

# **Sustainability Assessment**

## **1. Introduction**

This Sustainability Assessment accompanies the planning application reference DM/25/3236. The purpose of this statement is to demonstrate how the design, materials, construction methods, and operational characteristics of the proposal respond positively to sustainability principles in line with national planning policy and local sustainability objectives.

## **2. Sustainable Design and Materials**

### **Timber Construction**

The proposed development is predominantly constructed from Grade 4 redwood pine, a renewable and sustainably sourced material. Timber construction offers significant environmental benefits due to its low embodied carbon compared with traditional masonry or steel structures. The use of timber also allows for carbon sequestration throughout the lifespan of the building.

The structure includes:

- Timber sub-frame base
- Log-clad ceiling
- Sapele hardwood doors
- Matchboard pine interior cladding

Sapele hardwood is a durable, long-lasting material, reducing the need for replacement and maintenance over time, which contributes to lifecycle sustainability.

### **Roofing Materials**

The roof consists of felt shingle tiles with a waterproof membrane. Felt shingles are lightweight, reducing structural demand and material use. The waterproof membrane improves durability and weather resistance, extending the lifespan of the building.

## **3. Thermal Performance and Insulation**

The development includes 75mm Jablite insulation to the roof, floors and walls. This level of insulation significantly improves thermal efficiency, helping to reduce heat loss and overall energy demand. Improved insulation performance contributes to lower operational energy consumption and enhanced internal comfort throughout the year.

## **4. Energy Use and Efficiency**

The building is connected to an electricity supply (partly powered by solar panels already installed at the school), enabling the use of efficient lighting and low-energy electrical equipment. The extremely modest scale of the development ensures limited energy demand and the insulated building envelope supports efficient energy use. The design allows for flexibility should further energy efficiency measures be introduced in the future.

## **5. Glazing and Natural Light**

The proposal includes four glazed windows using 6.4mm laminated double glazing. The use of double-glazed laminated glass improves thermal performance and reduces heat loss while enhancing durability and safety. These windows maximise natural daylight, reducing reliance on artificial lighting during daylight hours.

## **6. Water Efficiency and Surface Water Management**

### **Water Use**

The development does not include a mains water supply, resulting in minimal water consumption during operation.

### **Rainwater Management**

The building incorporates guttering, a downpipe, and a water butt. This system allows for the collection and reuse of rainwater for non-potable purposes such as by the school's pupils in their gardening initiatives, through which they learn to connect with nature (one of the aims in the Department of Education's Climate Change Sustainability Strategy). This reuse of water in this way reduces demand on mains water resources and limits surface water runoff in line with sustainable drainage principles (SuDS).

## **7. Waste Reduction and Environmental Impact**

The use of prefabricated timber components minimises construction waste and reduces on-site disturbance. Timber elements can be reused, recycled, or responsibly disposed of at the end of the building's life, supporting circular economy principles.

## **8. Longevity and Adaptability**

The choice of durable materials such as hardwood doors, laminated glazing, and weather-resistant roofing contributes to a long service life with low maintenance requirements. The simple construction method allows for potential future adaptation or disassembly with minimal environmental impact.

## **9. Conclusion**

The proposed development demonstrates a clear commitment to sustainability through:

- Use of renewable and low-carbon building materials
- High levels of insulation to reduce energy consumption
- Minimal water demand and rainwater harvesting
- Efficient use of natural daylight
- Durable construction with low maintenance requirements

Overall, the proposal aligns with the sustainability objectives of Mid Sussex District Council and the principles of the National Planning Policy Framework by promoting responsible resource use, environmental stewardship, and long-term resilience, ensuring a low environmental impact through its construction and operational life.