

129 Malden Road – Sustainability & Energy Statement

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129 Malden Road (Simon Community) – Sustainability and Energy Efficiency (Summary)

Revision 00

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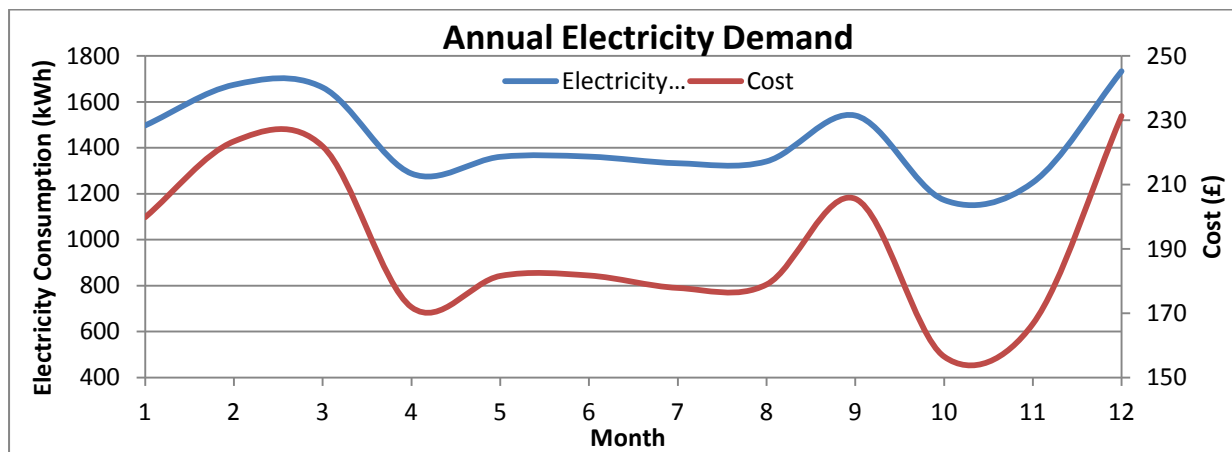
Aims and Objectives

This report aims to summarise the findings of an energy efficiency and sustainability study carried out for the proposed refurbishment and extension of the Simon Community Building at 129 Malden Road. The results of the analysis are outlined below. For detail, refer to SWECO document “129 Malden Road – Energy Efficiency Brief – Revision 01”, which is available for submission upon request.

Current Energy Consumption

Electricity

The annual electricity consumption behaviour and associated cost of the current building is shown below. The building uses 17.2 MWh of electricity per year, which is **4 times the UK average** household as determined by the Department of Energy and Climate Change (DECC) which puts the figure at 4 MWh.



Gas

The figure below shows the quarterly gas consumption of the building (obtained from Utility bills)

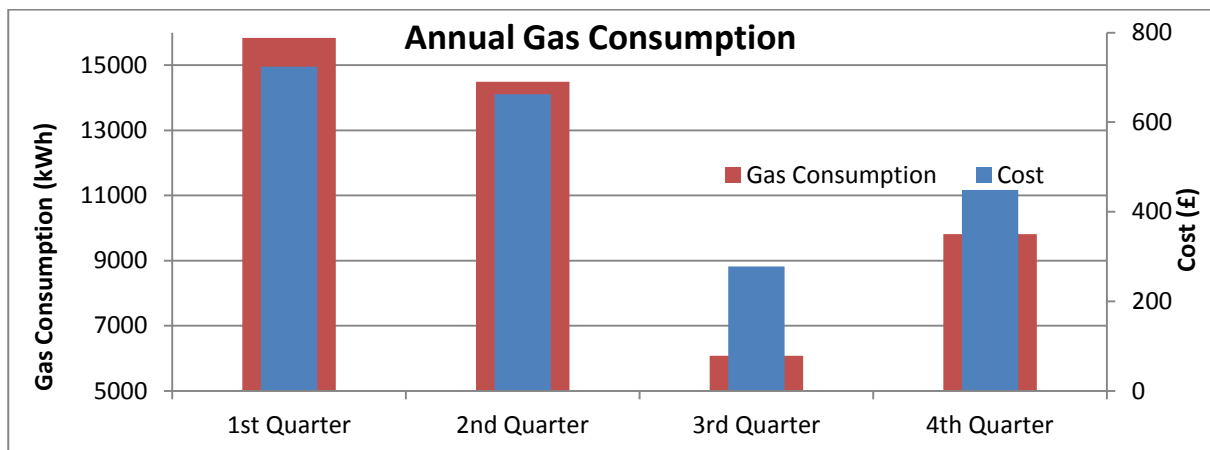


Fig. 2 Gas Demand Profile for 129 Malden Road (cost=4.57p/kWh)

1st Quarter: 20 October 2014 – 20 January 2015

2nd Quarter: 21 January 2015 – 27 April 2015

3rd Quarter: 28 April 2015 – 27 July 2015

4th Quarter: 28 July 2015 – 26 October 2015

The total gas consumption for the building is **over 46 MWh**. Comparing this against the temperature-corrected UK average determined by DECC, which is just over 14Mwh, 129 Malden Road consumes **3 times the average**.

