

8 WATER ROAD,
READING, RG30 2NN



**Sustainability & Energy
Statement**

Application for the
erection of a 2-bedroom
bungalow

Issue: planning

Date: August 2026

Ref: 456



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A collaborative of architects
and designers with an agenda.

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1. Introduction

1.1. This sustainability and energy statement has been prepared by Colony Architects on behalf of Muhammad Yousaf to explain the sustainability credentials for the erection of a 2-bedroom bungalow.

1.1. This statement is to be read in conjunction with other planning application documents that present the design and building form.

1.2. The statement illustrates how the design is compliant with the sustainable development policies set out in the National Planning Policy Framework (NPPF), notably paragraphs 7, 8, 148, 149, 150, 151 & 153.

1.3. The statement also illustrates how the scheme complies with Reading Borough Council policy CC2 (Sustainable Design and Construction) and how the development incorporates sustainable design principles. Sustainable construction is a key local and national policy objective. Aside from energy efficiency, sustainable construction encompasses other important considerations such as material selection, waste and water efficiency. These issues will be commented on in detail in the sections that follow. However, in brief the scheme will endeavour to;

- Provide for a well-designed layout which provides for a safe, healthy, accessible and attractive place for residents to live.
- Seek to provide energy efficient homes to help address the effects of climate change that go over and above building regulation targets.
- Provide for an efficient use of the site.
- Provide sufficient opportunities for recycling, of on-site material during construction and waste created by future residents

2. Materials

2.1. Significant amounts of energy and natural resources are consumed in the production, transportation and disposal of building materials. Two issues are of significant importance in the procurement of materials: the environmental impact of materials and the sourcing of materials. The contractor must be dedicated to taking pro-active measures in addressing these issues.

2.2. Materials with lower embodied carbon will be favoured over higher-impact alternatives where they meet the design, performance and durability requirements of the scheme.

3. Pollution

3.1. The Given the small scale of the proposed development (a single residential dwelling) and its location outside Reading's Air Quality Management Area, the scheme is not expected to give rise to significant air quality effects, either during construction or in operation. Therefore, measures will be targeted to reduce water and air pollution during the construction phases. Below are a sample of the measures to be undertaken by site operatives;

- Where dust is generated in small quantities through the normal construction process, such as the cutting of bricks and, where significant volumes are required, specialist cutting equipment will be used i.e. brick saws which have dust suppression built in through the use of water jetting onto the cutting surface.
- If cutting is required on a lesser scale i.e. the cutting of pipes, bricks, blocks, paving slabs, chases etc. during installation or laying of these materials. This will be carried out in a part of the site which is considered the most appropriate at that time and, away from any sensitive receptors.
- Waste containers and skips will be covered.
- Regular deliveries will prevent the stockpiling of unnecessary materials on site, but where unavoidable materials will be secured and covered where necessary to prevent pollution.
- Hard surfaced roads will be constructed as soon as possible or at the earliest time that the build programme allows.

3.2. The measures above will be implemented through induction and toolkit talks with all site operatives and the posting of literature and signs in the site compound.

4. Health and Wellbeing

4.1. Living spaces and bedrooms are provided with sufficient glazing to allow natural daylight to penetrate, reducing reliance on artificial lighting and benefiting occupant health.

- 4.2. Solar gain to the south-west facing rear glazing will be managed through glazing specification and shading to mitigate overheating risk, in line with Building Regulations Part O.
- 4.3. The property benefits from a private rear garden for recreation and amenity, with a designated space for refuse and recycling storage.
- 4.4. Secure cycle storage will be provided within the rear garden to encourage active, low-carbon travel.
- 4.5. Existing boundary trees and hedgerow are retained, preserving the garden's landscaped character and contributing to biodiversity.

5. Energy Efficiency

5.1. The proposal follows the mantra of "Be-lean, Be-clean & be Green",

- **Be-Lean - Use less energy**

Fabric first - a well-insulated and airtight envelope

Low-energy lights

Passive ventilation & controls of heat gain/loss

- **Be-Clean - Supply energy efficiently**

Ensure that energy strategy is optimum solution for the house design

Use a heat-recover (house ventilation) to save generated energy loss.

Create a well-insulated high thermal-mass building to store and slow release the energy created

- **Be-Green - Use renewable energy**

The use of ASHP or GSHP

Use Solar-gain (but not excessively)

Photovoltaics oriented to the south-west facing roof pitch

5.2. During the technical stage of the project further SAP assessments will be carried out to ensure that this energy strategy is fed into the technical design and achieved on site and certified by building control with an EPC

5.3. Listed below are some of the measures that will be incorporated into the detailed design of the scheme;

- The construction specification of every home will include high levels of insulation in the ground floor, external walls and roof spaces.
- The dwelling will either benefit from an air source heat pump for heating and hot water or Photovoltaic panels sized to suit the houses orientation.
- The detailed house design will incorporate the thermal bridging guidance produced by Constructive Details along with robust details, thereby reducing a significant source of heat loss.
- Energy efficient lamps will be installed in every light fitting.
- The property will be naturally ventilated using efficient decentralised extract fans to ensure the internal living environment will be healthy and comfortable.
- The entrance will be illuminated with an energy efficient external light
- The white goods will be installed in each property will be energy efficient with an A+/A rating.

6. Overheating

6.1. The design has been well-considered to prevent the property from overheating and creating uncomfortable spaces that encourage the need for air-conditioning or mechanical ventilation.

6.2. The following principles have been adopted to minimise overheating: -

- **Limit large areas for glazing** to minimise solar-gain by proposing a balanced level of glazing that allows good levels natural light (and less artificial lighting) without generating excessive solar gain.
- **Minimise large areas of glazing on the southern elevation**, where the design positions areas with higher glazing, such as the bi-fold doors, these sit on the south-west facing rear elevation, with solar gain managed through glazing specification and shading.
- **Opportunity for natural ventilation**, which is achieved using bi-fold doors and casement windows to provide high air purge rates.

7. Vehicle charging point

7.1. The proposal will consider installing a three-phase supply to support the electric vehicle charging point.

8. Internet

8.1. A high-speed internet connection will be provided at the new dwelling.

9. Water Efficiency

9.1. The new dwelling will use a maximum of 105 litres of water per person a day.

9.2. A Part - G water calculation will be supplied at the pre-construction technical stage of the project to confirm the specification of the design meets the criteria.

9.3. Surface water run-off will be disposed of on site via rainwater pipes to soakaways or watercourses, subject to confirmation of ground conditions, to reduce pressure on the local water network, to reduce pressure on the local water network.

10. Conclusion

10.1. The dwelling will use modern, efficient materials and sustainable principles throughout to justify the embodied energy of the build against lifetime energy savings made. The scheme will include:

- Air source heat pump or Photovoltaic panels on each dwelling.
- High Levels of insulation and air tightness
- Low energy light fittings
- Water saving taps and flow regulating access valves
- Dual flush sanitary systems
- Low E, Argon gas filled double glazed windows

10.2. In terms of the Building Regulations, the heat/energy loss of all individual elements of the building such as walls, floors, windows, etc. will be designed to either meet or exceed the requirements of the regulations. This equates to a vast improvement in energy efficiency and lower running costs over the life span of the house and reduced energy bills for the occupants.



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