

SUSTAINABILITY & ENERGY EFFICIENCY STATEMENT

Project: Down Park Place, Turners Hill Road, Crawley

Proposal: Construction of a new single-storey dwelling

1. Introduction

This statement supports the planning application for the proposed single-storey dwelling at Down Park Place and outlines the sustainability strategy embedded within the design.

The proposal adopts a **fabric-first approach**, supported by renewable energy generation, water efficiency measures, and low-carbon construction methods to minimise environmental impact and operational energy demand.

2. Fabric First Approach (updated)

The design prioritises the thermal performance of the building envelope to reduce energy demand:

- High levels of insulation to walls, roof, and floors
- Construction designed to achieve or exceed Part L Building Regulations thermal performance standards, including:
 - Walls: 0.18 W/m²K
 - Floors: 0.11 W/m²K
 - Roof: 0.11 W/m²K
 - Openings: 1.2 W/m²K
- High-performance glazing to reduce heat loss and improve comfort
- Airtight construction detailing to minimise thermal bridging and air leakage

The external envelope is designed as a continuous, robust skin, with both walls and roof finished in clay tiles, creating a unified and monolithic form. This approach enhances durability, reduces maintenance, and reinforces the simple barn-inspired architectural language of the proposal.

3. Construction Method & Embodied Carbon Reduction

The proposal seeks to reduce embodied carbon through modern, efficient construction techniques and careful material selection:

- The dwelling is proposed as a **timber-framed structure**, subject to structural design, forming the primary structural system of the building
- The external envelope is finished in **clay tiles to both roof and wall surfaces**, providing a durable, long-life external skin with low maintenance requirements
- The use of a timber structural frame offers a **lower-carbon alternative to traditional masonry construction**, reducing embodied carbon at source
- A significant proportion of the building is expected to be **prefabricated off-site**, improving build quality, reducing waste, and enhancing construction efficiency
- Off-site manufacture also reduces **site disturbance within the rural context**, limiting environmental impact during the construction phase
- The combination of timber structure and durable clay tile envelope provides a **balanced approach between low embodied carbon structure and long-life external materials**

4. Energy Efficiency & Passive Design

The building has been designed to optimise passive performance:

- Orientation and glazing designed to maximise **natural daylight and solar gain**
- Reduced reliance on artificial lighting through efficient spatial planning
- Energy-efficient LED lighting throughout
- Compact single-storey form supports efficient heat distribution

5. Renewable Energy & Low Carbon Systems

- Roof-mounted **photovoltaic (PV) panels** will generate renewable electricity on site
- Provision for an **Air Source Heat Pump (ASHP)** to provide efficient heating and hot water
- Systems are designed to reduce reliance on fossil fuels and lower operational carbon emissions

6. Water Efficiency

Water consumption is reduced through a combination of efficient systems and reuse strategies:

- Low-flow sanitary fittings throughout
- **Rainwater harvesting system utilised for toilet flushing**, significantly reducing mains water demand
- Potential use of harvested water for external irrigation

7. Waste Management & Construction Practice

The construction process will incorporate responsible waste and site management practices:

- Existing garden wall to remain in situ where possible
- Existing garden planting to be retained and undisturbed where feasible
- All construction waste to be removed by a **licensed contractor operating a recycling-led waste management system**, prioritising recycling over landfill disposal
- Construction activity to be managed to minimise site disturbance within the landscape setting

8. Local Sourcing & Supply Chain

The proposal supports sustainable procurement practices:

- Use of **local trades and contractors where possible**
- Sourcing of building materials from **local or regional suppliers** to reduce transport distances and associated carbon emissions
- Commitment to reducing embodied carbon through responsible procurement and supply chain selection

9. Professional Design & Delivery Approach

The project is delivered through an integrated design team approach, including:

- Architectural design
- Planning consultancy
- Topographical and measured surveying
- Structural engineering design
- Building regulations compliance

This coordinated approach ensures efficiency, compliance, and quality throughout the design and construction process.

10. Climate Resilience & Longevity

The design incorporates measures to ensure long-term performance:

- Robust thermal envelope to mitigate overheating and heat loss
- Durable material selection to reduce maintenance and replacement cycles
- Integration with landscape to support natural shading and microclimate control

11. Conclusion

The proposed development at Down Park Place demonstrates a comprehensive commitment to sustainability through:

- High-performance building fabric
- Low-carbon off-site construction methods
- Renewable energy generation
- Water efficiency and reuse strategies
- Responsible waste management
- Local sourcing and reduced transport impact

Together, these measures ensure the proposal delivers a low-impact, energy-efficient, and environmentally responsible dwelling appropriate to its rural setting.