Vale of White Horse District Council

March 2022

Sustainable Construction Checklist

Site Address:	Land at 25 Orchard Way, Harwell, Oxfordshire, OX11 0LQ
Proposal:	Reserved Matters application for the details of appearance, landscaping, scale, and layout following Outline Approval P21/V0679/O
Type of application:	Reserved Matters

Please tick the relevant box* below:

This application requires certification under Part L (conservation of fuel and power) of the Building Regulations and the relevant part of the checklist (Part 1 or Part 2) has been completed in full. ☑

This application is exempt from Part L (conservation of fuel and power) of the Building Regulations. ☐

***For more information please see page 2 below.**

Vale of White Horse District Council

Sustainable Design and Construction Checklist

Core Policy 37: Design and Local Distinctiveness of the Vale of White Horse Local Plan 2031 requires all development to be of a high-quality design that is sustainable and resilient to climate change. Proposals must demonstrate that they are seeking to limit greenhouse gas emissions through location, landform, layout/building orientation, design, massing, landscape, and planting.

This checklist must be completed for all applications as set out below to demonstrate compliance with these policy requirements. The checklist also asks for information that will be used to demonstrate compliance with Vale of White Horse Local Plan *Core Policies 40: Sustainable Design and Construction and 43: Natural Resources.*

A separate householder checklist has been prepared to be completed by householder applications. This is set out in Part 2.

Guidance Notes:

What applications need to complete the Checklist?

Type of proposal: All proposals that require Building Regulations Part L (Conservation of fuel and power) certification need to complete the relevant parts of the checklist. Broadly, this applies to the following:

- all buildings, or extensions (except for a ground level conservatory, porch, covered way or carport); or
- the carrying out of any work to or in connection with any such building or extension

where the building is a roofed construction having walls; and uses energy to condition the indoor climate.

There are some exemptions to Part L, including:

- Certain buildings which are listed, in conservation areas or are included in the schedule of monuments - where compliance with the energy efficiency requirements would unacceptably alter their character or appearance.
- Buildings which are used primarily or solely as places of worship
- Temporary buildings with a planned time of use of 2 years or less, with low energy demand
- Industrial sites, workshops and non-residential agricultural buildings with low energy demand
- Stand-alone buildings other than dwellings with a total useful floor area of less than 50m^2

Regulation 21 of the Building Regulations 2010 sets out the exemption criteria regarding the Part L requirements.

If you are unsure whether your proposal requires a Part L certification, please seek appropriate advice from your builder, agent or architect or a qualified energy assessor before submitting your application.

Type of application: Outline, Full, Reserved Matters and, where appropriate, applications to discharge, vary or remove conditions must all complete the sections of the checklist as indicated in the tables below. We would also recommend completing the checklist for pre-application advice.

Submission format: The checklist should be submitted in its original format and layout, as a Word document or converted into a PDF. It should be attached as a separate document accompanying the application.

Supporting documents: The checklist should be accompanied by documents that provide further detail, such as Sustainability Statements or Energy Strategies. However, details must be provided for each section of the checklist not simply a reference to supporting documents. Please reference within the supporting documents where further information and drawings can be found. All the supporting documents should be combined and submitted as a single separate document titled "Sustainable Construction Checklist Supporting Documents" with a table of contents stating which documents are included.

Checklist Review: The checklist may be periodically updated to reflect changes in legislation, policy and practice.

Further information: Please call Planning Services on 01235 422422 or email planning.policy@southandvale.gov.uk

Part 1: All Development (excluding Householder Applications):

Table 1: The Proposal	
Address of the Proposal	Land at 25 Orchard Way, Harwell, Oxfordshire, OX11 0LQ
Brief description of proposal *e.g. type of development and size*	Reserved Matters application for the details of appearance, landscaping, scale, and layout following Outline Approval P21/V0679/O for 5 detached dwellings.
Type of application	*Please tick to confirm:* Full Planning Application ☐ Outline (all matters reserved) ☐ Outline (some matters reserved) ☐ Approval of Reserved Matters ☑ Discharge of condition(s) ☐ Removal or variation of condition(s) ☐ *Please also confirm whether the proposal is:* Major Development ☐ Minor Development ☐
Exemption	*Please tick to confirm:* The proposal is exempt from Part L (Conservation of fuel and power) of the Building Regulations ☐ This application is to discharge/vary/remove a condition(s) that will not affect the greenhouse gas emissions associated with the development ☐

Every section of each table below (Tables 2-7) is to contain 500 words or less, summarising the approach, not simply a reference to other documents. Although additional detail should be signposted via references to named documents and drawings, e.g. roof layouts for PV, Sustainability Statements etc. However, even if a Sustainability Strategy or Energy Statement is submitted, its content is to be summarised in the Checklist for ease of assessment.

