CBG SUSTAINABILITY

CODE FOR SUSTAINABLE HOMES PRE-ASSESSMENT

53 FITZROY PARK, LONDON

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All information provided here is based on plans and information available at the time of writing. Prior to implementation of the options discussed, further detailed study, design and costing, based on ground surveys, structural analysis, over shading studies, etc., as relevant to each renewable/low carbon source, is necessary.

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1 EXECUTIVE SUMMARY

The development at 53 Fitzroy Park is the replacement of an existing dwelling for a 4 bed detached 3- storey.

The aspiration of this development is to achieve Code Level 4. This document will inform the client on how to obtain Code for Sustainable Homes certification and crucially, track a route to the desired level. There will also be specific reference to the type of construction and Plant that will achieve Code Level 4.

The main components of the design which have the most significant impact on the Code rating are:

- Low U values for the building fabric.
- Good Air tightness.
- Air Source Heat Pump
- Efficient Gas boiler
- PV's (approx 7kW)
- A visual display monitoring the Gas & Electricity Energy Consumption.
- Lifetime Homes certification.
- Low flow sanitary ware in the bathrooms and kitchens.
- Dedicated space for recycling facilities inside and outside the building.
- Materials used for the elements of the building should score high on the 'Green Guide' Rating for Environmental Impact.
- Sustainable Drainage Systems (SUDS) should be incorporated into the design to manage the surface water runoff. A Flood Risk Assessment must be commissioned in line with Code guidance.
- Considerate Constructor Scheme.
- Ecology report and advice followed including a Planting Schedule.
- And to conclude the high impact issues, it is essential that the home owner/occupier should have a fully comprehensive and user friendly 'Home User Guide'.

To achieve Code Level 4, 68 percentage points are required. Following the guidelines in this report, based on advice from Wolff Architects to reflect the best fit within the design brief the property will achieve 69.54% points.

The issues and credits are described in detail within this document and neatly summarised in the 'Pre Assessment Estimator' in the Appendix.

2 CONTENTS

3 INTRODUCTION

Wolff Architects have appointed CBG Consultants to develop a strategy to meet Code for Sustainable Homes Level 4.

Within the Code Strategy CBG will describe the necessity for Low Energy buildings in line with Building Regulations Part L1A 2013 aswell as compliance with Code Level 4.

4 ENERGY STRATEGY & BUILDING REGULATIONS PART L

Good building design can significantly reduce the need to utilise expensive equipment. Siting of the building, geometry, air-tightness, insulation and materials all play a key role in sustainability. Reduced demand for heating, cooling and power equate to a reduction in the need for Low Zero Carbon (LZC) technologies. This section will deliver some background on the regulations and good design practice for Sustainable Homes which will translate to credits for Code categories Ene 1, Ene2, Ene 3 & Ene 7.

4.1 Energy Strategy

CBG recommend that the Energy Strategy adopts the philosophy of Lean, Clean & Green.

Firstly, the energy demand will be reduced by focus on improving the Fabric of the building. The parameters to consider are:

- U values
- Air tightness
- Accredited Construction Details

Secondly, will be to ensure the Heating and Domestic Hot Water (DHW) is generated with efficient technology and an appropriate control strategy is adopted. The ventilation strategy would have the best overall seasonal efficiency if operated by Mechanical Vent Heat Recovery (MVHR).
MVHR

Lastly, Low Zero Carbon (LZC) technology is considered, such as Photovoltaics or Solar Hot Water for the pool.

Adopting this philosophy will minimise the heat demand of the building and provide the most robust method of long term Carbon reduction from the site.

4.1.1 Building Regulations – Part L Conservation of Fuel & Power

Part L of the UK Building Regulations aims to minimise the carbon dioxide emission rates associated with the operation of buildings. The regulations apply to both the construction of new buildings and renovation of existing buildings. For new buildings post 2013, the regulations require a 6% reduction in CO_2 emissions compared to 2010 standards, depending on the type of building being considered.

To achieve Code Level 4 there should be a further 19% improvement on CO_2 emissions (Dwelling Emission Rate DER) compared to Part L1A 2013 standards.

Calculation of CO_2 emissions of buildings is carried out using standardised methods that aim to ensure buildings are assessed on a like-for-like basis. For Part L1A & Code compliance, the building will be modelled in FSAP to prove the Carbon reduction has been achieved.

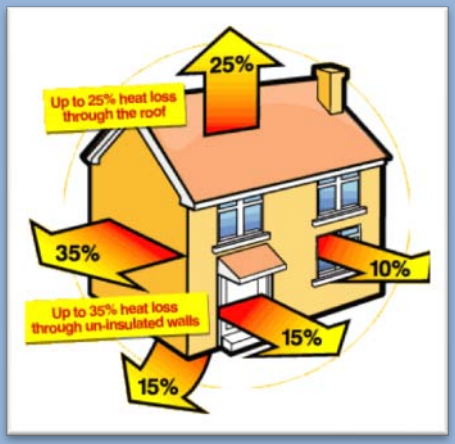
4.1.2 Building Fabric and Form

Energy consumption has been steadily increasing in recent decades, despite advances in technology to improve energy efficiency. This is partly due to greater expectations regarding personal comfort and to increasing numbers of appliances and gadgets that are deemed necessary in modern life.

However, it is still the building envelope itself that wastes the largest amount of energy. Space and water heating are responsible for the majority of energy used in a domestic building, typically over 80%.

An accurate energy assessment of a building envelope will indicate where the main heat losses occur. It is indeed even possible to heat and cool buildings purely from a mixture of solar gains and building 'weight'.

The average UK building will lose approximately 35% of its heating energy through the walls, and 10% through the windows. The roof may well account for up to 25% if not insulated properly and significantly the ventilation losses could easily account for a further 20%. It should be noted than in any building with chimneys or with noticeable drafts this loss can equate to more than 50% of the total building envelope energy loss.



The building envelope is, therefore, the very first item of any strategy that should be examined for improvements as this will also reduce the requirements for other low zero carbon technology, and reduce costs accordingly.

4.1.3 Heating

Almost half of the total energy consumed in the UK is in the form of heat. Over one third of the UK's CO_2 emissions are generated from the consumption of heat energy. There can be great strides to reduce the overall UK CO_2 emissions by focussing on efficient heating of buildings. The following heating technology is appropriate for 53 :

4.1.3.1 Air Source Heat Pump to provide Heating & DHW

Air Source Heat Pumps are electrically driven. The performance and efficiency of a heat pump system is commonly measured by the Co-efficient of Performance (COP). The COP is a simple calculation which works out how much energy the heat pump is able to extract from the energy source (air temperature) compared to the amount of electrical energy used by the heat pump.

$$COP = \frac{\text{Heat output of system (useful heat)}}{\text{Electrical input from compressor and circulating pumps}}$$

While heat pumps are regarded as 'renewable' in principle the electricity taken from the grid to drive the heat pump clearly produces carbon. According to current carbon emission figures from Building regulations Part L, the heat pump will have less carbon emissions than typical gas heating if the COP is greater than 2.6.

4.1.3.2 Modern Gas Boiler

The most efficient type of Gas Boiler is a Combi boiler. The seasonal efficiency will be 88% plus and likely to have a **SEDBUK 2005 'A' rating**.

Flue Gas Heat Recovery Systems (FGHRS) sits neatly between a boiler and flue and recycles the heat from the flue gases which would normally be expelled into the atmosphere and wasted. It is

estimated that the system can reduce the energy required to produce hot water by 37%.

The FGHRS captures and stores heat from the flue gases which would normally be lost through the boiler flue. The heat is recycled to preheat water coming into the boiler from the cold mains supply. Because it doesn't have to raise the temperature so much, the boiler uses significantly less gas to heat the water to the required temperature. These systems are endorsed by the Energy Savings Trust.

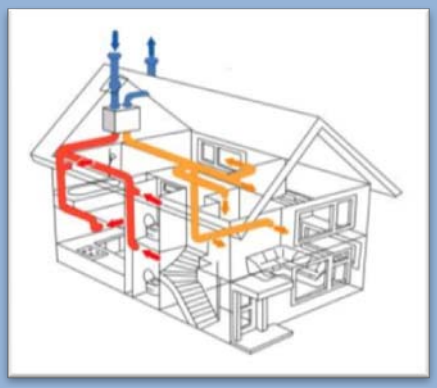
4.1.4 Low Zero Carbon Technology

4.1.4.1 Photovoltaics

Photovoltaic (PV) systems convert energy from the sun into electricity through semi conductor cells connected together and mounted into modules. Modules are connected to an inverter to convert their direct current (DC) in to alternating current (AC), which is usable in buildings. PV can supply electricity either to the building or can be exported to the electricity grid.

PV modules should ideally face south although an orientation of within 45° of south will work. They should be at an incline of 30° to the horizontal for optimum generation. It is essential that the system is un-shaded, as even a small shadow may significantly reduce output.

There is *potential* space for around 56m^2 (7kWp) of PV on the flat roof of the dwelling.



4.1.5 Mechanical Vent Heat Recovery

Modern buildings have a significantly improved fabric and as such there needs to be methods in place to meet the ventilation requirements.

Mechanical Ventilation with Heat Recovery (MVHR) systems are often considered alongside passive technologies that are used to maintain the warmth during the winter. There are savings in CO_2 to be made during the heating season. The internal heat (either due to occupancy, appliance's or other heat generator) is recovered and passed over a heat exchanger to warm the fresh air intake.

4.1.6 Metering Strategy

It is well documented that around 10% of energy consumption can be saved with good management of a building. Managing the building well can be dependent on the information available to the building users.

Therefore, in conjunction with energy efficient fittings and fixtures with *appropriate* controls, it is important that a user- friendly metering strategy is adopted. This will mean that appropriate sub metering which has the potential to display consumption trends are in place. And if displayed in an engaging and informative manner, can be a useful energy saving tool for the home user. This will be essential for credits in section Ene 2 of the Code for Sustainable Homes.

4.1.7 Energy Strategy Summary

Considering all of the elements in this Energy Strategy section, the solution will lie in the results of the SAP calculations. Please see **Section Ene1** for Code targets.

4.2 Financial Incentives

The main thrusts of the government's financial incentives for LZC technology are the Feed In Tariff (FIT) and Renewable Heat

Incentive (RHI). For both schemes, the LZC generator delivers heat or electricity and a tariff is paid to the supplier for every kWh generated over the lifetime of the technology. The Feed In Tarrif (FIT) for electricity generation has been set up and in operation since April 2010. And the Renewable Heat Incentive (RHI) for Domestic Applications was launched in April 2014.

