

Sustainability and Energy Assessment

The Lake House, Rowfant, Nr Copthorne, West Sussex, RH10 4TB

Proposed replacement dwelling following demolition of existing dwelling and self contained annexe

The application for a replacement dwelling following the demolition of existing dwelling and self contained annexe has been developed in full knowledge of and in accordance with the Mid Sussex District Plan Policy DP39 and Policy DG37 of the Mid Sussex Design Guide SPD which both seek to ensure sustainable building construction and design and the delivery of high quality buildings that minimize their environmental impact.

Policy DP39 of the Mid Sussex District Plan states:

DP39: Sustainable Design and Construction

Strategic Objectives: 1) To promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change.

Evidence Base: Gatwick Sub Region Water Cycle Study; West Sussex Sustainable Energy Study, Mid Sussex Sustainable Energy Study.

All development proposals must seek to improve the sustainability of development and should where appropriate and feasible according to the type and size of development and location, incorporate the following measures:

- **Minimise energy use through the design and layout of the scheme including through the use of natural lighting and ventilation;**
- **Explore opportunities for efficient energy supply through the use of communal heating networks where viable and feasible;**
- **Use renewable sources of energy;**
- **Maximise efficient use of resources, including minimising waste and maximising recycling/re-use of materials through both construction and occupation;**
- **Limit water use to 110 litres/person/day in accordance with Policy DP42: Water Infrastructure and the Water Environment;**
- **Demonstrate how the risks associated with future climate change have been planned for as part of the layout of the scheme and design of its buildings to ensure its longer term resilience**

Policy DG37 of the Mid Sussex Design Guide states:

6.2 Sustainable Buildings

Ground heat exchanger
Figure 6A: Sustainable construction principles

Principle DG37: Deliver high quality buildings that minimise their environmental impact

The construction industry makes a significant contribution to CO2 emissions utilising substantial volumes of non-renewable resources and generating pollution and waste. The need for sustainable approaches to building design is therefore fundamental if the challenges associated with climate change, resource depletion and pollution are to be addressed, and will be necessary to achieve the Government's Future Homes Standard.

The Council welcomes innovative and inventive designs that respond to the sustainability agenda by minimising the use of resources and energy both through building construction and after completion.

Applicants must demonstrate how this has informed their design and should consider in particular:

- Orientation and design of buildings and roofs to maximise daylight / sunlight penetration and solar gain, whilst also avoiding overheating;
- The use of green roofs or walls to reduce storm water run-off, increase sound-proofing and biodiversity;

- The use of materials with low embodied energy (for example, renewably-sourced timber and recycled materials);
- The use of sustainable materials that are locally sourced wherever possible;
- Incorporating high levels of insulation (in combination with air tightness and temperature control systems) including the use of materials with a high thermal mass, such as stone or brick, which store heat and release it slowly;
- Incorporating renewable energy including photovoltaics, solar thermal water heating, ground and air source heat pumps;
- The use of low flow technology in water fittings, rainwater harvesting systems and grey water recycling systems to reduce water consumption to 110 litres/person/day (maximum); and
- Laying out development to support identified opportunities for decentralised renewable or low carbon energy systems.

Further guidance is provided by District Plan policy DP39: Sustainable Design and Construction

The proposed replacement dwelling offers opportunities to deliver a sustainable development in terms of its construction and in relation to its future occupation.

The design of the proposal, which is acknowledged to be more contemporary than the existing dwelling, has sought to orientate the dwelling and include large areas of glazing to maximise solar gain / benefit and create good levels of natural lighting within the building. The thermal efficiency of the building and good levels of natural ventilation will ensure that overheating issues are avoided. The proposed design will also allow for excellent levels of insulation and airtightness to maximise energy efficiency.

The proposed dwellings will seek to use materials which are sustainable, using where possible locally sourced materials. Every effort will be made to use materials with good ecological credentials, including those with high recycled content and where possible materials that can be repurposed or upcycled at the end of their life.

The site offers opportunities for renewable technologies to be provided in the form of an air source or even ground source heat pump, and subject to technical feasibility studies undertaken post decision such provision could be provided and conditioned appropriately. In terms of general fittings and fixtures however, low energy light fittings and energy efficient appliances would be installed throughout.

In accordance with the requirements of Policies DP39, DP42 and Policy DG37, water efficient fixtures and fittings will be specified to ensure that water usage is limited to 110 litres per person per day.