



SAPS4u

Energy ratings, calculations and advice

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Ephesus 24 Thermosiphon Solar System

Energy Performance Calculation

This product has been tested using a semi-detached top floor flat of area 74.55 M2. The flat needed to be a reasonable size and in a configuration that would give an indication of the performance of the Ephesus 24 system in typical conditions. A mid terraced flat would be heavily sheltered on both sides. The energy savings from using the system in a mid terraced flat would not be the same as they would be in a typical building, which would have a large area of external walls. A top floor location was chosen because the Ephesus 24 system would normally be fitted on top of the building and would provide hot water to one dwelling.

Two SAP calculations were carried out. The first is the Baseline SAP calculation. In the Baseline calculation, the flat is designed to the minimum specifications that are required to pass SAP 2012 and conform with Part L 2013 building regulations. The walls and roof have typical Part L 2013 U values. The flat is heated with a band A combi gas boiler of a standard which is normal for building compliance. More efficient combi gas boilers are available but using one of these would mask the improvement in performance achieved by the Ephesus 24 system itself. It was helpful to see the difference that the Ephesus 24 made in a typical flat built with typical materials and with a typical central heating system. The second SAP calculation is the Solar SAP calculation. In the Solar calculation, exactly the same flat is tested with the Ephesus 24 system installed.

	Water Heating CO2 (Kg/Year) P.5,12a,(264)	Water Heating Fuel (Kwh/Year) P.5,9a,(219)	Total CO2 (Kg/Year) P.5,12a,(272)	Total Energy (Kwh/Year) P.5,9a,(238)
Baseline	500	2315	1627	6858
Solar System	272	1259	1399	5803
Reduction	228	1056	228	1055
% Improvement	45.6%	45.6%	14.0%	15.4%

The table above shows the improvement to the energy performance achieved by the Ephesus 24 system. The total CO2 emissions are reduced from 1627 Kg/Year to 1399 Kg/Year which is an improvement of 14%. Total energy consumption is reduced from 6858 Kwh/Year to 5803 Kwh/Year which is an improvement of 15.4%. The reduction in CO2 emissions and energy consumption is the same as the reduction in the fuel required for hot water (allowing for the numbers being rounded up.) The reduction in the energy used for hot water is 45.6% and the reduction in CO2 is 45.6%.

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