Table 2: Maximising passive solar heating and lighting
Please set out how the location and orientation of the building(s), including the size, position, shading and composition of the glazing, have been used to maximise solar gain to maintain a comfortable internal temperature range and appropriately lit environment that has reduced or eliminated the need for auxiliary heating or cooling and/or minimised internal lighting.
The buildings have a largely unobscured southerly orientation to maximise solar gain. The contemporary design theme seeks to maximise glazing including the incorporation of roof lights to the bungalow serving the ground floor. Overheating where it becomes a consideration due to the solar gain built in is dealt with via other measures as set out.

Table 3: Sustainable building design - including the structure and fabric of the building and any mechanical heating or cooling
3a) Maximising Energy Efficiency
Please set out how the proposal has maximised the energy efficiency of the building fabric and/or elements of the structure being incorporated into the design. – Please make specific reference to where the proposed elemental performance of the fabric will be higher than the notional U values set out in Part L of the Building Regulations. Also, where low energy fixtures and appliances will be used. *The Council support a 'fabric first' approach, whereby the components and materials that make up the building fabric are maximised before the use of mechanical or electrical building service systems. We would encourage applicants to consider incorporating Passivhaus style fabric to minimise heating and cooling requirements.*

The applicant supports a fabric first approach and as such wall sections and roof spaces are designed in volumetric terms to accommodate insulation features that exceed Part L

3b) Renewable and low carbon energy

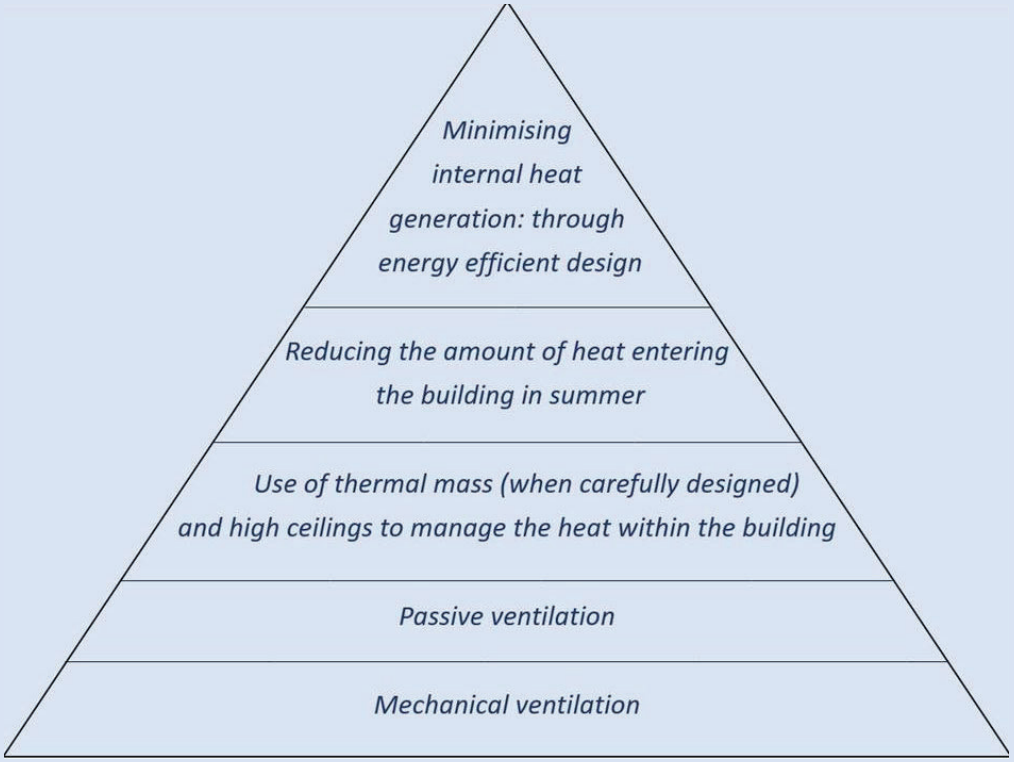
Please set out all renewable and low carbon technologies to be incorporated into the design. For example, solar energy, biomass, heat pumps, solar thermal and heat networks. Please cite any drawings of renewable/low carbon technology.

The Council would specifically encourage the installation of Solar PV on all buildings, where appropriate, as well as the use of air source heat pumps.