For both of the above incentives, the technology MUST be registered on the **Microgeneration Certification Scheme** (www.mcs.org) and installed by an MCS registered installer. There should be sufficient means of measuring the electricity or heat generated.

Feed In Tariff (FIT) – for Domestic & Non Domestic Applications

Shown in the table below are the relevant technologies with the tariff and duration.

LZC	Scale	Projected tariff if installed before 1st Oct 2014 Ref fitarrifs.co.uk	Duration
PV	2<4kW	14.38/kWh	25yrs

Projects eligible for the FIT must also demonstrate that the property has an EPC of at least a 'C' rating. This should be readily achievable for 53 Fitzroy Park.

Renewable Heat Incentive –Domestic Applications

The RHI is administered by Ofgem E-Serve and information on the scheme, including how to apply can be found at:

ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive

The proposed tariffs for the Domestic RHI are:

LZC	Tariff	Duration
ASHP	7.3p/kWh	7yrs
GSHP	18.8p/KWh	7yrs
Biomass	12.2p/kWh	7yrs
Solar Thermal	19.2p/kWh	7yrs

It should be noted that the RHI is administered by Ofgem E Serve and information on the scheme including final details of the tariff and how to apply can be found at:

www.ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive

A Green Deal assessment and an EPC in order to be initially eligible for the RHI.

5 THE CODE FOR SUSTAINABLE HOMES PROCESS

The Code for Sustainable Homes has been developed to enable a step change in sustainable building practice for new homes. The Code is structured to encourage continuous improvement and attainment in the design and construction of sustainable homes.

There are 6 code levels ranging from Code Level 1 at the lower end of the scale to Code Level 6, a 'zero carbon home'. Code Level 4 is in line with current exemplary performance.

There are at total of 100 percentage points available. Shown in the table are the % points needed to achieve the different Code levels.

Total Percentage Point Score	Code Level	
36	Level 1 (*)	
48	Level 2 (**)	
57	**Level 3 (***)**	
68	**Level 4 (****)**	**Planning requirement**
84	Level 5 (*****)	
90	Level 6 (******)	Aspirational Zero Carbon Home

Code assessments are normally carried out in two stages.

- Design Stage (DS) (from RIBA stage A-G)
- Post Construction Stage (PCS)

The assessment procedure is very similar for both stages. Evidence is collated and then approved by the assessor to determine how many credits are to be awarded. Most of the evidence is very specific and will require time to co-ordinate and collate. This will run most efficiently if there is a dedicated point of contact on the project management team.

Once the evidence is collated, the data is input to a BRE online summary report. This will be examined by the code service provider, BRE. They will then issue the appropriate Code Level Certificate for the Design Stage or Post Construction Stage.

This document is intended to be a straight forward explanation of the credits within the Code and a guide to achieving Code Level 4. The credits targeted are highlighted in **Orange** throughout the document. The accompanying Pre-Assessment Estimator document summarises the Code targets.

5.1 Environmental Impact Categories

The Code rating measures the home against 9 categories to reflect the complete sustainable package. The categories and their weightings within The Code are as follows:

- Energy and CO_2 Emissions – 36.4%
- Health and Wellbeing – 14%
- Ecology – 12%
- Management – 10%
- Water – 9%
- Materials – 7.2%
- Waste – 6.4%
- Pollution – 2.8%
- Surface Water Run-Off – 2.2%

5.2 This Report Structure

Each category will have several Environmental Impact Issues within it; such as 'Dwelling Emission Rate - Ene 1' or 'Change in Ecological Value of Site - Eco 4'. Each of these issues will have its own section in the report with the following details:

- The motivation behind each issue.
- The credits available for each issue (inc the weighted value).
- The Criteria on how to achieve the credits.
- Text highlighted in **ORANGE** indicates the target for 53 Fitzroy Park.

5.3 Mandatory Issues

There are mandatory categories within the Code. The following Environmental Impact Issues have minimum standards to achieve for each level of the Code. The full details of the mandatory criteria are set out in the relevant sections.

- Ene 1 Dwelling Emission Rate - page 20
- Wat 1 Indoor Water Use – page 30

- Mat 1 Environmental Impact of Materials – page 32
- Sur 1 Management of Surface Water Run-off from developments – page 35
- Was 1 Storage of non-recyclable waste and recyclable household waste – page 38
- Was 2 Construction Site Waste Management – page 41
- Hea 4 Lifetime Homes (for Level 6 only) – page 48

5.4 Additional Reports

There are several additional reports which should be commissioned in order to achieve a Code Level rating. Some of them are *mandatory* and others optional in order to gain desired credits.

- SAP 2012 calculations by an approved Competent Person– *Mandatory Ene 1,* optional Ene 2, Ene 7 & Pol 2. CBG Consultants appointed.
- Flood Risk Assessment by a Hydrological Engineer – *Mandatory Sur 1,* optional Sur 2.
- Recommendations of 'Physical Security' in Secured by Design report carried out by an Architectural Liaison Officer - Optional Man 4
- Ecology Report by a suitably qualified Ecologist - Optional Eco 1 to 4.

5.5 Performance Schemes

There are performance schemes that should be considered when embarking on a Code for Sustainable Homes development. Again, some are mandatory and others are optional to gain the credits to reach the desired Code Level.

- Site Waste Management Plan in place to reduce waste and sort & divert waste from landfill. *Mandatory* Was 2
- 'Green Guide' ratings for building elements. *Mandatory* Mat 1.
- Robust Details Limited. Construction details used for sound insulation levels. Optional Hea 3.
- Considerate Constructors Scheme. The contractor should go beyond Best Practice. Optional Man 2

5.6 Tracking Progress

The accompanying Pre-Assessment Estimator clearly details the individual credit issues with the number of appropriate credits, whether they are mandatory and an outline of the requirements. The Pre-Assessment Estimator will be a key tool for tracking the progress towards the desired Code Level certificate.

6 THE ENVIRONMENTAL IMPACT CATEGORIES

6.1 *Category 1: Energy and CO_2 Emissions – 36.4%*

6.1.1 Ene 1 Dwelling Emission Rate

The assessment criterion is the percentage improvement of the Dwelling Emission Rate (DER) over the Target Emission Rate (TER). The calculation is based on the methodology used within SAP2012 and Building Regulations AD L1A. This measures the amount of carbon emissions from the heating, hot water and electricity for lighting for the actual dwelling - DER. This is compared to the target which is generated within the methodology TER.

Credits are awarded in accordance with Table 6.1.1-1**.** It is important to note the mandatory levels shown in the 4th column. In order to achieve a Code level 4, more than 19% improvement of the DER /TER must be reached. If this is not achieved and say only a 15% improvement is attainable, then regardless of the amount of credits in the remaining sections, only a Code Level 3 can be awarded.

The strategy for 53 Fitzroy Park will be to use good U values for the Building Fabric, good air tightness, an efficient Gas boiler, zone time and temperature control and Photovoltaic's.

% Imp of DER / TER	Credits	Weighted Credits	Mandatory Level
≥6%	1	1.26	
≥12%	2	2.52	
≥19%	3		Level 4
≥32%	4		
≥44%	5		
≥56%	6		
≥70%	7		
≥84%	8		
≥100%	9		Level 5
Zero Net CO_2 Emissions	10		Level 6

Table 6.1`.1-1

Design Parameters for SAP

The following table shows the broad Design Parameter's that may attain Code Level 4.

Criteria	Value / Answer
U External Walls	0.11 W/ m^2 K
U Roof	0.11 W/ m^2 K
U floor	0.1 W/ m^2 K
U Windows	2 W/ m^2 K (G value 0.65)
Air Permeability	3 m^3/m^2/hr
Accredited Construction Details Used?	Yes
Air Source Heat Pump as main heating system	COP > 2.6
Efficient back up gas boiler	>89% efficiency
Heating Controls	Time & Temperature Zone Control
PV	Approx 7kWp (56m^2)

Table 6.1.1.2

6.1.2 Ene 2 Fabric Energy Efficiency

The more robust thermal properties of the building, the less energy will be required to heat the building. The Fabric Energy Efficiency is a measure of the thermal properties which considers the external surface area, insulation, air tightness of the building and integrity of construction detailing.

Credits are awarded for the Fabric Energy Efficiency in accordance with Table 6.1.2-1.

It is assumed that the Fabric of the building will be to a good standard therefore 3 credits have been awarded for Ene 2.

Fabric Energy Efficiency kWh/m^2/yr	Credits	Weighted Credit
≤60	3	1.26
≤55	4	2.52
≤52	5	1.26
≤49	6	1.26
≤46	7	1.26
≤42	8	1.26
≤38	9	1.26

Table 6.1.2-1

6.1.3 Ene 3 Energy Display Devices

As is mentioned in Section 4.1.5, accurate monitoring of consumption is a well established method of minimising energy usage.

There are **2 credits** to be gained where a Correctly Specified Energy Display Device is recording Electricity and Primary Heating Consumption.

The Energy Display Device should connect to the incoming main supplies, is self charging and can display the following:

- Local time.
- Current mains energy consumption (kW & kWh).
- Current emissions (g/ kg CO_2).
- Current tariff.
- Current cost.
- Display accurate account balance information.
- Visual presentation of data (ie graphical).
- Historical consumption.

6.1.4 Ene 4 Drying Space

It is increasingly common in a new development to provide a space for a tumble drier in the design rather than a space for natural drying. This credit is to encourage provision of natural drying space. If the drying space is within the dwelling it must NOT be in the living room, kitchen, dining room, main hall or bedroom.

This credit will be achieved with either outdoor drying lines or indoor bathroom drying lines (with appropriate ventilation). The provision of a rotary drying line with the post fixed into concrete will be sufficient.

Ene 4 Criteria	Credits	Weighted Credit
Space with posts and footings or fixings for drying clothes FOR		
4m+ of drying line for 1-2 beds; OR 6m+ for 3+ beds	1	1.26

Table 6.1.4-1

6.1.5 Ene 5 Energy White Labelled Goods

It is estimated that appliances contribute to 19 – 24% of the carbon emissions from a typical semi-detached dwelling. Therefore the choice in appliances can play an important role in reducing the overall CO_2 emissions.

