

Sustainability Statement

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Project

Extension and renovations to:

92 Albert Road
Caversham
RG4 7PL

Introduction

This statement has been produced to accompany the Planning Application which seeks to extend and renovate an existing building of 3 flats whilst creating a 4th flat.

Site Description

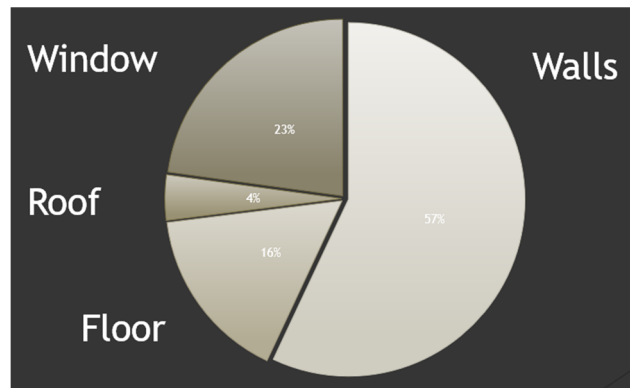
92 Albert Road (here on referenced as “the site”) is a detached, residential property of partially rendered brick construction. The building is split into 3 separate dwellings.

The existing cavity walls and suspended timber ground floor are uninsulated with the loft area lightly insulated. Windows are single glazed timber frame units.



Calculations show, based on an average 15-degree average temperature difference between inside and outside, the existing fabric heat loss is over 23,000 watts. Built today, current Building Regulations would limit this building at 3,770 watts, with Passivhaus lower still. The current building in its current state could not provide comfortable or energy efficient accommodation.

Fabric Losses



Existing Fabric Heat Loss Split

	Existing U Value	Building regs U Value	Passivhaus U Value
Walls (average)	1.62	0.26	0.1
Roof (inc dormers)	0.43	0.16	0.1
Floor	1.76	0.18	0.1
Windows	5.8	1.6	1.0

Comparison of existing fabric “U” values against current

Building Regulations and Passivhaus

Fabric First Approach

According to Reading Borough Council's Sustainable Design & Construction SPD Adopted statement, new developments under 10 units need to provide a minimum improvement of 19% over the 2013 target emission rate as defined in the 2013 Building Regulations.

Our proposal uses a Fabric First Approach, designed with Passivhaus principles to increase overall comfort and reduces running costs. Therefore, the following insulation methods are proposed to maximise thermal efficiency:

- The uninsulated suspended timber ground floor is proposed to be replaced with a new insulated concrete slab with screed finish. This will also aid with the fire spread between dwellings
- The partially insulated roof will gain new PIR insulation batts between and over the rafters
- The existing uninsulated cavity walls are to be pressure injected with Thermabead insulation beads with the internal face further insulated with 50mm PIR insulation bats
- Windows to be triple glazed, highly thermally efficient units
- An air tightness barrier installed to wrap the building internally to increase the air tightness of a leaky old building. New mechanical ventilation will supply fresh air changes to the occupants without the need for window ventilators.

To renovate the existing building to current Building Regulation standards, the overall heat loss target would be 2,916w. With the proposed alterations, proposed energy loss would be nearer 2,335w which equates to a 20% improvement.

U values have been calculated to be:

	Building regulations limit	Designed dwellings
Walls	0.30 Wm2	0.21 Wm2
Roof	0.16 Wm2	0.15 Wm2
Floor	0.25 Wm2	0.22 Wm2
Windows	1.40 Wm2	0.70 Wm2

The above also equates to a 90% improvement over the existing building.

Renewable Energy

In-roof solar PV panels are proposed alongside thermal stores for hot water. Heating requirements will be minimal, but efficient electric radiators will be provided to top up when necessary.

No natural gas will be installed in the proposed dwellings.

Water Management

Rainwater will be diverted to a soakaway 5m from the building.

Appliances

Lighting will be 100% low energy throughout with energy efficient appliances.

Summary

A proposal for PassivHaus housing was rejected in favour for the retention of the existing building. It would be impractical to bring the existing building to PassivHaus levels of insulation and energy efficiency, but with the proposed alterations and improvements, efficiency would be improved 90% over the existing building, which will provide comfortable accommodation for future occupants.