

Photovoltaic (PV) Installation Summary

The PV scheme installed on the roof of Linton house comprises of 31No. SunPower mono-crystalline solar module panels. Each panel has an area of 1.6m² and are sited on the roof with an array pitch of 10° from horizontal with an Array orientation 0° from south. The overall collective output of the PV panel installation on the roof is 10.16 kWp from a total panel area of 50.6m². The PV panels are arranged to serve the individual Penthouses as indicated in table 1. The PV electricity generated directly feeds into its associated Penthouse via an electrical DC/AC inverter and Elster A100C kWh meter installed in each Penthouse to record the PV energy produced. The CO₂ emission reduction for the individual Penthouse are as stated in table 2.

TABLE 1 PENTHOUSE PV INSTALLATION ANTICIPATED YIELD & CO₂ REDUCTIONS

Dwelling	PV Gen Output kWp	PV Gen Surface M ²	Global Radiation at the Module kWh/M ²	PV Gen Energy (AC Grid) kWh/year	Spec. Annual Yield kWh/kWp	Performance Ratio (PR) %	CO ₂ Reduction kg/year
501	1.64	8.2	1068.2	1530.2	933.1	87.6	735
502	1.31	6.5	1068.2	1208.5	922.5	86.5	587
503	1.31	6.5	1068.2	1208.5	922.5	86.5	587
504	1.31	6.5	1068.2	1208.5	922.5	86.5	587
505	1.31	6.5	1068.2	1208.5	922.5	86.5	587
506	1.64	8.2	1068.2	1530.2	933.1	87.6	735
507	1.64	8.2	1068.2	1530.2	933.1	87.6	735
Site	10.16	50.6		9425	927.64	87	4553

TABLE 2 PENTHOUSE PHOTOVOLTAIC CELLS REDUCTION IN CARBON EMISSIONS

Flat	Target Emission rate kgCO ₂ /m ² /annum	Area m ²	TER kgCo ₂ /annum	PV Reduction kgCo ₂ /annum	Percentage Reduction from PV's	Percentage Reduction from PV's + Air Source Heatpumps (LZC)
501	21.80	178.33	3888	735	18.90	26.02
502	22.69	155.07	3519	587	16.70	26.58
503	23.37	112.30	2624	587	22.40	32.99
504	22.94	153.70	3526	587	16.60	30.24
505	27.09	80.30	2175	587	27.00	34.84
506	25.70	113.26	2911	735	25.20	36.85
507	25.68	118.78	3050	735	24.10	34.26

The data in **Table 2** confirms that overall emissions for each Penthouse and indicates an improvement of **16% to 27%** as a result of the individual Penthouse PV installations. Including the further improvements from ASHP the total reduction in CO₂ emissions for the Penthouses equates to **26% to 36%** improvement on Building Regulations **ADL1A**