A maximum of 2 credits can be awarded for the choice of white goods supplied in accordance with the Table 6.1.5-1.

Ene 5 Criteria	Credits	Weighted Credit
Where fridges, freezers or fridge-freezers are provided and have an A+ rating under the EU Energy Efficiency Labelling Scheme	1	1.26
Where washing machines and dishwashers have an A rating. AND EITHER Washer –dryers or tumble dryers have a B rating OR information on EU Energy Efficiency Labelling Scheme is provided.	1	1.26
If no white goods provided but information on EU Energy Efficiency Labelling Scheme	1	1.26

Table 6.1.5-1

6.1.6 Ene 6 External Lighting

External lighting for garages, outbuildings, security, feature lighting or communal areas in blocks of flats is not taken into account in SAP calculations. This credit will ensure consideration is given to this aspect of reducing carbon emissions. There is an allowance for creative lighting such as LED's as any fitting less than 5W need not be included.

Shown on Table 6.1.6-1 is the assessment criteria for a maximum of 2 credits.

Ene 6 Criteria	Credits	Weighted Credit
All External Space lighting, incl common areas, is provided by dedicated energy efficient fittings.	1	1.26
All burglar security light fittings are designed for energy efficiency and are adequately controlled such that: • **Burglar security lights are 150W max AND daylight cut off sensors AND PIR control** • **All other security lighting should have dedicated energy efficient fittings AND daylight cut off sensors or timers**	1	1.26
Default cases If no security lighting is installed, then the security lighting credit can be awarded by default	1	1.26
Dual Lamp luminaries' with both space and security lamps can be awarded both credits provided they meet the above criteria for energy efficiency	2	2.52

Table 6.1.6-1

6.1.7 Ene 7 Low or Zero Carbon (LZC) Technologies

The government has a target to generate 20% of energy from renewable sources (Low Zero Carbon (LZC)) by 2020. This should not only reduce emissions but will help to conserve the finite fossil global fossil fuel resources.

The credits are designed to encourage the use of site appropriate technology. The credits are awarded when the energy is supplied from LZC technology registered on the Micro generation Certification Scheme (MCS). The installer must also be MCS registered.

The measured percentage reduction of carbon emissions directly attributed to the LZC will be detailed on the SAP 2009 calculations. The potential level of credits awarded is shown in Table 6.1.7-1.

7kW of photovoltaic panels installed on the roof of the dwelling *may* achieve a 10% reduction in carbon emissions with the current design parameters as described in Section 6.1.1. However this will need to be confirmed with SAP calculations at the Design Stage.

Reduction in carbon emissions	Credits	Weighted Credit
10%	1	1.26
15%	2	2.52

Table 6.1.7-1

6.1.8 Ene 8 Cycle Storage

Ene 8 Criteria	Credits	Weighted Credit
1 bed– 1 cycle space for every 2 dwellings	1	1.26
-1 cycle space per dwelling	2	2.56
2&3 bed – 1 cycle space	1	1.26
-2 cycle spaces	2	2.52
4 bed+ - 2 cycle spaces	1	1.26
-4cycles spaces	2	2.52

Table 6.1.8-1

The majority of car journeys made are less than 5 miles. By providing safe storage of bicycles the Code intends to encourage the use of the bicycle for short journeys. This will be beneficial on 2 fronts; a reduction in noise/air pollution aswell as an increase in health and fitness of the cyclist.

Adequate cycle storage size is:

- 1 cycle: 2m long x 0.75m wide
- 2 cycles: 2m long x 1.5m wide
- 4 cycles: 2m long x 2.5m wide

There should be convenient access to the dwelling and from the cycle store to a public highway. It is not acceptable for the access from the store to the public highway to run through the house.

The storage should be secured with provision of a fully enclosed solid weather proof structure with a secure entrance lock and or secure fixings certified to 'Sold Secure' Silver Standard.

Credits are awarded in accordance with Table 6.1.8-1.

Full credits should be sought with Cycle storage for 2 bike spaces available in a shed at the rear of the dwelling.

6.1.9 Home Office Ene 9

The benefits of working from home include reduction in transport time and greater opportunity to participate in community activities. The number of self employed people is increasing and as many work tasks can be performed remotely, it is increasingly common for individuals to work from home.

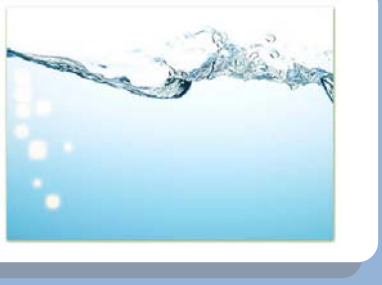
There is **one credit** available (weighted credit 1.26) for the provision of a space for a home office in a suitable quiet room.

In a dwelling with 3 or more bedrooms, the home in the office should not be in the kitchen, living room or master bedroom or bathroom.

The appointed room should have:

- Two double power sockets.
- Two telephone points.
- Daylight factor of at least 1.5%.
- Openable window with a minimum opening casement of $0.5m^2$.
- At least 1.8m of wall length to allow for a desk, chair and filing cabinet or bookshelf to be installed with space to move around the front and side of the desk.

6.2 Category 2: Water – 9%



6.2.1 Wat 1 Indoor Water Use

The predicted 2°C increase in temperature will mean increased variability in global weather patterns. In Britain it is likely that there will be increased risk of flooding and also of extended dry spells. 20% of the UK's water is associated with domestic use and over 50% of domestic use is for flushing toilets and washing.

This credit aims to encourage the reduction of potable water consumption in the home by means of water efficient fittings, appliances and water recycling systems.

There are minimum mandatory performance standards for achieving all levels of the Code. Credits are awarded according to the predicted average water consumption calculated using the Code Water Calculator. Table 6.2.1-1 shows the credits awarded and the relevant mandatory Code levels.

Water Consumption (litre/person/day)	Credits	Weighted Credit	Mandatory Level
≤ 120	1	1.5	L 1 & 2
≤ 110	2	3	
≤ 105	3	4.5	L 3 & 4
≤ 90	4	6	
≤ 80	5	7.5	L 5 & 6

Table 6.2.1-1

Ball park figures for the sanitary ware to achieve 3 credits are as follows:

- Kitchen taps maximum flowrate at 8litres / minute.
- Bathroom taps maximum flow rate of 3litres / minute.
- Shower flow rate of 8litres/minute.
- Bath maximum capacity of 160litres.
    - (could consider a 149litre bath)
- Cistern full flush of 6litres and a part flush of 3litres.
    - (could consider 4 full, 2.6litre flush)

6.2.2 Wat 2 External Water Use

This credit is intended to encourage the use of rainwater collection. This would help to reduce the amount of water being discharged into the drains and water courses, will reduce the risk of localised flooding and reduce household water bills.

There is one credit with a weighted value of 1.5 available. Generally the volume of the water butt should be:

- 200litres for 3 + bedrooms.

These *volume requirements can be halved* if there is no planting provided and the whole space is covered by a hard surface.

Pools, hot tubs or other large water-using features which are fed by mains water will automatically mean that credits cannot be awarded for this issue.

6.3 Category 3: Materials – 7.2%

6.3.1 Mat 1 Environmental Impact of Materials

This credit is designed to encourage the use of materials with lower environmental impacts over the whole life cycle. The BRE methodology for environmental profiles of construction materials, components and buildings is used as a means of establishing rating for materials used. The rating is based on a life cycle assessment which adopts a 'cradle to grave' approach. Each material is scored on a scale from A^+ to E with A^+ having the lowest overall environmental impact. These ratings are published in the Green Guide (www.thegreenguide.org.uk).

Green Guide Rating	Credits	Weighted Credit
A+	3	0.9
A	2	0.6
B	1	0.3
C	0.5	0.15
D	0.25	0.075
E	0	0

Table 6.3.1-1 – Additonal Credits for Each element

There is a *mandatory* requirement with no available credits to achieve a Green Guide rating of between A^+ and D for at least 3 of the following five elements:

- Roof
- External Walls
- Internal Walls (incl separating walls)
- Upper and Ground floors (including
- Windows

As it is likely that different materials are used for each element the grades for each material are averaged to give an overall elemental rating. Up to 0.9 additional weighted credits can be awarded for each element depending on the overall level of the Greed Guide rating. Table 6.3.1-1 shows the level of credits available for each element depending on the Green Guide rating. Where the specification does not have a close match in the green Guide the assessor should contact the Code Service Provider for a bespoke rating. A maximum of 15 credits (weighted value 4.5) can be achieved once all elements are scored and added together.

The target is to achieve **12 credits** across all of the element materials.

6.3.2 Mat 2 Responsible Sourcing of Materials; Basic Building Elements

This credits aims to recognise and encourage the specification of responsibly sourced materials for the basic building elements. There must be auditable third party certification schemes for all of the materials. These schemes are rated in tiers in accordance with the Table 6.3.2-1. Points are awarded where materials used in key building elements meet the criteria in Table 6.3.2-2.

3 credits can be achieved if all timber is FSC and 80% of the building elements in Table 6.3.2-2 have a certified Environmental Management System (EMS) for the Key Process.

Tier Level	Example of compliant scheme
1	Certification scheme: FSC, CSA, SFI with CoC, PEFC, Re Used Materials
2	There are no currently no schemes allocated to tier level 2
3	Timber: MTCC, Verified, SGS, TFT Other materials: certified EMS for the Key Process AND Supply Chain
4	Certified EMS for the Key Process

Table 6.3.2-1

Mat 2 Criteria	Credits	Weighted Credit
Where 80% of the assessed materials in the following Building Elements are responsibly sourced. • Frame • Ground Floor • Upper floors (incl separating floor) • Roof • External Walls • Internal Walls (incl separating walls) • Foundations / substructure (excl sub-base materials) • Staircase Additionally, 100% of any timber in these elements must be legally sourced	1 - 6	0.3 - 1.8

Table 6.3.2-2

6.3.3 Mat 3 Responsible Sourcing of Materials ; Finishing Elements

In line with the previous environmental issue, this credit aims to recognise and encourage the responsible sourcing of finishing materials. The applicable elements are shown in the Table 6.3.3-1. The total credits awarded will be a summation of each elemental credits; this will be calculated on Code Mat 3 calculator.

