

Appendix 5: Sustainability

Robin Ashley Architects LLP

This submission is based upon the Reading Borough Council Supplementary Planning Document, (SPD), 'Revised Sustainable Design & Construction' (Adopted July 2011)

The SPD seeks to provide a framework for compliance with Core Strategy CS1, by providing the Sustainable Design Checklist, which is included below with our responses.

In addition a Code for Sustainable Homes, (CfSH) pre-assessment is also required. The CfSH requirements are similar to those of the checklist but not completely equivalent so both are provided. Where the checklist contradicts CfSH, the latter takes precedent.

CfSH Sustainable Design Checklist

Energy/ CO2

Aim: To conserve energy, in particular carbon dioxide emissions and maximise the use of energy efficiency techniques.

- 1. How has the development been designed to optimise the use of the energy from the sun and limit heat losses?*

The development faces south and thus utilises passive solar gain. However windows are not excessive to limit heat loss and overheating.

- 2. How has the development been designed to optimise natural daylighting, energy efficient lighting, external lighting and natural ventilation?*

Rooms are lit where possible from two directions to maximise the quality of light and enhance the possibility of natural ventilation. Energy efficient internal and external lighting will be used as described in the CfSH pre assessment below.

- 3. How will the design of the building make efficient use of energy? (e.g. use of thermally massive materials, levels of insulation, energy efficient white goods and use of green/ brown roofs etc).*

Massive materials can be used to provide a degree of capacitive insulation, but this is completely dwarfed by the effects of conventional resistive insulation. The building is a medium mass building with concrete slabs and masonry external walls but lightweight partitions. A green roof typically has no effect on heat loss; being outside the insulated envelope and comprising materials of not particularly high thermal resistance. However the idea that a green roof does provide significant insulation is still pervasive in non-expert settings.

Energy efficient white goods will be provided if appropriate as described in the CfSH pre assessment below, as will the insulation performance measures require to exceed the building regulations.

4. *Has local energy generation from renewables been considered as part of the scheme?*

A 'fabric first' approach has been taken rather than resorting to renewables to justify lower thermal standards.

5. *How have cycle storage facilities been considered?*

Cycle storage is provided to the CfSH standard requirement.

Water

Aim: To improve efficiency in the use of water, conserve water resources and minimise vulnerability to flooding.

6. *How will the development incorporate the use of water saving devices to achieve a maximum consumption of 105 litres per person per day?*

Proprietary low flow fittings and flow restrictors will be used.

7. *How will the development incorporate recycling rainwater and reduce the use of potable water?*

8. *Has the collection, treatment and re-use of grey water been considered? If so, how will these facilities be incorporated within the development?*

Not applicable.

Materials

Aim: To retain local character and promote the use of materials with a low environmental impact.

9. *How will the selected materials help retain local character, ensure long life and ensure a low environmental impact?*

The composition of each of the construction elements are generally of A or A+ rating in accordance with the BRE Green Guide, which is the chosen methodology for CfSH.

Surface Water Run-off

Aim: To reduce flooding, pollution and other environmental damage.

10. *How has the development considered flooding and pollution?*

11. *Has the design considered the use of sustainable drainage systems (SUDS) and how will they be incorporated within the development?*

The site chosen is in a low flood risk zone (Zone 1). As built wholly on the footprint of an existing building or hardstand, there is no increase in impermeable area. All run off will be treated in accordance with the SUDs Manual.

Waste

Aim: To minimise the production of waste and maximise re-use and recycling.

12. How will the development minimise waste sent to landfill?

13. How will the development make the maximum use of construction and demolition waste?

14. How will the development make maximum use of re-used and recycled materials?

Appropriate measures will be set out on the Site Waste Management Plan (required for all projects >£300,000), specific to the chosen contractor.

15. How will provision be made for the storage and recycling of waste for all users of the site?

Internal recycling storage and local authority collection will provide provision compliant with the maximum score available in CfSH.

Pollution

Aim: To minimise damage to the environment through air, ground/surface water, land, noise or light pollution.

16. What measures have been incorporated to ensure that noise and light pollution will be minimised throughout the development?

The building uses a minimal amount of external lighting comprises energy efficient fittings.

17. What measures have been incorporated to reduce nitrogen oxide emissions and reduce the global warming potential of insulants?

Gas boilers will be Class 5 or higher and where possible have NOx output <40mg/kWh. Zero ozone depleting insulants will be used throughout.

18. What measures have been incorporated to reduce the release of pollution into the atmosphere?

Other than the boiler there are no other pollution producing systems.

Health and Well-being

Aim: To improve the quality of life in homes through good daylighting, improved sound insulation, provision of outdoor space with good accessibility.

19. How has the development been designed to maximise natural lighting, reduce the likelihood of noise complaints, incorporate private outdoor space and ensure the layout of the development can be easily adapted to meet the needs of future occupants?

Natural lighting from different directions is used where possible. Party walls and floors will be designed to exceed the building regulations by >5dB by the choice of the correct 'Robust Details'. At least 50% of the dwelling could be adapted to be Lifetime Homes compliant.

Management

Aim: To manage the site in an environmentally and socially considerate manner.

