



Energy Demand & CO₂ Emissions Supporting Statement

Proposed Extension

1 Tobin Close, London, NW3 3DY

Produced for: Enabling Projects Ltd
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Purpose of Statement and Targets

Darren Evans Assessments has compiled this document in support of the application for a side extension at 1 Tobin Close, London, NW3 3DY. The purpose of the document is to demonstrate how the energy demand and CO₂ emissions for the dwelling have been reduced through energy efficiency improvements to the existing dwelling and by insulating the extension beyond the limiting values of Part L1B

The energy demand and emissions of the dwelling have been calculated in accordance with the SAP methodology using the approved government SAP Software FSAP 2012.

The existing building fabric has been modelled using SAP Appendix S values based information provided. In the proposed extension U Values have been calculated in line with the BR 443 and supplied separately.

Two SAP calculations have been completed, the first to establish a baseline which is modelled upon the existing dwelling as is with the extension built to the limiting values of Part L1B. The Second 'as proposed' calculation shows the existing dwelling with energy efficiency improvements and the building fabric of the extension improved beyond the requirements of Part L1B. The proposed construction is detailed further in the table below.

New Thermal Elements	Approved Document L1B threshold	Element U Value	Pass / Fail	Comments
Extension External Wall	0.28	0.18	Pass	Plasterboard and skim on dabs, 100mm lightweight block, full fill Celotex CF5097 (97mm), brickwork outer leaf
Extension Pitch Roof	0.18	0.18	Pass	3mm Plaster, Celotex insulated plasterboard (25mm+12.5mm), 150mm joists with 120mm Celotex XR4000 between,
Extension Flat Roof	0.18	0.17	Pass	Warm deck flat roof with 120mm Celotex
Extension Ground Floor	0.22	0.13	Pass	65mm screed on Celotex XR4000 150mm, concrete slab 150mm
Extension Windows	1.60	1.40	Pass	Double Glazed, Argon Filled, Low E Coating
Extension Roof light	1.60	1.40	Pass	Double Glazed, Argon Filled, Low E Coating

The energy demand and emissions figures for the baseline and proposed dwelling have been calculated and are shown below

Reference	Main Heating (kWh)	Water (kWh)	Pumps and Fans (kWh)	Lighting (kWh)	Total Energy kWh/Year	Total CO ₂ Emissions kgCO ₂ /Year
1 Tobin Close Baseline	14224.92	2718.87	75	649.43	17,6688.22	4274.72
1 Tobin Close As Proposed	13541.73	2720.25	75	487.19	16,824.27	4033.28

The above figures demonstrate that through improvement to the existing dwelling and specifying insulation beyond the L1B requirements the energy demand for the dwelling can be reduced 844.05 kWh per year and the CO₂ emissions can be reduced by 241.44 kgCO₂/year.

Conclusion

The proposed extension at 1 Tobin close will demonstrate a **4.78%** reduction in energy demand and a **5.65%** improvement in CO₂ emissions when compared with a building regulations baseline dwelling. This improvement has been achieved through increasing the existing roof insulation from 150mm to 300mm, switching to low energy lighting throughout and improvements to the fabric of the extension beyond the limiting values.