Mat 3 Criteria	Credits	Weighted Credit
Where 80% of the assessed materials in the following Finishing Elements are responsibly sourced. • Stair • Window • External & Internal door • Skirting • Panelling • Furniture • Fascias • Any other significant use Additionally, 100% of any timber in these elements must be legally sourced	1 - 3	0.3 - 0.9

Table 6.3.3-1

2 credits can be achieved if all timber is FSC and 80% of building elements from Table 6.3.3-1 have a EMS for the Key Process.

6.4 Category 4: Surface Water Run-off, 2.2%

6.4.1 Sur 1 Management of Surface Water Run-off from developments

The Governments Foresight report estimated that currently 80,000 properties have a very high likelihood of flooding from surface water runoff causing on average £270million of damage each year. Climate change will increase this likelihood of flooding and the aim of this category is to reduce the overall discharge of rainwater from impervious hard landscaped surfaces and roofs within the development. This could mean incorporating Sustainable Drainage Systems (SUDS) such as rainwater recycling, pervious paving for all hard surfaces, green roofs or soakaways.

There is a *mandatory* element to this credit which must be achieved for all levels. A further 2 credits (weighted value 1.1) can be achieved as detailed in Table 6.4.1-1.

Green Roof

Documentation required for Sur 1

- Confirmation of the appointment of a hydrological consultant or engineer to carry out the calculations and provide design criteria for all relevant elements.
- Copy of the Flood Risk Assessment (FRA). For developments of less than 1ha, the level of detail required will depend on the size and density for the build.
- Code SUR 1 template document.
- Drawings and specification text to support claims made.
- Consultants report detailing the design specifications, calculations and drawings.
- Proposed operation and maintenance plans.
- Confirmation that the solutions designed have been implemented
- Ensure the initial FRA is still relevant.
- Where SUDS have been implemented the location and brief explanation of their purpose should be included in the Home User Guide.
- Manufacturer's data.

Sur 1 Criteria	Credits	Mandatory Element
Peak Rate of Runoff Ensure that the peak rate of runoff into water courses is no greater for the developed site than it was for the pre-development site.		**All levels**
<200ha - the calculation of Greenfield runoffs should be in accordance with flood estimation for small catchments.		
≥ 200ha – Greenfield runoff should be taken from the Flood Estimation Handbook		
An allowance for climate change should be in accordance with current best practice (PPS25, 2006)		
Volume of Runoff Ensure that the *additional* predicted volume of rainwater discharge caused by the new development, for a 1 in 100 year event of 6 hour duration including an allowance for climate change, should be reduced using infiltration *and/or* made available for use in the dwelling as a replacement for potable water use in non-potable applications such as WC flushing or washing machine operation		
Where this additional rainwater volume cannot be prevented from being discharged for any reason, for all events up to the 100-year return period, the peak discharge rate from the site should be reduced to: • The pre-development site's estimated mean annual flood flow rate (Qbar) • 2l/s/ha, or • A min flow rate (l/s) based on good practice guidelines to prevent easy blockage, by ensuring the outlet throttle is not too small. If rainwater is discharged to a public sewer or adopted surface water sewer flow rate requirements will be defined by the Sewerage undertaker.		
Credits are available for using SUDS to improve water quality of the rainwater discharged or for protecting the quality of the receiving waters by: 1/ Ensuring no discharge to the water course for rainfall depths up to 5mm. 2/ Establish agreements for the ownership, long term operation and maintenance of all SUDS used.	**2** / 1.1 weighted	

Table 6.4.1-1

6.4.2 Sur 2 Flood Risk

Floods are now on average nearly twice as frequent as they were 100 years ago. Around 1 in 6 households in the UK are at risk of flooding . More extreme weather patterns and increased rainwater discharge from hard surfaces and some agricultural land means that flooding is likely to continue to increase.

The aim is to encourage housing developments to be built in Low Risk Flood areas. Or to take measures to reduce the impact of flooding on houses built in areas with a medium or high risk of flooding.

A Flood Risk Assessment (FRA) will firstly identify the appropriate Flood Risk Zone with reference to Table 6.4.1-1.

Credits are awarded in accordance with Table 6.4.2-2.

Flood Risk	Zone
Low annual probability of flooding	1
Medium annual probability of flooding	2
High annual probability of flooding	3a

Table 6.4.1-1

Documentation required for Sur 2

- Copy of the FRA.
- For Zone 2 and 3a; written confirmation from the Environment Agency of the reduction in flood risk category of the site if under the protection of existing/maintained flood defences.
- Supporting manufacturer's data covering details of any flood protection.
- Site plans indicating the design flood level, the range of ground levels of the dwellings, car parking areas and site access, showing that all criteria are met along with any notes to explain the function of any areas lying below the design flood level.
- At the post construction stage, check that FRA is still current.
- Confirmation that no changes have occurred at PCS.

Sur 2 Criteria	Credits	Weighted Credit
Developments in Zone1	**2**	**1.1**
Or, for Developments in Zone 2 or 3a - where finished ground floor level is 600mm above the design flood level. The FRA must demonstrate the development is appropriately flood resilient, including safe and escape routes where required, and that any residual risk can be safely managed.	1	0.55

Table 6.4.2-2

6.5 Category 5: Waste – 6.4%

6.5.1 Was 1 Storage of non-recyclable waste and recyclable household waste

Around ½ tonne of household waste is generated by each household in the UK. With the development and publication of the Waste Strategy for England (2007), targets for recycling and composting of household waste are at least 40% by 2010 and 45% by 2015. The aim of this assessment is to ensure adequate storage provision for waste to enable its appropriate management. There is a mandatory element for this issue. This and the further credits achievable are shown in the following Tables.

Was 1 MANDATORY Criteria	Credits	Mandatory Element
Storage of Household Waste The space required for waste storage based on a maximum frequency collection of once per week is: 100litres for single bedroom dwelling, with a further 70 litres volume for each additional bedroom	None	All levels
An LA offering the minimum volume of containers above will meet the requirement providing there is adequate external space to accommodate them. If no LA scheme exists the developer will need to demonstrate min volume is met.	None	All levels
All containers must be accessible to disabled people, particularly wheelchair users, and sited on a hard, level surface. The containers must not be stacked.	None	All levels

Table 6.5.1-1

Was 1 Criteria	Credits	Weighted Credit
Storage of recyclable Household waste Dedicated internal storage can be credited when there is no dedicated external storage capacity for recyclable material, no LA collection scheme and there are at least 3 internal bins which are: • Located in adequate internal space. • No individual bin smaller than 15 litres • Min total capacity of 60 litres	2	1.83
A combination of internal storage capacity provided in an adequate internal space with either • An LA collection scheme • No LA collection scheme but adequate external storage capacity Please see Table 6.5.1-3 for more detail	4	3.66

Definitions for Was 1 Criteria

Local Authority Collection Scheme. In addition to an LA collection scheme with at least fortnightly collections one of the following must be met:

- Where recyclable household waste is sorted **after** collection and at least a single 30litre bin is provided in an adequate internal space
- Where materials are sorted **before** collection and at least 3 separate bins (min capacity 7 litres each) are provided with 30 litres total capacity and be located in an adequate internal space.
- An automated waste collection system which collects at least 3 different types of recyclable waste.

No LA Authority collection scheme but adequate external storage. For Houses and flats, 3 identifiably different ***internal*** storage bins for recyclable waste with a min total capacity of 30litres and each bin is no less than 7 litres.

AND For houses, space must be provided for storing at least three ***external*** bins for recyclable waste with min total capacity of 180litres and no bin less than 40litres. All bins should be located within 30m of an external door. (50m is allowable if strategic reasons outside the developers control make it impossible – a written justification must be provided.

For blocks of flats, a private recycling scheme operator must be appointed to maintain bins and collect recyclable waste regularly.

Adequate External Space: Outdoor space supplied for storing non-recyclable waste and recyclable materials. External recycling bins should be located on level hard standing and must be covered and within a reasonable distance of the external door to the dwelling / block of flats.

Adequate Internal Space: Refers to indoor space supplied for storing non-recyclable materials. Internal recycling bins should be located in a dedicated non obstructive position. This should be in a cupboard in the kitchen, close to the non-recyclable waste bin, or located adjacent to the kitchen in a utility room or connected garage. Free standing recycling bins placed directly on the floor or in a cupboard do not comply

Table 6.5.1-3

6.5.2 Was 2 Construction Site Waste Management

Over 100million tonne of construction and demolition waste is generated in the UK annually and it is estimated that 13million tonnes of unused building materials are discarded as waste. This issue aims to promote reduction and effective management of construction related waste through the use of a Site Waste Management Plan (SWMP). There is a mandatory requirement to have a SWMP if the cost of construction is more than £300k. Further credits are awarded according to the table below.

Was 2 Criteria	Credits	Weighted Credits
Minimising construction waste	1	0.91
AND		
The SWMP must include procedures and commitments to sort and divert at least 50% of the waste from landfill.	2	1.82
Or		
The SWMP must include procedures and commitments to sort and divert at least 85% of the waste from landfill.	3	2.73

6.5.3 Was 3 Composting

Organic waste in a landfill site degrades to form leachate and methane gas. Leachate is a toxic liquid, which can pollute water and soil. Methane is explosive and is also a greenhouse gas. Over 30% of waste can be diverted from landfill by composting at home, providing a very effective and environmentally friendly way of recycling organic waste. The compost can be used in the garden as a conditioner or mulch to enrich the soil.

These credits are aimed to encourage the facilitation of composting household waste. The criteria for obtaining the credit are set out in Table 6.5.3-1. Please note that all facilities must be accessible to disabled people AND include space for a kitchen waste container. Of course there should be an exterior composter and there should be an information leaflet for the dwelling.

Was 3 Criteria	Credits	Weighted Credits
Individual home composting facilities OR A local communal or community composting service, which the LA runs or where there is a management plan in place. OR An LA green/kitchen waste collection system	1	0.91

Table 6.5.3-1

6.6 Category 6: Pollution – 2.8%

6.6.1 Pol 1 Global Warming Potential (GWP) of Insulants

The Kyoto Protocol has set limits on six specific gases that contribute towards global warming. These are carbon dioxide, methane, nitrous oxide, hydro fluorocarbons, per fluorocarbons and sulphur hexafluoride. These gases have the ability to absorb infrared radiation which leads to the increase in temperature of the earth's surface and lower atmosphere. This is measured as the Global Warming Potential (GWP). The GWP measures the total energy absorbed by 1 kg of released gas over one hundred years, relative to CO_2 (CO_2 set at at GWP of 1).

