

DESIGN & ACCESS STATEMENT

Applicant: Mr & Mrs J Gouk
Application Site: 265 Norcot Road, Tilehurst, Reading, RG30 6AF
Application proposal: External insulated render/cladding and new high performance windows and doors
Project/File Ref. : 20104 3.1
Issue Date: 08.10.20 **Revision A 19.01.2021**

Note: this statement supports a planning application, and should be read in conjunction with the following application documentation:

- Woodfield Brady Architects drawing refs. 20104.01 – 05 inclusive (location, site and floor plans, and elevations)
- Photographs of dwelling, as existing

Location

The application site is located on Norcot Road, approximately half way between Tilehurst and Norcot to the West of Reading City centre, Berkshire. The property itself is located on the northern side of Norcot Road, approximately 500m to the east of the Tyler's Rest restaurant.

Heritage Assets & Significance

The site is not within a conservation area, nor are there any designated or non-designated heritage assets (including listed buildings) located within or adjacent to the application site. The nearest listed building is a Grade II listed water tower on the southern side of Norcot Road approximately half a mile to the west. There is no inter-visibility between the application site and this listed building, and there are no locations where they both appear in the same view. Therefore one may reasonably conclude that the site falls well outside the setting of any listed buildings. There are no other national heritage designations (battlefields, scheduled monuments, or registered parks and gardens) in the vicinity.

Current Use/Description

The property is a two-storey 4 bedroom dwelling with a modest front and private rear garden. The frontage to the road comprises a concrete driveway with a small area of planting/soft landscaping. The front of the property is bordered by a low brick wall on the southern and eastern sides. Along the eastern boundary of the site is a public footpath from Norcot Road which acts as a 'cut-through' to Glenrosa Road to the north. To the north the private gardens back onto the gardens of the adjacent properties on Glenrosa Road. To the west is a neighbouring dwelling, similar in scale and form, separated by a side-access alleyway owned by the neighbouring property.

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Proposals

The proposals can be summarised as internal remodelling, combined with the installation/ addition of energy saving measures to significantly improve the thermal and energy performance of the existing dwelling overall under a 'deep retrofit' model.

The proposals are summarised as follows:

Energy efficiency measures

- **external wall insulation/render/cladding:** All external walls to be wrapped with external wall insulation (EWI) system and either rendered or clad with vertical timber boarding to improve thermal performance of building envelope.

Existing slumping blown mineral wool cavity wall insulation in the average 70mm wide cavity will be removed and replaced with grey EPS bead insulation.

The complementary external PIR wall insulation will be 100mm thick which will give a greatly improved external wall U-value of 0.15 against the 0.30 required by Building Regulations (Part L1b Appendix A) for renovation of existing thermal elements.

(U-value: rate of heat transfer through building envelope)

- **replacement windows & doors:** all existing windows and doors to be replaced with new triple-glazed units with Passivhaus standard frames, giving significantly improved whole unit U-values of <0.9 versus the 1.6 U-values required by 4.21 Table 1 of Part L1b.

Furthermore, replacement windows and doors will be installed using **Passivhaus techniques** giving a superior Psi value of 0.04, as opposed to the 0.15 usually achieved.

(Psi-Value: measure of heat loss through thermal bridging)

New thermally efficient lintels to be installed to support external brickwork prior to installation of new windows and EWI.

- The **pitched roof** will be insulated at ceiling level with 300mm of blown cellulose insulation giving a U-value of 0.13, which exceeds the current Building Regulations (Part L1B Appendix A) requirement of 0.16.
- **Replacement GRP flat roofs:** Existing GRP flat roofs to be stripped back to sub-deck and upgraded with 100mm additional/upgraded insulation which will give a U-value of 0.11 which is significantly better than the 0.18 required under current Building Regulations (Appendix A Part L1B).
- **Thermal bridging amelioration:** all the above work will be designed to ameliorate existing thermal bridges as far as possible and not introduce any new ones.
- **Improve air-tightness:** A blower door thermal imaging survey is to be conducted which will identify internal plasterboard wall finishes to be sealed/linked at all edges/junctions to ensure (as far as reasonably possible) continuity of internal air-tightness layer. All penetrations and junctions (e.g. around window/door openings) to be fully sealed.