It is anticipated that properties will have heat pumps and solar PV

3c) Heating, cooling, and hot water

Please set out the heating, cooling and hot water strategy for the proposed building(s)/development. This should include how the cooling hierarchy has been implemented as below:



**For information regarding overheating please see 4d) below.*

The applicant supports a sustainable 'prevention first' approach and intends to provide an insulating fabric in excess of part L, energy efficient appliances, hot water tank and lighting that generate less heat and guidance via the home user guide in terms of reducing heat production and minimisation of solar gain when appropriate to do so.

3d) Overheating, ventilation, and indoor air quality

Energy efficiency must be considered in conjunction with overheating and ventilation. For example, airtight buildings must be adequately ventilated so occupants don't have to open the windows in winter and lose energy.

***Overheating:* Please set out how the proposal addresses overheating.** *Solutions to overheating can be found in the Zero Carbon Hub guidance.*

Where tackling overheating is a key element of the design please use the CIBSE standards (TM59 for residential and TM52 for non-residential or up-to-date equivalent) to demonstrate this. The CIBSE assessment should use appropriate local data and run relevant summer scenarios both for the current (2020s) climate and future (2050) climate as set out in the CIBSE Position Statement. Large-Scale Major Development (as defined in the Local Plan 2035) proposals are encouraged to show leadership in tackling overheating and follow the CIBSE methodology.

***Ventilation:* Please set out the type of ventilation that is proposed, for example natural or mechanical, details of windows, and how exposure to Volatile Organic Compound (VOC) Materials will be mitigated.**

***Airtightness:* If a high airtightness target is proposed, please include the airtightness performance, and explain how the building will be ventilated in the winter other than by opening windows and doors.**

***Air quality:* Where applications include wood burners please comment on the mitigation of impacts on external and internal air quality.**

Moderate to high levels of airtightness are proposed and natural ventilation is anticipated via window vents and secure opening windows during warmer months. Recognizing that such ventilation causes heat loss during winter gives rise to consideration of mechanical ventilation with heat recovery to supplement passive systems. Specific solutions remain subject to detailed SAP assessment on a per unit basis however as each property due to varying design and orientation will have different needs.

3e) Thermal bridging reduction

Thermal bridging is the movement of heat across an object that is more conductive than the materials around it. The conductive material creates a path of least resistance for heat. Thermal bridging can be a major source of energy loss in homes and buildings leading to higher utility bills. For more information on Thermal Bridging and how it can be minimised see the Zero Carbon Hub guide to Thermal bridging.

Please set out the ways in which thermal bridging will be minimised.

The building will be of traditional masonry construction with cavities containing insulation. Where cavities are closed, proprietary cavity closures will be used that are designed to minimise bridging effects. Similarly, frames to window and door elements will be sourced to ensure thermal bridging is reasonably minimized with these elements.

3f) Energy Performance Gap

There is significant evidence to suggest that buildings do not perform as well when they are completed as was anticipated when they were being designed. The difference between anticipated and actual performance is known as the performance gap.

Please set out how the Performance Gap will be addressed throughout the development project (during the design process, the construction process and after construction) e.g. as required by the Soft Landings and Design for Performance processes. Including:

- ***Construction management practices***
- ***Aftercare and post-occupation measures to ensure correct commissioning (including seasonal commissioning) and thorough handover***
- ***Post-occupation performance monitoring to record whether targets are met in-use***

The performance gap referred to is familiar to the applicant. The applicant ensures a duty of care is imposed upon building inspectors to ensure buildings are produced in compliance with their design as it relates to energy efficiency. The home user guide provides detailed explanatory notes to householders as to the causes of reduced energy performance (as it relates to ventilation and management of heat pumps for example).

3g) Smart Infrastructure
Please set out any type of smart infrastructure incorporated into the design of the proposal, for example smart meters and appliances, energy storage, electric vehicle charging points, building management systems etc.
Smart meters and EV chargers are provided in all cases. Smart wi-fi based heating controls are also a consideration.

Table 4: Landscaping and Planting
4a) Maximising energy efficiency through landscape and planting
Please set out how landscaping and planting has been used to maximise the energy efficiency of the proposal, for example by providing effective shading or acting as a windbreaker.
Our SAP proceedures include shading consideration on a per unit basis.

4a) Carbon capture through planting and vegetation
Please set out, where relevant, how carbon capture by vegetation has been optimised in the design of your proposal. For example, by replacing any removed trees and/or growing new ones.
The scheme complies with BNG legislation.

Table 5: Water Resources
5a) Efficient use of water
Please set out the approach to water efficiency, for example low-flow sanitary ware and white goods, dual-flush valves on toilets, installing high efficiency plumbing fixtures, rainwater harvesting methods etc.
Low flow sanitary (including shower heads) and dual flush are routine parts of our provision.

