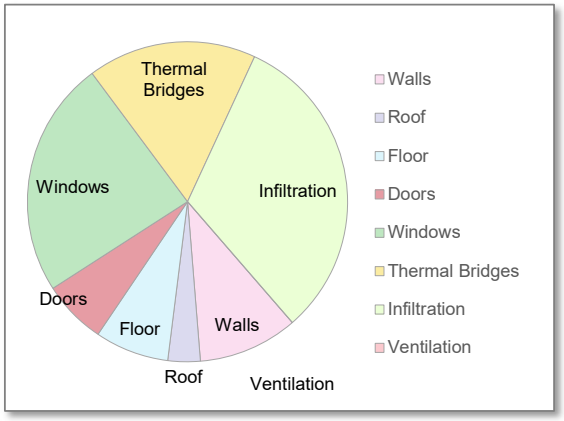
Description	Coleg Cambria, Block E	Location	Wrexham, UK	Revision	1	Date	02.06.25
						Status	Draft

MODEL IMAGES





HEAT LOSSES BREAKDOWN



NOTES

1. Winter external temperature taken from CIBSE Guide, 2019, Table 2.5
2. Ventilation losses aren't currently accounted for.
4. Building fabric is assummed based on Part L standards

AIR LEAKAGE & VENTILATION

CIBSE GUIDE A: AIR LEAKAGE

Assumed Air Leakage ($m^3/h.m^2$@50pa):	15
Building Type:	Office 2: Nat. Vent. 500-4000m2
Storeys:	4 Storeys: 2000m2
Exposure Type:	Partial
Air Change Rate (ach):	0.43

Properties of Air:

Heat Capacity of Air (kJ/kg)
1.005

Density of Air (kg/m^3)
1.205

WEATHER CONDITIONS

Winter Dry Bulb Temperature (°C)	-4.5°C

Summer Dry Bulb Temperature (°C)	-

BUILDING FABRIC

Element	U-Value (W/m^2K)	G-Value	Frame Factor (%)	Description
Floor	0.45			Part L 1995 Limiting Value
Walls	0.45			Part L 1995 Limiting Value
Roof	0.25			Part L 1995 Limiting Value
Windows	3.30			Part L 1995 Limiting Value
Solid Doors / Panels	3.30			Part L 1995 Limiting Value

Thermal Bridging Coefficient (W/m^2K)	25%

DESIGN MARGIN

Heat Loss Safety Factor (%)	20%

Heat Gain Safety Factor (%)	-

HEAT LOSS INPUTS & RESULTS

General Data					Fabric Losses			Ventilation Losses				Heat Load Summary			
Room name	Room Type	Level	Floor Area (m^2)	Room Temp (°C)	External conduction gain (kW)	Internal Conduction Gain (kW)	Infiltration Gain (kW)	Supply Flow Rate (l/s)	Heat Recovery (%)	Supply Air Temp (°C)	Vent. Gain (kW)	Room Heat Load (kW)	Room Heat Load + Factor (kW)	Room Heat Load + Factor (W/m^2)	Comments
Ground Floor	General	0	747.6	21°C	-27.101	0.000	-9.188			-	-	-36.289	-43.547	58	
First Floor	General	1	747.6	21°C	-17.485	-0.558	-9.188			-	-	-27.231	-32.677	44	
Second Floor	General	2	747.6	21°C	-24.213	0.000	-13.822			-	-	-38.035	-45.642	61	

Heated Area (m^2)	2,243
Unheated Area (m^2)	0
Total Area (m^2)	2,243

Total	Total	Total
-68.8	-0.6	-32.2

Total
0

Total
0.000

Total	Total	Avg.
-101.6	-121.9	54

Room Type	Heat Loss (kW)	Area (m^2)	Avg. Heat Loss (W/m^2)
General	121.9	2242.8	54
	122	2,243	

Level	Heat Loss (kW)	Area (m^2)	Avg. Heat Loss (W/m^2)
0	43.5	747.6	58
1	32.7	747.6	44
2	45.6	747.6	61
	122		