Table 6.5.3-1 shows the GWP for each of gases named in the Kyoto Protocol. For an example, this indicates that Methane has 21 times the ability to absorb infrared radiation over the hundred year period.

The aim of this credit is to reduce global warming from blowing agent emissions that arise from the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials. Details of this credit are shown in the Table 6.6.1-1.

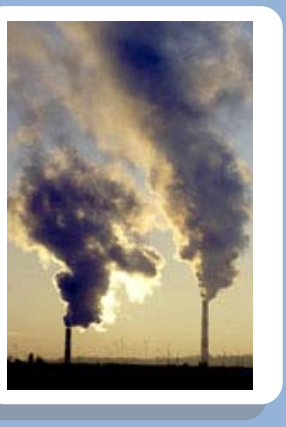
Gas	GWP
Carbon Dioxide – CO_2	1
Methane – CH_4	21
Nitrous Oxide - NO_x	310
Hydrofluorocarbons - HFCs	140 – 11,700
Perfluorocarbons - PFCs	6,500 – 9,200
Sulphur Hexafluoride – SF_6	23,900

Table 6.5.3-1

Pol 1 Criteria	Credits	Weighted Credits
One credit is awarded where all insulating materials in the elements of the dwelling listed below only use substances that have a GWP < 5 (manufacture AND installation): • Roof; including loft spaces • Walls: internal and external including lintels and all acoustic insulation • Floors: including ground and upper floors. • Hot water cylinder: pipe insulation and other thermal stores • Cold water storage tanks: where provided • External doors	1	0.7

Table 6.6.1-1

6.6.2 Pol 2 NO_x Emissions



Nitrogen oxides are emitted from the burning of fossil fuels and contribute to both acid rain and to global warming. Burners in domestic heating are a significant source of low lever NOx, while power stations are a significant source of NOx in the upper atmosphere. This credit rewards developers who include low-NOx boilers, use low NOx fuels or other low NOx systems.

Credits are awarded on the basis of NOx arising from the operation of space heating and hot water system for each dwelling in accordance with the Table 6.6.2-1.

If the heating and hot water energy requirement is fully met by systems which do not produce NOx emissions then the full 3 credits can be awarded.

No credits may be awarded for open flue heating or hot water systems.

If a heating system supplies less than 8% of the dwelling's combined total space heating and hot water demand, it can be ignored.

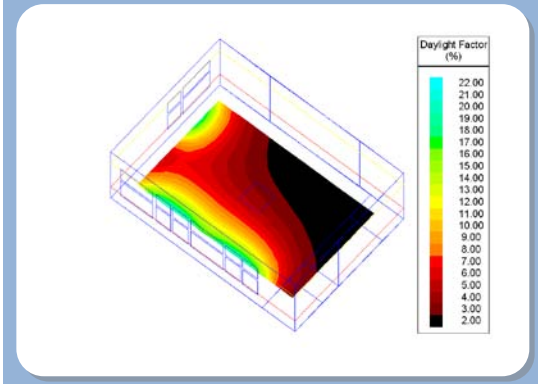
Mains electricity is assumed to have 1200mg/kWh.

This credit is not sought as mains electricity is the primary energy source for the heating system.

Dry NOx level (mg/kWh)	Boiler Class	Credits	Weighted Credits
≤ 100	4	1	0.7
≤ 70	5	2	1.4
≤ 40	-	3	***2.1***

Table 6.6.2-1

Category 7: Health & Wellbeing- 14%



6.6.3 Hea1 Daylighting

Adequate access to daylight will contribute to the health and wellbeing of dwelling occupants by providing them with a pleasant living environment. Credits are achieved on meeting minimum daylight factors suggested by the British Standard BS 8206-2. The likely credits are shown on Table 6.6.3-1. There may be a chance to achieve the 3rd credit. This would be confirmed at the Post Construction Stage.

Hea 1 Criteria	Credits	Weighted Credits
Kitchens must achieve a min average daylight factor of at least 2%	**1**	1.16
Living rooms, dining rooms and studies (home office) must achieve a min average daylight factor of 1.5%	**1**	1.16
80% of the working plane (0.85m above the floor) in each kitchen, living room, dining room and study must receive direct light from the sky.	1	1.16

Table 6.6.3-1

6.6.4 Hea 2 Sound Insulation

According to Environmental Health officers in 2003/04 75% of all noise complaints received were from domestic premises. This equates to 6000 noise complaints per million people. The purpose of this credit is to encourage higher standards of sound insulation through a commitment to design and build constructions that exceed the minimum performance standards in the Building Regulations Approved document E.

Credits are awarded based on pre-completion testing or Robust Details in accordance with Table 6.6.4-1. Robust Details (RDs) are construction solutions that provide an alternative to pre-completion sound insulation testing as a method of complying with Building Regulations. Details must be approved by Robust Details Ltd and all development sites must be registered with RDL and built in

accordance with the RD specification.

Hea 2 Criteria	Credits	Weighted Credits
Where compared with performance standards set out in Building Regulations Approved Document E		
EITHER • Airborne sound insulation values are at least 3dB higher • Impact sound insulation values are at least 3dB lower	1	1.16
OR • **Airborne sound insulation values are at least 5dB higher** • **Impact sound insulation values are at least 5dB lower**	**3**	3.5
OR • Airborne sound insulation values are at least 8dB higher • Impact sound insulation values are at least 8dB lower	4	4.7
All of the above can be demonstrated through EITHER a programme of pre-completion testing. **OR use of constructions for all relevant building elements that have been assessed and approved by Robust Details Limited (RDL)**		
Detached dwellings	**4**	4.7
Attached dwellings where separating walls or floor only occur between non-habitable rooms.	3	3.5

Table 6.6.4-1

6.6.5 Hea 3 Private Space

The provision of a secure private space is an effective way to improve the quality of the occupier's life. Private outdoor spaces should be adaptable so that the occupant can use it as best suits. For example some would prefer a secure space for children to play or gardening space or simply a private space for fresh air.

Outdoor space is categorised as either:

- Private garden.
- Communal garden.
- Balcony.
- Roof terrace.
- Patio.

The minimum size for the outdoor space is 1.5m^2 per bedroom if a private space and 1m^2 per bedroom if a shared space. One credit can be awarded based on the criteria in Table 6.6.5-1.

Hea 3 Criteria	Credits	Weighted Credits
Where outdoor space that is private or semi-private that is: **1. Of a minimum size that allows occupants to sit outside.** **2. Allows easy access to all occupants, including wheelchair users.** **3. Accessible only to occupants of designated dwellings.**	**1**	1.16

Table 6.6.5-1

6.6.6 Hea 4 Lifetime Homes

The Lifetime Homes concept was developed in the early 1990's. There are 16 design criteria which aim to produce homes that are accessible to a wide range of occupants and able to be easily adapted to meet the changing needs of a household. For a Level 6 assessment, it is mandatory to achieve all of the lifetime homes criteria. There are **4 credits** awarded (4.67 weighted) if all of the 16 criteria on the Lifetime homes checklist are met.

These are important and fundamental credits that are relevant to the shaping of the 53 Fitzroy Park.

Documentation required for Hea 4

- Completed Lifetime Homes Checklist.
- As Built drawings highlighting each Lifetime Homes feature from completed design stage.

6.7 Category 8: Management – 10%

6.7.1 Man 1 Home User Guide

The aim of this credit is to encourage the provision of guidance enabling occupants to understand and operate their home efficiently and make the best of local facilities.

A total of 3 credits are awarded for the provision of a simple user guide which covers information relevant to the 'non-technical' tenant/owner on the operation and environmental performance of their home in accordance with Table 6.7.1-1.

Man 1 Criteria	Credits	Weighted Credits
A Home User Guide compiled using Code Checklist Man 1 together with information that the guide is available in alternative accessible formats.	2	2.22
Where the guide also covers information relating to the site and its surroundings, compiled using Code Checklist Man1	1	1.11

Table 6.7.1-1

6.7.2 Man 2 Considerate Constructors Scheme

The Considerate Constructors Scheme is concerned about any area of construction activity that may have a direct or indirect impact on the image of the construction industry as a whole. The main areas of concern fall into three main categories: the environment, the workforce and the general public.

The aim of this credit is to recognise and encourage construction sites managed in an environmentally and socially considerate and accountable manner.

Credits are awarded in accordance with Table 6.7.2-1

Man 2 Criteria	Credits	Weighted Credits
Where there is a commitment to meet Best Practice under a nationally or locally recognised scheme such as the Considerate Constructors Scheme OR	1	1.11
Where there is a commitment to go significantly beyond Best Practice under a nationally or locally recognised scheme such as the Considerate Constructors Scheme	**2**	2.22

Table 6.7.2-1

It is expected that the contractor will go beyond Best Practice on the Considerate Constructors Scheme.

6.7.3 Man 3 Construction Site Impacts

The aim of this credit is to recognise and encourage construction sites managed in a manner that mitigates environmental impacts. Credits are awarded where there is a commitment and strategy to operate site management procedures as per Table 6.7.3-1.

Man 3 Criteria	Credits	Weighted Credits
Where there are procedures that cover 2 or more of the following items:		
• Monitor, report and set targets for CO_2 production or energy use arising from site activities • Monitor and report CO_2 or energy use arising from commercial transport to and from site. • Monitor, report and set targets for water consumption from site activities. • Adopt best practice policies in respect of air (dust) pollution arising from site activities. • Adopt best practice policies in respect of water (ground and surface) pollution occurring on the site. • 80% of timber is reclaimed, re-used or responsibly sourced	1	1.11
Where there are procedures that cover 4 or more of the items listed above	**2**	2.22

Table 6.7.3-1

6.7.4 Man 4 Security

Safety and security are essential elements of a successful longevity of a development. Reduced fear of crime will improve the quality of life for the residents and enhance community cohesion.

'Secured by Design' is a free certification scheme run by the police, who provide an Architectural Liaison Officer (ALO) to give advice to a developer. The award does not mean that the premises are crime proof, but they have been subjected to a minimum standard of security that will significantly reduce the risk of crime.

Credits are achieved by complying with Section 2 – Physical Security in the Secured by Design - New Homes. Details are shown in Table 6.7.4-1.