5b) Water efficiency standard for new homes

All new build residential proposals please tick the box below to confirm compliance with the higher water efficiency standard (required by Core Policy 40 of the Vale of White Horse Local Plan 2031) and set out how it will be achieved:

The 110 litres per head per day requirement will be met ☑

Table 6: Flexibility and Adaptability

6a) Flexibility

Please set out how the design allows for future modification of use or layout and facilitates future refurbishment and retrofitting.

The principles of Lifetime Homes can be followed, enabling buildings to adapt to be suitable for occupants at all life stages and be adaptable for future uses.

This is a small scale development and we are not providing for adaptable housing in this case.

6b) Climate Adaptability
Please set out how the proposal has considered climate change adaptation *A review of measures to adapt to the changing climate is provided in the Technology Strategy Board's document Design for Future Climate Report. Water and overheating are considered separately in Tables 4 and 6 above.*
Aside from those considerations already arising in prior sections of this document, drainage and flood resilience are prime considerations and the housing is made safe in a climate change plus buffer scenario to both risks.

Part 2 Householder Applications:

Table 1) The Proposal	
Address of Proposal	
Brief description of proposal *e.g. type of development and size*	
Exemption	*Please tick to confirm:* The proposal is exempt from Part L (Conservation of fuel and power) of the Building Regulations ☐

Every section of the tables below (Tables 2-5) should contain 500 words or less, summarising your approach, Additional detail can be signposted via references to named documents and drawings, e.g. roof layouts for PV, Sustainability Statements etc. However, even if a Sustainability Strategy or Energy Statement is referenced, its content is to be summarised in the Checklist for ease of assessment.

Table 2) Maximising passive solar heating and lighting
Houses can benefit from passive solar gain by collecting heat as the sun shines through windows and retaining it in materials that store heat, known as thermal mass. Based on the movements of the sun, passive solar houses typically have windows (glazing) on the southern facing side to absorb the sun's heat energy to warm the house during the winter. North facing windows should be kept small but openable, as they be useful for passive cooling as part of cross ventilation. Well-designed passive solar homes also provide daylight all year and comfort during the cooling season using night-time ventilation. ***Please set out how your proposal maximises passive solar gain through the size, position and shading of glazing, as well as the composition of the glazing itself, and how this has been utilised to maintain a comfortable internal temperature range and appropriately lit environment that has reduced or eliminated the need for auxiliary heating or cooling and/or minimised internal lighting. Please also highlight if the proposal would result in increased passive solar gain for the existing dwelling.***

Table 3) Landscaping and Planting
3a) Maximising energy efficiency through landscape and planting
A well-designed landscape can increase a property's attractiveness as well as reducing the heating and cooling costs. A well-placed tree, shrub, or vine can deliver effective shade and/or act as a windbreaker, which can reduce your energy bills. It has been shown that carefully positioned trees can save up to 25% of the energy a typical household uses.

Please set out how landscaping and planting has been used to maximise the energy efficiency of the proposal, for example by providing effective shading or acting as a windbreaker.

3b) Capturing carbon through planting and vegetation

Vegetation is one of the most important carbon sinks globally, the other being oceans. This means that it accumulates and stores some sources of carbon for an indefinite period and thereby lowers the concentration of CO2 from the atmosphere. The long-term removal of CO2 from the atmosphere to mitigate or reverse climate change is known as carbon sequestration. By planting new trees or replacing trees loss due to a development proposal, you can control erosion, attract beneficial insects, enjoy fresh fruit, and even reduce your home's energy needs through strategic shading. As trees grow, they capture carbon from the atmosphere and store it in the biomass of their trunk, branches, and leaves. They also contribute to carbon capture below the ground by increasing the amount of soil organic carbon. Trees will eventually release the carbon they capture when they die and decompose. However, certain types of trees, such as chestnuts and oaks, can comfortably live over 300 years. These trees function as essential long-term carbon sequestration strategies to which everyone can contribute.

Please set out, where relevant, how carbon capture by vegetation has been optimised in the design of your proposal. For example, by replacing any removed trees and/or growing new ones.

Table 4) Using water efficiently
Water efficiency is about reducing the amount of water that is wasted rather than restricting use. This can be achieved by • *using low-flow sanitary ware and white goods* • *dual-flush valves on toilets* • *installing high efficiency plumbing fixtures* • *harvesting rainwater for other uses such as watering plants etc.* ***Please set out, where relevant, how your proposal will deliver an efficient use of water.***

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