It is evident to the design team, sponsor and client that the energy performance of the building needs to be improved significantly in order to ensure Carbon footprints are reduced and sustainability targets achieved.

Energy Efficiency and Sustainability Measures

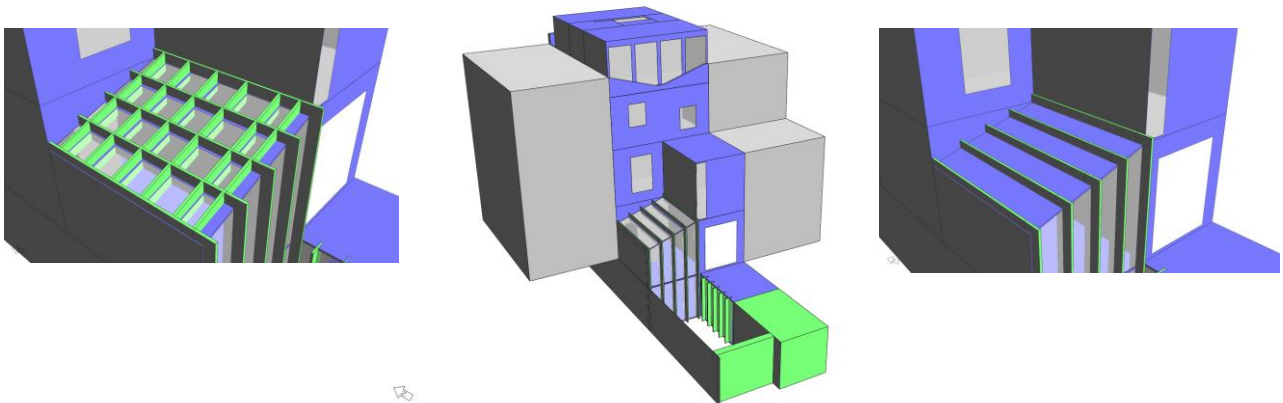
The proposed design of the building includes measures that will reduce the energy consumption of the building and minimise its impact on the environment. It is expected that the occupants, facilities managers and stakeholders will benefit greatly with the strategies that are put in place. These are summarised as below.

- **Heating and Controls** – Use of high efficiency condensing boilers and control systems for heating and domestic hot water. Use of programmable, Energy-display thermostats controlled with smart phones or tablets to allow users to view their energy consumption.
- **Lighting and Controls** – Use of LED lighting in all spaces instead of traditional halogen lighting has the potential to save up to 90% of associated electricity consumption. Areas not permanently occupied, such as WCs and Corridors, will benefit from lighting control systems such as occupancy sensors and timers
- **Building Fabric** – Retained and extension elements of the building to comply with the latest UK Building regulations as highlighted in study
- **Daylight** – the proposed schemes will enhance daylight into the spaces and minimise energy use.
- **Demand side Management** – Ability of the electricity demand to be shifted to times of low electricity demand by utilising smart controls in household appliances such as dishwashers and washing machines.
- **Solar Gain and Natural Ventilation** – Energy consuming cooling equipments will not be used at 129 Malden Road and the use of natural ventilation to remove excess solar and internal gains from spaces using operable windows is recommended.
- **Renewable Energy Integration** – Photovoltaic panels for the generation of on-site electricity.

Thermal Model Analysis

Thermal Models were constructed to carry out a detailed analysis of the spaces in order to understand the different measures that could be taken to minimise the heating and cooling loads and the energy associated with offsetting these loads.

One aspect of the analysis carried was the reduction of cooling and heating loads by investigating the different architectural and structural options for the glazed roof in the basement/Ground floor communal area.



Conclusion

The energy efficiency and sustainability measures for 129 Malden Road are integrated into the architectural and engineering designs from the early stages, and aim to provide the occupants with a building which is functional from comfort, cost and environmental points of view. Once completed, it is the aim of the project team to equip building management with the necessary knowledge in the operation and maintenance of the energy systems to ensure these are run with the maximum efficiency possible to ensure the maximum benefits are obtained.