Man 4 Criteria	Credits	Weighted Credits
Where an Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) from the local police force is consulted at the design stage and their recommendations are incorporated into the design of the dwelling.	2	2.22

Table 6.7.4-1

It is crucial that this report is carried out early on in the Design Process.

Documentation required for Man 4

- Specification clause or other confirmation showing that an ALO/CPDA has been appointed to provide advice in the EARLY design stage
- Confirmation that all of the recommendations from ALO/CPDA have been followed to meet the credit criteria.
- Either Assessor Site Inspection Report or As Built Drawings.

6.8 Category 9: Ecology – 12%

6.8.1 Eco 1 Ecological Value of Site

The ecological value of a site is affected by previous uses and the presence of ecological features such as trees, hedges watercourses, wetlands, meadows, etc. The re-use of existing sites will help to slow down the destruction of natural habitats and the wildlife they support, as well as preventing loss of land used for agriculture, parkland etc.

The aim of this credit is to encourage development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites. Credits are awarded in accordance with Table 6.8.1-1.

Eco 1 Criteria	Credits	Weighted Credits
Where the *development site* is confirmed as land of inherently low ecological value. EITHER by meeting the criteria for low ecological value using Code Checklist 1. OR by being confirmed by a Suitably Qualified Ecologist OR an independent ecological report confirms that the *construction zone* is of low or insignificant ecological value. AND any land of ecological value outside the *construction zone* but within the development will remain undisturbed.	1	1.33

Table 6.8.1-1

Construction Zone: Includes land used for buildings, site access, hard standing or landscaping plus a 3m boundary in either direction. It also includes temporary site storage.

It is important for the design team to consider the checklist Eco 1 before the development is underway and have documented evidence that the Eco 1 checklist has been complete before the construction is underway.

It is likely that the site will have low Ecological value.

6.8.2 Eco 2 Ecological Enhancement

If advice is sought early on in the design process, it is feasible that an improvement in the ecological value of the site can be achieved. These credits are awarded in accordance with Table 6.8.2-1.

Eco 2 Criteria	Credits	Weighted Credits
Where a suitably qualified Ecologist has been appointed to recommend appropriate ecological features that will positively enhance the ecology of the site. AND where the developer adopts all key recommendations and 30% of additional recommendations.	1	1.33

Table 6.8.2-1

6.8.3 Eco 3 Protection of Ecological Features

Construction sites often contain existing ecological features that need to be protected from damage (both direct and indirect). Such damage can be caused by impacts, fires, pollution, soil compaction, changes in the water table and steps should be taken to minimise the risk of such damage. The aim of this credit is to protect ecological features from damage during the clearing of the site and the completion of construction works. Credits are awarded in accordance with Table 6.8.3-1.

Eco 3 Criteria	Credits	Weighted Credits
Where all existing features of ecological value on the development site potentially affected by the works, are maintained and adequately protected during site clearance, preparation and construction works.	**1**	1.33
This credit can be awarded by default if it is of low ecological value in accordance with Eco 1 OR an Ecologist has confirmed a feature can be removed due to insignificant ecological value. Or aboriculturalist has confirmed a feature can be removed due to poor health/condition (eg. Diseased trees)		

Table 6.8.3-1

6.8.4 Eco 4 Change in Ecological Value of the Site

This section of the Code is designed to reward steps taken to minimise reductions in ecological value and to encourage improvement. This is done by comparing the value of a site before and after development and making direct comparisons in terms of plant species.

Credits are awarded where the resulting change in ecological value as per Table 6.8.4-1.

It is important that there is good evidence to calculate the Ecological Value of the site BEFORE construction commences.

Eco 4 Criteria	Credits	Weighted Credits
The ecological value before and after development is measured, and the overall change in species per hectare is:		
Minor negative change; < -9 and ≤ - 3	1	1.33
Neutral; < -3 and ≤ +3	2	2.67
Minor enhancement; <3 and ≤ 9	**3**	4
Major enhancement; < 9	4	5.33

Table 6.8.4-1

An ecologist should be appointed if there are credits to be sought here.

Documentation required for Eco 4

- Drawings showing the site layout, site survey clearly showing natural and built features on both the site, land surrounding the site before the development and landscape and plot categories
- Copy of calculations from the assessor showing proposed changes. (Using Eco 4 checklist)
- If the advice of an ecologist is sought, need to see a copy of the ecologist report with drawings (or spec) showing how the proposed planting schemes will be implemented.
- Evidence of implementation of the recommendations either through a site inspection report.

6.8.5 Eco 5 Building Footprint

Land available for development will become increasingly expensive as land resources come under pressure with the potential loss of urban parkland, allotments, agricultural land and the pressure on valued ecological sites such as salt marshes. Use of 'Greenfield' sites are already being limited and developers are likely to experience opposition from the local community. To make best use of the available land and other resources, including materials and energy, it is important to ensure effective use of the building footprint by maximising the usable space.

Eco 5 Criteria	Credits	Weighted Credits
For Houses; NIF: NIGF is ≤ 2.5:1	1	1.33
For Houses; NIF: NIGF is ≤ 3:1	2	2.67

Table 6.8.5-1

This credit aims to promote an efficient use of a building's footprint. The issue is assessed on a site wide basis. Credits are awarded where the ratio of combined Net Internal Floor (NIF) area to Net Internal Ground Floor (NIGF) area. The ratios and according credits are detailed in Table 6.8.5-1.

There will be 1 credit available as the dwelling NIF:NIGF is greater than 2.5:1.

7 APPENDIX

Pre Assessment Estimator

breglobal

Results

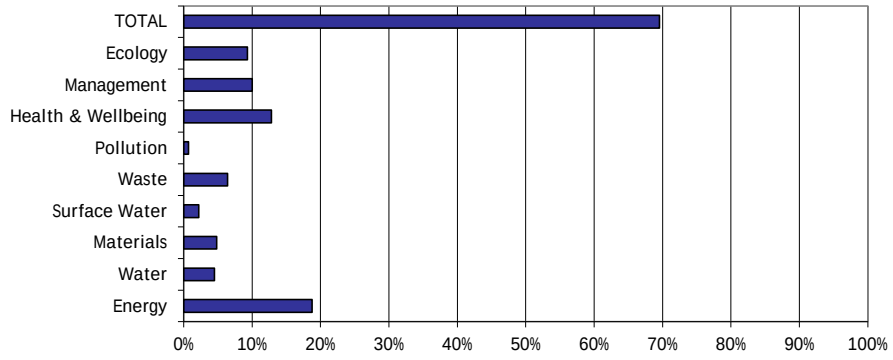
Development Name:	53 Fitzroy Park, N6 6JA
Dwelling Description:	Luxury 4 Bed Detached.
Name of Company:	Wolff Architects
Code Assessor's Name:	Karen Froud
Company Address:	
Notes/Comments:	Aim for Code 4

PREDICTED RATING - CODE LEVEL: 4

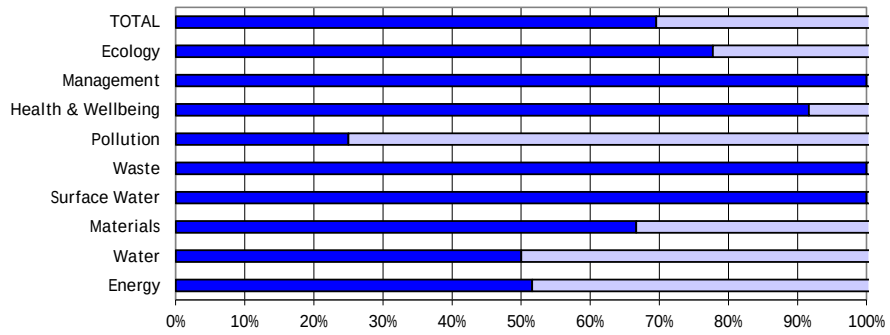
Mandatory Requirements: **All Levels**

% Points:	**69.54%**	**- Code Level: 4**
Breakdown:	**Energy**	**- Code Level: 4**
	Water	**- Code Level: 4**

Graph 1: Predicted contribution of individual sections to the total score and percentage of total achievable score



Graph 2: Predicted percentage of credits achievable: Total and by Category



NOTE: The rating obtained by using this Pre Assessment Estimator is for guidance only. Predicted ratings may differ from those obtained through a formal assessment, which must be carried out by a licensed Code assessor.

CATEGORY 1 ENERGY	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted: 51.61		Credits	Level		
Contribution to Overall % Score: 18.78 points		16.0 of 31 Credits	Level 4		
Ene 1 Dwelling Emission Rate	Credits are awarded based on the percentage improvement of the Dwelling Emission Rate (DER) over the Target Emission Rate (TER) as calculated using SAP 2012. Minimum standards for each Code level apply. The Code energy calculator can be used to calculate a predicted score. Enter the predicted score What is the predicted number of credits? 3.0 OR Are zero net CO_2 emissions achieved? ☐	3.0 of 10 Credits	Level 4	ACD's. Air tightness 3m3/m2/hr; Walls 0.11W/m2K; Floor 0.1W/m2K; Roof 0.11W/m2k; Windows 2W/m2K; ASHP w back up boiler ; MVHR throughout; approx 4kW PV	As Built SAP12 DER Worksheet from accredited energy assessor. Dated with energy assessor name, registration no. and dwelling addresses/ Copy of plans to check construction details
Ene 2 Fabric Energy Efficiency	Credits are awarded based on the Fabric Energy Efficiency ($kWh/m^2/yr$) of the dwelling. Minimum standards apply at Code levels 5 and 6. The Code energy calculator can be used to calculate a predicted score. Enter the predicted score Apartments, Mid-terrace ○ OR End terrace, Semi and Detached ◉ OR Staggered Mid terrace ○ What is the predicted number of credits? 3.0	3.0 of 9 Credits	-		SAP outputs.
Ene 3 Energy Display Devices	Credits are awarded where a correctly specified Energy Display Device is installed monitoring electricity and/or primary heating fuel consumption. Select whether the EDD monitors electricity and/or fuel None Specified ○ Primary Heating only ○ OR Electricity only ○ OR Electricity and primary heating fuel ◉	2 of 2 Credits	-	Self charging sensors fixed to incoming mains supply. Following info should be displayed:time, mains energy consumption (kW & kWh); current emissions (kg CO2); current tariff; current cost; account balance info; visual presentation of data; historical consumption of data.	Doc evidence of correctly specified energy display & the consump data

