

Technical Note

RBC-ALR Energy Addendum



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1 Introduction

This technical note provides a summary of **Approved Document L 2021** (Part L 2021) performance for Amethyst Lane, Reading (Post Code: RG30 2EZ) following the design amendments in response to RBC Planning comments. The design amendments are as follows:

- Accommodation Arrangement: Reduction of 4no. family homes in northern terrace. New fully 2 storey arrangement promotes direct sunlight into rear gardens.
- Blocks A, B & C Arrangement: Footprints adjusted to increase rear garden sizes and distance from boundary.

Following a comprehensive review of design amendments in comparison to stage 3B Energy and Overheating Assessment, the following steps have been identified:

- a. Modelling the '4B8PH-Type C' house type within Block A in SAP 10.2.
- b. Adjustment to the total PV allocation area following the roof design changes.

2 Development Performance

SAP 10.2 figures show current notional dwelling specifications used to calculate the performance of the actual building at Planning stage. The results include domestic and non-domestic spaces and are based on sample modelling on SAP10.2.

The dwellings are assumed to be provided with the same fabric efficiency, MVHR units, and systems for domestic and non-domestic spaces.

Initial calculations were carried out to maximise the use of PVs on the roof since early stages. As required by the client, the following information is reported:

- An estimate of the total PV system output (kWp) – The system will provide 137.4 kWp.
- Quantification of the amount of roof area that could be used to install photovoltaic modules - A total gross area of 687 sqm will be used for the installation of the PV panels.
- A calculation of the CO2 savings that may be realized through the use of this technology. - It is estimated that 17.9 Tonnes CO2/yr savings may be realized through the use of this technology based on 20.1% PV panels efficiency.

Table 1 – Site wide: Carbon Dioxide Emission from each stage of the Energy Hierarchy

	Total regulated emission (Tonnes CO2/year)	CO2 savings (Tonnes CO2 / year)	Percentage Savings (%)
Part L 2013 baseline	24.4	-	-
Be lean	13.2	11.2	46%
Be clean	13.2	0.0	0%
Be green	-4.7	17.9	73%
Total savings	-	29.1	119%
	-	*CO2 savings off-set (Tonnes CO2)	-
Off-set	-	-141	-



3 Conclusion

Approved Document L: Conservation of fuel and power (2021 edition incorporating 2023 amendments (Part L 2021)), follows a holistic approach regarding energy and carbon performance of new dwellings. This includes **a fabric first approach** reflected in improved fabric energy efficiency rates, and lower carbon emissions and primary energy target rates.

Compared to Part L 2013, Part L 2021 requires **better fabric energy efficiency rates** which is reflected on notional building specifications (i.e. minimum specifications used for carbon reduction calculations e.g. u-values, air permeability etc). In turn, this **increases the minimum required overall performance** of the dwellings significantly.

The RIBA Climate Challenge, to which HTA is committed, sets targets for 2020, 2025 and 2030 for energy use as well as the daylight, which is related to the health and wellbeing of people. These metrics have been factored into design proposals as they emerge in order to be effective. Hence, it is important to balance the Daylight/Sunlight and Energy performance.

As per the Daylight/Sunlight technical note, the revised scheme significantly improves the amount of sunlight availability on the ground for the external amenity spaces. In addition, all habitable spaces within the proposed Block C will receive good levels of daylight.

In conclusion, table 1 depicts the total site wide CO2 savings of 119%. Whereas previously planning submission the total site wide CO2 savings were 121%. However, the new design greatly improves the Daylight and Sunlight results, and this will balance the two factors. The design specifications are improved compared to Part L 2021 minimum requirements and meets Net Zero Carbon (and better). **As such, the planning option demonstrates compliance with Part L 2021 and will not affect the planning approved energy strategy.**