20. What measures have been taken to ensure the construction of the site is managed in an environmentally and socially considerate manner, mitigating environmental impacts?

The following measures will be undertaken by the contractor:

Adoption of Considerate Constructors Scheme
Monitoring and set targets for of site pollution
and site energy use

21. How has the development been designed to ensure people feel safe and secure?

The development will comply with the requirements of 'Secured by Design'.

Ecology

Aim: To retain, protect and enhance wildlife habitats and natural features.

22. How have the wildlife habitats and natural features on and adjacent to the site been considered and how will they be retained, protected and enhanced?

The site is classified as a 'Site of Low Ecological Value' comprising only existing buildings and hard surfaces. Maximum use is made of the existing footprint to limit ecological impact per unit accommodation.

CfSH Pre assessment

As above, for a non-major development, in addition to the checklist a CfSH pre-assessment is required to demonstrate that the development is capable of achieving Code 3, including a 3% pass margin buffer.

Robin Ashley Architects LLP are qualified Code for Sustainable Homes assessors and our standard pre-assessment templates are used in the pre-assessment for Code below.

If required some units could be upgraded to Code 4 if adapted to Lifetime Homes compliance, provided with further cycle parking, 10% renewables and upgraded sound and thermal insulation.

Code for sustainable homes

Project: **Oxford Road, Reading**

Project ref.: **15-035**

Date: **02/05/2017**

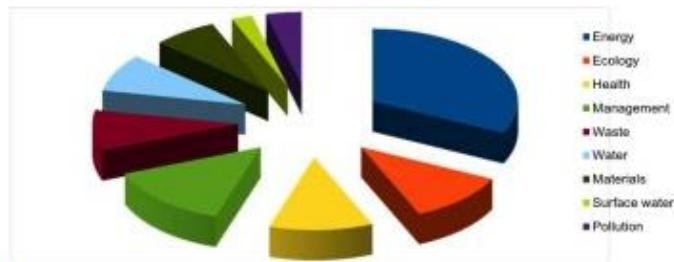
Target level: **3**

Points required: **57**

Points scored: **59.81**

Pass margin: **2.81**

4.9%



Category			Credits available	Credits scored	Weighting factor	Calculated points	Comments
1 - Energy CO ₂	ENE 1	DER /TER	10	1.8			Average 10-15% improvement on BR from SAP
	ENE 2	Building fabric	9	4.4			Averaged from the SAP calc.
	ENE 3	Energy display devices	2	2			Monitoring of gas and electricity through smart meter
	ENE 4	Drying space	1	1			Provide internal airer
	ENE 5	White goods	2	2			Compliant white goods provided
	ENE 6	External lighting	2	2			External + security lights all energy efficient
	ENE 7	Low / zero carbon technology	2	0			Not sought
	ENE 8	Cycle storage	2	1			min 4 spaces
	ENE 9	Home office	1	0			Not sought
	Total		31	14.2	1.17	16.66	
2 - Potable water	WAT 1	Internal	5	3			105 litres / person / day = Level 3/4 min
	WAT 2	External	1	1			Water butt or no external space
	Total		6	4	1.50	6.00	
3 - Materials	MAT 1	Environmental impact	15	13			Based on submission drawings
	MAT 2	Sourcing - basic materials	6	2			Reasonable assumptions
	MAT 3	Sourcing - finish materials	3	1			Reasonable assumptions
	Total		24.00	16.00	0.30	4.80	
4 - Surface water	SUR 1	Run off	2	1			No increase in impermeable area
	SUR 2	Flood risk	2	2			Flood risk zone 1
	Total		4	3	0.55	1.65	
5 - Waste	WAS 1	Household	4	4			Internal storage of waste and recycling in 1100l bins
	WAS 2	Construction	3	3			Site waste management plan. Divert min 80% from landfill
	WAS 3	Composting	1	1			Internal storage and LA collection
	Total		8	8	0.80	6.40	
6 - Pollution	POL 1	GWP of insulants	1	1			GWP potential <5
	POL 2	NOx emissions	3	3			<40mg
	Total		4	4	0.70	2.80	
7 - Health	HEA 1	Daylight	3	0			Not sought
	HEA 2	Sound	4	3			5db better than Part E Robust details
	HEA 3	Private space	1	0			n/a
	HEA 4	Lifetime homes	4	0			Not sought
	Total		12	3	1.17	3.50	
8 - Management	MAN 1	Home user guide	3	3			Guide provided inc site + surroundings
	MAN 2	Considerate constructors	2	2			Score 32-40
	MAN 3	Construction impacts	2	2			Monitor + report on 4 of water, site energy, best practice, pollution + water,
	MAN 4	Security	2	2			Secured by design
	Total		9	9	1.11	10.00	
9 - Ecology	ECO 1	Ecological value of site	1	1			Land is of low ecological value
	ECO 2	Ecological enhancement	1	1			Ecologist report adopted
	ECO 3	Protection of ecological features	1	1			Default case as ECO-01
	ECO 4	Change in ecological value	4	2			Neutral
	ECO 5	Building footprint	2	1			>3:1
	Total		9	6	1.33	8.00	
Total			205	126.38358	7.30	59.81	