Issue		Credits	Level	Assumptions Made	Evidence Required
Ene 4 Drying Space	One credit is awarded for the provision of either internal or external secure drying space with posts and footings or fixings capable of holding 4m+ of drying line for 1-2 bed dwellings and 6m+ for dwellings with 3 bedrooms or greater. Will drying space meeting the criteria be provided? Yes ◉ OR No ○	**1 of 1 Credits**	-	6m+ of drying line	Drawings showing location of fixings, footings or posts (incl text with min length line and type of fixings)/ Copies of PO's or Photo or Inspection Rpt
Ene 5 Energy Labelled White Goods	Credits are awarded where each dwelling is provided with either information about the EU Energy Labelling Scheme, White Goods with ratings ranging from A+ to B or a combination of the previous according to the technical guide. Select the appropriate option below EU Energy labelling information **only** ☐ A+ rated appliances ☑ A rated washing machine and dishwasher ☑ B rated tumble dryer or washer dryer ☐ EU Energy labelling information provided ☑	**2 of 2 Credits**	-	A+ fridge freezer; A washing m/c and dishwasher. Energy efficiency labelling scheme information	Make and model of all white goods on specification or drawing / Copy of EU Energy Eff Labelling scheme / Manuf literature confriming EU Rating / Inspection Rpt or PO's
Ene 6 External Lighting	Credits are awarded based on the provision of space lighting* with energy efficient light bulbs/lamps and security lighting fittings with appropriate control systems. Space Lighting None provided ◉ OR Non Code compliant lighting ○ OR Code compliant lighting ○ Security Lighting None provided ◉ OR Non Code compliant lighting ○ OR Code compliant lighting and controls ○ Dual lamp luminaires Compliant with both above criteria ☑ * Statutory safety lighting is not covered by this requirement	**2 of 2 Credits**	-	Space and security lighting with dedicated energy efficient fittings. Burglar Security lighting max wattage of 150W, PIR and Daylight cut-off sensor. Other security lights with daylight cut-off.	Drawings showing location of external light fittings

Issue		Credits	Level	Assumptions Made	Evidence Required
Ene 7 Low or Zero Carbon Technologies	Credits are awarded where there is a 10% or 15% reduction in CO_2 emissions resulting from the use of low or zero carbon technologies. Select % contribution made by low or zero carbon technologies Less than 10% of demand (●) OR 10% of demand or greater ( ) OR 15% of demand or greater ( )	**0 of 2 Credits**	-		SAP Outputs. LZC certified under the Microgeneration Certification Scheme.
Ene 8 Cycle Storage	Credits are awarded where adequate, safe, secure and weather proof cycle storage is provided according to the Code requirements. Fill in the development details below Number of bedrooms: 4 Number of cycles stored per dwelling* 4.0 * if you have storage for 1 cycle per two dwellings insert 0.5 in number of cycles stored per dwelling	**2 of 2 Credits**	-	4 cycles for 4beds+	Drawings & text showing location, size and type of storage; Access to storage; security measures.
Ene 9 Home Office	A credit is awarded for the provision of a home office. The location, space and services provided must meet the Code requirements. Will there be provision for a Home Office? Yes (●) OR No ( )	**1 of 1 Credits**	-	Room with 1.5% daylight, openable window. 1.8m wall lenght; two double power sockets; one telephone point and a connection to cable or broadband on site	Drawings & text showing location of sockets, telephone points & a letter checking broadband availability.

CATEGORY 2 WATER	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted: 50.00		Credits	Level		
Contribution to Overall Score: 4.50 points		3 of 6 Credits	Level 4		
Wat 1 Indoor Water Use	Credits are awarded based on the predicted average household water consumption, calculated using the Code Water Calculator Tool. Minimum standards for each code level apply. Select the predicted water use / Mandatory Requirement greater than 120 litres/ person/ day ○ OR ≤ less than 120 litres/ person/ day ○ OR ≤ less than 110 litres/ person/ day ○ OR ≤ less than 105 litres/ person/ day ◉ OR ≤ less than 90 litres/ person/ day ○ OR ≤ less than 80 litres/ person/ day ○	3 of 5 Credits	Level 3 AND Level 4	<=105lit per person per day; Achieveable with Taps 3lit/min; shower 8l/m; kitchen/utility taps 8l/m; cistern full 4l/ part 2.6l; bath capacities one at 220l, four at 149lit.	Location, details and type of appliances or fittings. Incl capacity, flow rate of equip./ water efficiency calculator / Manuf literature / Insp Rpt or Photo's
Wat 2 External Water Use	A credit is awarded where a compliant system is specified for collecting rainwater for external irrigation purposes. Where no outdoor space is provided the credit can be achieved by default. Select the scenario that applies No internal or communal outdoor space ○ OR Outdoor space with collection system ○ OR Outdoor space without collection system ◉	0 of 1 Credits	-	Will not get this credit as have swimming pool.	

CATEGORY 3 MATERIALS	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted: 66.66		Credits	Level		
Contribution to Overall Score: 4.80 points		16 of 24 Credits	All Levels		
Mat 1 Environm-ental Impact of Materials	Mandatory Requirement: At least three of the five key building elements must achieve a Green Guide 2008 Rating of A+ to D. Tradable Credits: Points are awarded on a scale based on the Green Guide Rating of the specifications. The Code Materials Calculator can be used to predict a potential score. Mandatory Requirement Will the mandatory requirement be met? ☑ Enter the predicted score What is the predicted number of credits? 11	11 of 15 Credits	All Levels	Aim for elements rated above 'A' in the Green Guide (mostly A+) - Roof, External Walls, Internal Walls, Upper & Ground Floors, Windows	Letter of instruction. / Mat 1 calculator / Letter from developer confirming that the dwellings are constructed in accordance OR Insp rpt or PO's . Green guide filled in from BR spec.
Mat 2 Responsible Sourcing of Materials - Basic Building Elements	Credits are awarded where materials used in the basic building elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score. Enter the predicted Score What is the predicted number of credits? 3	3 of 6 Credits	-	100% timber to be FSC. 80% of following elements to have a Environmental Management system for the Key Processes of the materials (ISO 14001/BS8555): Frame, Ground Floor, Upper Floor(incl separating), Roof, External walls, Internal Walls(incl separating), Foundation, Staircase	Letter of instruction / Details for materials specified/ spreadsheet breaking down the build up of element (m3) - Mat 2 Calc
Mat 3 Responsible Sourcing of Materials - Finishing Elements	Credits are awarded where materials used in the finishing elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score. Enter the predicted Score What is the predicted number of credits? 2	2 of 3 Credits	-	100% timber to be FSC. 80% of following elements to have a Environmental Management system for the Key Processes of the materials (ISO 14001/BS8555): Stair, Window,Doors,Skirting,Panelling,Furniture,Fascias	Letter of instruction / Details for materials specified/ spreadsheet breaking down the build up of element (m3) - Mat 3Calc

CATEGORY 4 SURFACE WATER RUN-OFF	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted:	100.00%	Credits	Level		
Contribution to Overall Score:	2.20 points	4 of 4 Credits	All Levels		
Sur 1 Management of Surface Water Run-off from developments	Mandatory Requirement: Peak rate of run-off into watercourses is no greater for the developed site than it was for the pre-development site and that the additional predicted volume of rainwater discharge caused by the new development is entirely reduced as far as possible in accordance with the assessment criteria. Desiging the drainage system to be able to cope with local drainage system failure. Tradable Credits: Where SUDS are used to improve water quality of the rainwater discharged or for protecting the quality of the receiving waters. Mandatory Requirement Will the mandatory requirement be met? ☑ Select the appropriate option No SUDS ☐ No runoff into watercourses for the first 5 mm of rainfall ☑ Runoff from hard surfaces will receive an appropriate level of treatment ☑	2 of 2 Credits	All Levels	Mandatory: Peak rate of run off no greater than original site & additional volume runoff is entirely reduced for a 1 in 100 yr, 6hr event. OPTIONAL use SUDS to ensure discharge no more than 5mm.	Copy of FRA by appropriately quallified engineer; Drawings to support claimsrainfall depths up to 5mm. - footprint less than original.
Sur 2 Flood Risk	Credits are awarded where developments are located in areas of low flood risk or where in areas of medium or high flood risk appropriate measures are taken to prevent damage to the property and its contents in accordance with the Code criteria in the technical guide. Select the annual probability of flooding (from PPG*) Zone 1 - Low ◉ OR Zone 2 - Medium ○ OR Zone 3 - High ○ Select the apropriate option(s) Low risk of flooding from FRA** ☑ All measures of protection are demonstrated in FRA ☐ Ground floor level and access routes are 600 mm above design flood level ☐ * Planning Practice Guidance - Planning and Flood Risk ** FRA - Flood Risk Assessment	2 of 2 Credits	-	The Development is in Zone 1. Look like a 1 in 1000 chance of flooding per year. Will be confirmed by FRA.	FRA in accordance with good practice PPS25 -covering all sources: Land, groundwater, sewers, reservoirs - confirmation from engineer - need a FULL report. Prove ground level and site is 600mm above the design flood level of the flood zone.

