

Energy Assessment / SAP Details Applied

For the proposed development at:

**Unit 3, 9 Circuit Lane, Reading, RG30 3HB
New Build**

Energy Calculations Ltd

SAP ♦ PART O ♦ SBEM ♦ DESIGN

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Unit 3, 9 Circuit Lane, Reading, RG30 3HB

8th January 2026

Property reference: SAP 10 – 01775



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1. Introduction

The calculations provided, draw upon the detailed SAP 10 assessment. This gives as accurate a guide as possible to the energy usage of the final development in operation, to comply with part L 2021

2: Thermals

The total CO₂ emissions has been calculated taking full account of energy demands for space heating and hot water, and electricity for pumps, fans, lights, using the orientation and the use of building elements (walls, windows etc.) with U-values and other reference values and in most cases consistent with achieving compliance with Approved Document Part L: 2021.

Element	U – Value Element	Element	U – Value Element
Walls	0.17	Floor	0.11
Windows	1.20 (g value 0.63)	Loft	0.11
Entrance Door	1.40	Roof windows	1.40
Slope	0.14		

2.1: Services

Thermal Bridging – PSI values taken default, RCD and calculated values

Air pressure test – 5.00 or less

Lighting Efficacy – 84 lm/w

Ventilation – intermittent extract fans

Air source heat pump – Applied – Mitsubishi Ecodan 6.0 KW temperature flow rate 45°

Water Cylinder – minimum heat loss

Emitters –underfloor & Radiators

Controls – Time and temperature zone control

Electricity tariff – Standard

Water storage – from Mains

Shower – 8 ltr per person per day

Internal water use – 110 ltr per person per day

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2.2: Renewables

NA

3: Results - shows the summary for the calculations

TER = Target Emission Rate kgCO₂/yr/m²
DER = Dwelling Emission Rate kgCO₂/yr/m²
TFEE = Target Fabric Energy Efficiency kWh/m²/yr
DFEE = Dwelling Fabric Energy Efficiency kWh/m²/yr
TPER = Target Primary Energy Rate kWh/m²/yr
DPER = Dwelling Primary Energy Rate kWh/m²/yr

Table 1

Unit	TER	DER	% Reduction	TFEE	DFEE	% Reduction	TPER	DPER	% Reduction	SAP Rating
3	13.23	4.00	69.77	52.17	40.39	0.29	69.51	41.44	40.39	82 B

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4: Information

With reference to the heat pump this has been applied for the efficiency only and needs to be clarified that its suitable for use, if an alternative is used please inform us and we will check the efficiencies as an alternative could make the calculations fail L1A building regulations.

With reference to the construction details a full specification / u – value calculations will be required before the As built SAP and EPC can be issued, for the BREL to be signed photograph evidence date and location stamped - of construction, services, thermal bridging, and insulation levels and type manufactures details of the windows, installation certificate on the services and full lighting details.

The U-value for a window should be that for the whole window opening, including the window frame. Measurements of thermal transmittance in the case of doors and windows should be made according to BS EN ISO 12567-1. Alternatively, U-values of windows and doors may be calculated using BS EN ISO 10077-1 or BS EN ISO 10077-2.

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