Galaxy Insulation & Dry Lining

# SAP 10 Calculations

## SIPCO L1 + L3 (2 Bed housetype)

| ECO | | | | | |
|---|---|---|---|---|---|
| | DER<TER % | DPER<TPER % | DFEE<TFEE % | SAP rating | CO2 emissions |
| Detached | 50.18% | 2.37% | 4.29% | 74 C | 0.45 t/yr |
| Semi-Detached/ End-Terrace | 49.73% | 1.18% | 0.46% | 76 C | 0.40 t/yr |
| Mid-Terrace | 50.23% | 1.47% | -5.73% | 80 C | 0.34 t/yr |

Specification based on East facing (worst case orientation)

External Walls - 0.16 W/m2K (based on 150mm SIP wall panel)
Ground Floor - 0.12 W/m2K (based on 150mm PIR)
Roof - 0.15 W/m2K
Solid Door - 1.00 W/m2K
Windows - 1.20 W/m2K Double glazed windows with low-e soft coating, g-value of >= 0.45 (BFRC, BSi or CERTASS data)
Thermal Bridging - GTS calculated junctions details where applicable, otherwise default.
Air Test Target - 3.00 m3/(h.m2) @ 50Pa blower door
Mechanical Ventilation - Energisava 250 MVHR with efficiency of 89% and manufacturer SPF of 0.81
Lighting - All low energy lighting with a efficacy of 80 lm/W
Main Heating - Electric Panel Heaters with appliance thermostats
Hot Water - Dual Immersion Heater within 210L hot water cylinder (80mm foam insulation)
Waste Water Heat Recovery (WWHR) - Showersave QB1-21 linked to shower over bath
Photovoltaic Panels - 3.50 kWp based on East -facing (worst case) at 30° with none or little overshading

| PERFORMANCE | | | | | |
|---|---|---|---|---|---|
| | DER<TER % | DPER<TPER % | DFEE<TFEE % | SAP rating | CO2 emissions |
| Detached | 74.56% | 24.40% | 8.02% | 81 B | 0.17 t/yr |
| Semi-Detached/ End-Terrace | 76.23% | 24.57% | 3.72% | 83 B | 0.13 t/yr |
| Mid-Terrace | 80.40% | 27.11% | -3.70% | 86 B | 0.08 t/yr |

Specification based on East facing (worst case orientation)

External Walls - 0.14 W/m2K (based on 175mm SIP wall panel)
Ground Floor - 0.12 W/m2K (based on 150mm PIR)
Roof - 0.13 W/m2K
Solid Door - 1.00 W/m2K
Windows - 1.20 W/m2K Double glazed windows with low-e soft coating, g-value of >= 0.45 (BFRC, BSi or CERTASS data)
Thermal Bridging - GTS calculated junctions details where applicable, otherwise default.
Air Test Target - 3.00 m3/(h.m2) @ 50Pa blower door
Mechanical Ventilation - Energisava 250 MVHR with efficiency of 89% and manufacturer SPF of 0.81
Lighting - All low energy lighting with a efficacy of 80 lm/W
Main Heating - Electric Panel Heaters with appliance thermostats
Hot Water - Dual Immersion Heater within 210L hot water cylinder (80mm foam insulation)
Waste Water Heat Recovery (WWHR) - Showersave QB1-21 linked to shower over bath
Photovoltaic Panels - 4.25 kWp based on East -facing (worst case) at 30° with none or little overshading and export capable meter

| NET ZERO | | | | | |
|---|---|---|---|---|---|
| | DER<TER % | DPER<TPER % | DFEE<TFEE % | SAP rating | CO2 emissions |
| Detached | 97.58% | 65.39% | 19.49% | 92 A | -0.04 t/yr |
| Semi-Detached/ End-Terrace | 99.30% | 65.39% | 16.01% | 93 A | -0.05 t/yr |
| Mid-Terrace | 103.01% | 66.82% | 9.34% | 94 A | -0.08 t/yr |

Specification based on East facing (worst case orientation)

External Walls - 0.12 W/m2K (based on 200mm SIP wall panel)
Ground Floor - 0.12 W/m2K (based on 150mm PIR)
Roof - 0.12 W/m2K (based on 150mm SIP roof panel)
Solid Door - 0.80 W/m2K
Windows - 0.80 W/m2K Triple glazed windows with low-e soft coating, g-value of >= 0.45 (BFRC, BSi or CERTASS data)
Thermal Bridging - GTS calculated junctions details where applicable, otherwise default.
Air Test Target - 3.00 m3/(h.m2) @ 50Pa blower door
Mechanical Ventilation - Energisava 250 MVHR with efficiency of 89% and manufacturer SPF of 0.81
Lighting - All low energy lighting with a efficacy of 80 lm/W
Main Heating - Air Source Heat Pump with flow temperature of 45°C to Radiators and Time & Temp zone controls
Hot Water - 210L hot water cylinder (80mm foam insulation) with supplementary top up
Photovoltaic Panels - 4.60 kWp based on East -facing (worst case) at 30° with none or little overshading and export capable meter.

| ULTIMATE | | | | | |
|---|---|---|---|---|---|
| | DER<TER % | DPER<TPER % | DFEE<TFEE % | SAP rating | CO2 emissions |
| Detached | 98.51% | 77.20% | 22.39% | 95 A | -0.05 t/yr |
| Semi-Detached/ End-Terrace | 99.92% | 77.83% | 18.29% | 96 A | -0.06 t/yr |
| Mid-Terrace | 103.37% | 80.46% | 10.43% | 97 A | -0.08 t/yr |

Specification based on East facing (worst case orientation)

External Walls - 0.11 W/m2K (based on 225mm SIP wall panel)
Ground Floor - 0.12 W/m2K (based on 150mm PIR)
Roof - 0.12 W/m2K (based on 150mm SIP roof panel)
Solid Door - 0.80 W/m2K
Windows - 0.80 W/m2K Triple glazed windows with low-e soft coating, g-value of >= 0.45 (BFRC, BSi or CERTASS data)
Thermal Bridging - GTS calculated junctions details where applicable, otherwise default.
Air Test Target - 3.00 m3/(h.m2) @ 50Pa blower door
Mechanical Ventilation - Energisava 250 MVHR with efficiency of 89% and manufacturer SPF of 0.81
Lighting - All low energy lighting with a efficacy of 80 lm/W
Main Heating - Air Source Heat Pump with flow temperature of 45°C to Radiators and Time & Temp zone controls
Hot Water - 210L hot water cylinder (80mm foam insulation) with supplementary top up
Photovoltaic Panels - 4.60 kWp based on East -facing (worst case) at 30° with none or little overshading and export capable meter. PV linked to diverter and battery storage with 3kWh capacity