It is anticipated that air tightness will be improved from an estimated existing 15 ACH to 1 ACH using the measures outlined above. (ACH: Air Changes per Hour)

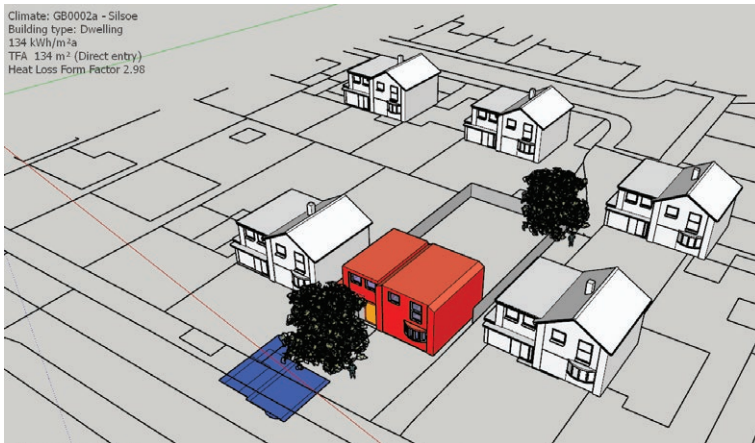
- **Mechanical Ventilation with Heat Recovery (MVHR) system:** With the house fabric now being more airtight, an MVHR system (Part F system 4) will be installed in accordance with specialist design and details to provide controlled ventilation with heat recovery to the occupants.

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- **Space and hot water heating energy** to be provided by Air Source Heat Pump (ASHP) and/or direct electric via second-life EV battery storage, to specialist details.
- **Space heating emitters** will either be through conventional radiators or underfloor electric mats depending on how the energy for this is provided.
- The **hot water system** will be upgraded so that the hot water cylinder is insulated properly along with all hot water distribution pipes where accessible.
- A **Solar PV array** will be installed on both slopes of the pitched roof to specialist details to provide on-site generation to further ameliorate grid electricity use and also to allow on site battery charging as well as emergency supply in case of grid failure.

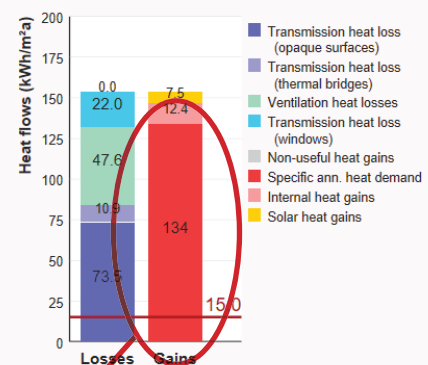
When all the improvements above are combined and Passivhaus DesignPH calculations are carried out a) for the existing house and b) with the proposed improvements, the space heat demand is reduced from **134kWh/m²/yr** to **35kWh/m²/yr** (see below), which is substantially less than a new house of the same shape and size built to current Part L1A standards, which would achieve 54kWh/m²/yr:

a) Existing House Heat Balance



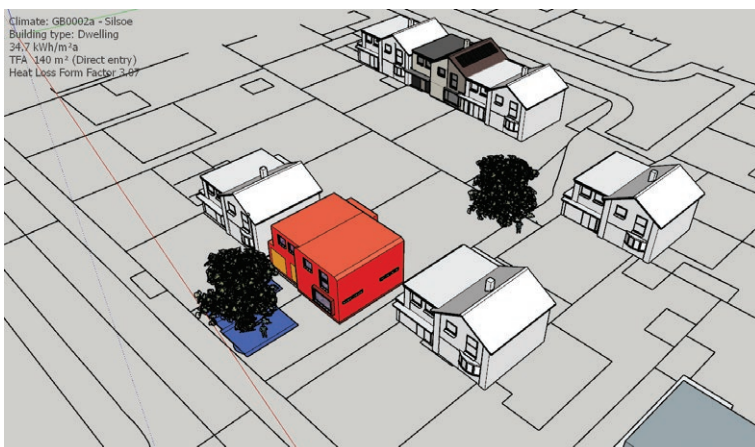
(Heat balance measured at insulation layer - not building structure)