CATEGORY 5 WASTE	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted:	100.00%	Credits	Level		
Contribution to Overall Score:	6.40 points	8 of 8 Credits	All Levels		
Was 1 Storage of non-recyclable waste and recyclable household waste	Mandatory Requirement: The space provided for waste storage should be sized to hold the larger of either all external containers provided by the Local Authority or the min capacity calculated from BS 5906. Tradable Credits are awarded for adequate internal and/ or external recycling facilities. **Mandatory Requirement** Will the minimum space be provided and be accessible to disabled people? ☑ **Internal Recyclable household waste storage** Where there is no external recyclable waste storage and no Local Authority collection scheme Internal storage (capacity 60 litres) ☐	0 of 2 Credits		30litres of recycling bins in a designated (permanent)place in the kitchens.	Supplementary Checklist Was 1 & Checklist IDP / Drawings showing locations & size of internal & external storage; .Details of waste management scheme.
	Local Authority collection Scheme Post Collection sorting Internal storage (capacity 30 litres) ☑ Pre-collection sorting Internal storage (3 separate bins, capacity 30 litres) ☐	4 of 4 Credits	All Levels		
	External Storage, no Local Authority collection scheme 3 separate internal storage bins (capacity 30 litres) ☐ **AND** Houses External Storage(capacity 180 litres) ☐ Flats Private recycling operator ☐ 3 or greater types of waste collected ☐	0 of 4 Credits			

Issue		Credits	Level	Assumptions Made	Evidence Required
Was 2 Construction Site Waste Management	A credit is awarded where a compliant SWMP is provided with targets and procedures to minimise construction waste. Credits are available where the SWMP include procedures and commitments for diverting either 50% or 85% of waste generated from landfill. SWMP details Does the SWMP include: + No SWMP ○ + SWMP with targets and procedures to minimise waste? ○ + SWMP with procedures to divert 50% of waste ○ + SWMP with procedures to divert 85% of waste ◉	**3 of 3 Credits**			Copy of SWMP (in accordance with Checklist Was 2a,b,c)
Was 3 Composting	A credit is awarded where individual home composting facilities are provided, or where a community/ communal composting service, either run by the Local Authority or overseen by a management plan is in operation. Select the facilities available No composting facilities ○ Individual composting facilities ○ OR Communal/ community composting*? ◉ Local Authority ☑ OR Private with management plan ☐ * including if an automated waste collection system is in place	**1 of 1 Credit**	-	LA composting service will comply. Need to ensure ample space for storage (internal - will need dedicated bin space of 7litres) and collection. Bins no more than 30m from external door. All storage must be easily accessed by a wheelchair user (see checklist IDP for conformance)	Drawings & text showing location & size of storage (incl dedicated internal storage)./ distance of storage from dwellng /Text confirming an information leaflet will be supplied/ Checklist IDP; Community composting details. Distance of storage from dwelling, management arrangements, location and size of storage, details of scheme including opening times and access restrictions.

CATEGORY 6 POLLUTION	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted: 25.00%		Credits	Level		
Contribution to Overall Score: 0.70 points		1 of 4 Credits	All Levels		
Pol 1 Global Warming Potential (GWP) of Insulants	A credit is awarded where <u>all</u> insulating materials only use substances (in manufacture AND installation) that have a GWP of less than 5. Select the most appropriate option All insulants have a GWP less than 5 ◉ OR Some insulants have a GWP of less than 5 ○ OR No insulants have a GWP of less than 5 ○	1 of 1 Credits	-		Complete Pol1 checklist / showing proposed insulation materials for each element and whether they are foamed using blowing agents or are unfoamed.
Pol 2 NOx Emissions	Credits are awarded on the basis of NOx emissions arising from the operation of the space and water heating system within the dwelling. Select the most appropriate option Greater than 100 mg/kWh ◉ OR Less than 100 mg/kWh ○ OR Less than 70 mg/kWh ○ OR Less than 40 mg/kWh ○ OR Class 4 boiler ○ OR Class 5 boiler ○ OR All space and hot water energy requirements are met by systems who do not produce NOx emissions ○	0 of 3 Credits	-		

CATEGORY 7 HEALTH & WELLBEING	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted: 91.00%		Credits	Level		
Contribution to Overall Score: 12.83 points		11 of 12 Credits	No level		
Hea 1 Daylighting	Credits are awarded for ensuring key rooms in the dwelling have high daylight factors (DF) and a view of the sky. Select the compliant areas Room Kitchen: Avg DF of at least 2% ☑ Living Room*: Avg DF of at least 1.5% ☑ Dining Room*: Avg DF of at least 1.5% ☑ Study*: Avg DF of at least 1.5% ☑ 80% of working plane in all above rooms receive direct light from the sky? ☐ Any room used for Ene 9 Home Office must also achieve a min DF of 1.5%.	2 of 3 Credits	-		Site plan with distance and height of obstrucitons. / Hea 1 Calculator
Hea 2 Sound Insulation	Credits are awarded where performance standards exceed those required in Building Regulations Part E. This can be demonstrated by carrying out pre-completion testing or through the use of Robust Details Limited. Select a type of property Detached Property ◉ Attached Properties: - Separating walls and floors only exist between non habitable spaces ○ - Separating walls and floors exist between habitable spaces ○ Select a performance standard Performance standard not sought ◉ Airborne: 3db higher; Impact: 3dB lower ○ OR Airborne: 5db higher; Impact: 5dB lower ○ OR Airborne: 8db higher; Impact: 8dB lower ○	4 of 4 Credits	-		

Issue		Credits	Level	Assumptions Made	Evidence Required
Hea 3 Private Space	A credit is awarded for the provision of an outdoor space that is at least partially private. The space must allow easy access to all occupants. Will a private/ semi-private space be provided? Yes, private/semi-private space will be provided ◉ OR No private/semi-private space ○	**1 of 1 Credits**	-		
Hea 4 Lifetime Homes	Mandatory Requirement: Lifetime Homes is mandatory when a dwelling is to achieve Code Level 6. Tradable credits: Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. Mandatory Requirement Dwelling to achieve Code Level 6? ☐ Lifetime Homes Compliance All Lifetime Homes criteria will be met ◉ OR Exemption from LTH criteria 2/3 applied ○ Credit not sought ○	**4 of 4 Credits**	**No level**	All Lifetime homes checklist complete (all 16 points on lifetime homes website) (Note Principle 10, Entrance level shower drainaige, can be on any level as there is a permanent lift)	Checklist Hea 4 signed by developer / checklist IDP

CATEGORY 8 MANAGEMENT	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted: 100.00%		Credits	Level		
Contribution to Overall Score: 10.00 points		9 of 9 Credits	All Levels		
Man 1 Home User Guide	Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. Tick the topics covered by the Home User Guide Operational Issues? ☑ Site and Surroundings? ☑ Is available in alternative formats? ☑	3 of 3 Credits	-		Check list Man 1 , Part 1 & 2/ Confirmation that guide will be supplied to all dwellings
Man 2 Considerate Constructors Scheme	Credits are awarded where there is a commitment to comply with best practice site management principles using either the Considerate Constructors Scheme or an alternative locally/ nationally recognised scheme. Select the appropriate scheme and score No scheme used ○ Considerate Constructors OR Best Practice ○ OR Significantly Beyond Best Practice ◉ Alternative Scheme* OR Mandatory + 50% optional requirements ○ OR Mandatory + 80% optional requirements ○ * In the first instance, contact a Code Service Provider if you are considering to use an alternative scheme.	2 of 2 Credits	-		
Man 3 Construction Site Impacts	Credits are awarded where there is a commitment and strategy to operate site management procedures on site as following: Tick the impacts that will be addressed Monitor, report and set targets, where applicable, for: - CO_2/ energy use from site activities ☑ - CO_2/ energy use from site related transport ☑ - water consumption from site activities ☑ Adopt best practice policies in respect of: - air (dust) pollution from site activities ☑ - water (ground and surface) pollution on site ☐ 80% of site timber is reclaimed, re-used or responsibly sourced ☐	2 of 2 Credits	-		Signed copy of Man 3 checklist required

Issue		Credits	Level	Assumptions Made	Evidence Required
Man 4 Security	Credits are awarded for complying with Section 2 - Physical Security from Secured by Design - New Homes. An Architectural Liaison Officer (ALO), or alternative, needs to be appointed early in the design process and their recommendations incorporated. Secured by Design Compliance Credit not sought ○ OR Secured by Design Section 2 Compliance ◉	**2 of 2 Credits**	-	Follow recommendations of the Physical Security section in 'Secured by Design'	

CATEGORY 9 ECOLOGY	Overall Level: 4	Overall Score	69.54	Assumptions Made	Evidence Required (The below cells can be formatted by assessors if required.)
% of Section Credits Predicted: 77.00%		Credits	Level		
Contribution to Overall Score: 9.33 points		7 of 9 Credits	All Levels		
Eco 1 Ecological Value of Site	One credit is awarded for developing land of inherently low value. Select the appropriate option Credit not sought ○ OR Land has ecological value ○ OR Land has low/ insignificant ecological value* ◉ * Low ecological value is determined either a) by using Checklist Eco 1 across the whole development site; or b) where an suitably qualified ecologist is appointed and can confirm or c) produces an independent ecological report of the site, that the construction zone is of low/ insignificant value; AND the rest of the development site will remain undisturbed by the works.	1 of 1 Credits	-		CV for Suitably Qualified Ecologist (degree, 5yrs exp, full member of app organisation, rpt verif by SQE) / Ecologist Report showing zone is of low ecological value & all land outside construction zone ro remain undisturbed/
Eco 2 Ecological Enhancement	A credit is awarded where there is a commitment to enhance the ecological value of the development site. Tick the appropriate boxes Will a *Suitably Qualified Ecologist* be appointed to recommend appropriate ecological features? ☑ AND Will all key recommendations be adopted? ☑ AND 30% of other recommendations be adopted? ☑	1 of 1 Credits	-		Copy of ecologist report. Outline key & addtitional recommendations / How recommendations to be incorporated/ The planting schedule/
Eco 3 Protection of Ecological Features	A credit is awarded where there is a commitment to maintain and adequately protect features of ecological value. Type and protection of existing features Site with features of ecological value? ○ OR Site of low ecological value (as Eco 1)? ◉ AND All* existing features potentially affected by site works are maintained and adequately protected? ☐ *If a suitably qualified ecologist has confirmed that a feature can be removed due to insignificant ecological value or poor health conditions, as long all the rest have been protected, then this box can be ticked.	1 of 1 Credits	-	Low Ecological value throughout	Ecologist Report

Issue		Credits	Level	Assumptions Made	Evidence Required
Eco 4 Change of Ecological Value of Site	Credits are awarded where the change in ecological value has been calculated in accordance with the Code requirements and is calculated to be: Change in Ecological Value Major negative change: fewer than -9 ○ Minor negative change: between -9 and -3 ○ OR Neutral: between -3 and +3 ○ Minor enhancement: between +3 and +9 ◉ Major enhancement: greater than 9 ○	**3 of 4 Credits**	-		Ecologist report / How ecologist recommendations will be implemented (illustration)- incl a planting schedule
Eco 5 Building Footprint	Credits are awarded where the ratio of combined floor area of all dwellings on the site to their footprint is: Ratio of Net Internal Floor Area: Net Internal Ground Floor Area Credit Not Sought ○ OR Houses: 2.5:1 OR Flats: 3:1 ◉ OR Houses: 3:1 OR Flats: 4:1 ○ OR Houses & Flats Weighted (2.5:1 & 3:1) ○ OR Houses & Flats Weighted (3:1 & 4:1) ○	**1 of 2 Credits**			