▼ Heat balance



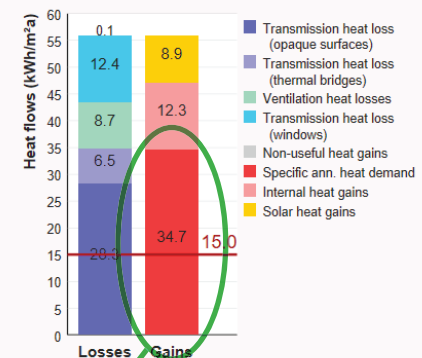
Annual Heat demand - 134 kWh/m²a

b) Heat Balance after proposed deep retrofit



(Heat balance measured at insulation layer - not building structure)

▼ Heat balance



Annual heat Demand - 34.7 kWh/m²a
74% reduction in heat demand input

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Embodied carbon mitigation

Materials with low embodied carbon will be used as far as possible, however in certain places use of those with a higher embodied carbon footprint is unavoidable such as the external wall and flat roof insulation, where space constraints dictate the use of a material with the best insulation value per millimetre of thickness.

Internal & external re-modelling

Internal remodelling: Some internal loadbearing and non-loadbearing walls are to be removed to facilitate a new kitchen in the existing single storey rear extension and the opening up of the entrance hallway and staircase. Provision of a ground floor wc and shower room, through the conversion of rearward part of garage will ensure the property remains habitable for the applicants should mobility issues arise in years to come.

Layout/scale

The proposals seek to make better use of the existing internal space of the dwelling, by relocating the kitchen to the existing single storey extension in the northwest corner of the ground floor. This will create a new 'heart' of the home to the rear of the dwelling, giving improved relationship to the private gardens beyond. The overall form and scale of the dwelling will remain unchanged, save for the modest additional thickness of external insulation and cladding added to the external walls, and the replacement bay window to the front elevation.

Appearance

The proposals seek to update the appearance of the dwelling, creating a more modern appearance as a result: The external wall materials will be updated from the existing buff brick and tile hanging to a mix of through-coloured (buff) render and vertical timber cladding. The existing uPVC windows and doors will be replaced with high-quality, high-performance triple-glazed units. Whilst a departure from the existing appearance, the proposed materials and their use is considered harmonious with the various properties nearby and opposite.

Impact on neighbouring properties

With the proposals being primarily concerned with the improvement of the energy use and thermal efficiency of the existing dwelling, the overall form and scale of the dwelling will remain unchanged. There are no new openings which could be considered to be overlooking neighbouring properties. Therefore any impact on neighbouring properties is considered to be negligible.

Conclusion

The proposals seek not only to improve the energy and thermal performance of the existing dwelling, but also to update its appearance and layout for the future. The use of high quality external materials, design and workmanship throughout the external works will result in a bespoke outcome which makes best use of a presently inefficient dwelling, and may serve as a working model for similar deep retrofit projects.

The proposals have been developed in line with national and local planning policies, both current and emerging. Owing to the detached character of the property, and the nature of the proposals, the impact on any nearby dwellings and the wider urban setting is considered to be negligible.

APPENDIX A - SITE PHOTOGRAPHS

WOODFIELD BRADY
a r c h i t e c t s

arlington house . curridge . west berkshire RG18 9EF

t 01635 247 100

e mail@woodfieldbrady.co.uk

www.woodfieldbrady.co.uk



front elevation



rear elevation

APPENDIX B - SKETCH VIEWS

WOODFIELD BRADY

a r c h i t e c t s

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front elevation



rear elevation