MARCHMONT ROAD, RICHMOND, RICHMOND UPON THAMES

SUSTAINABILITY:
CODE FOR SUSTAINABLE HOMES PRE-ASSESSMENT

FOR

LONDON BOROUGH OF RICHMOND UPON THAMES

November 2015

Our Ref: HLES34144/003Rv2

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This report has been prepared in the RPS Group Quality Management System to British Standard EN ISO 9001:2008

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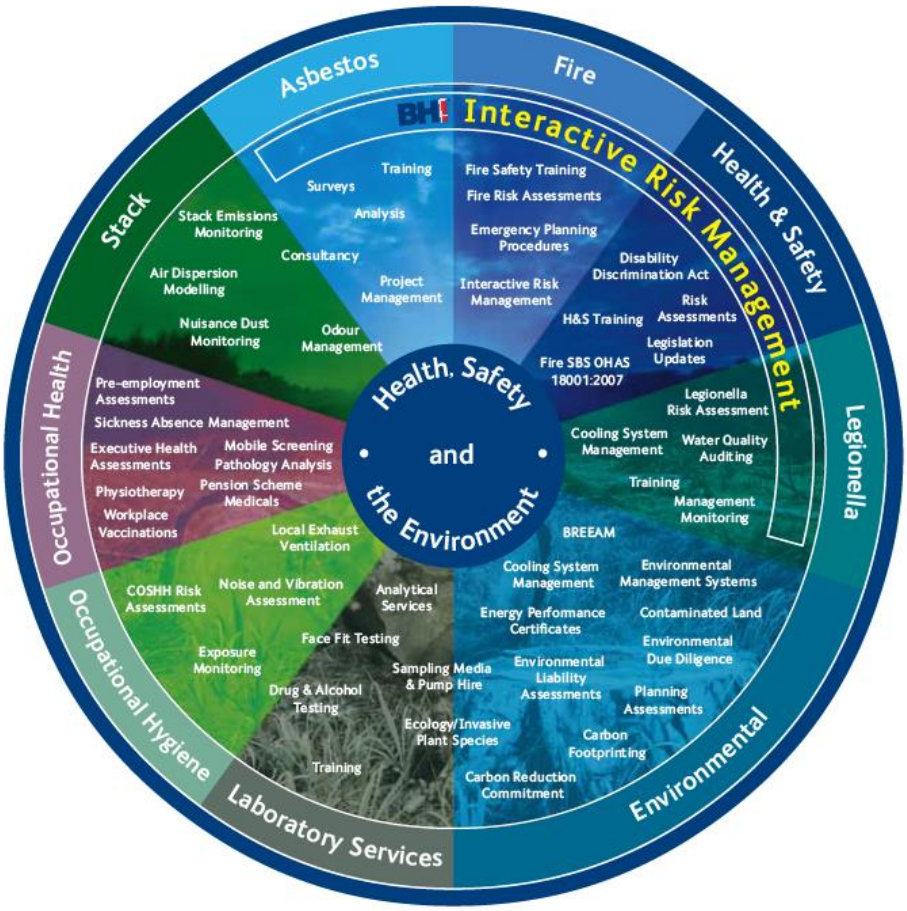
RPS Health, Safety & Environment (London office) is certified to Environmental Management Standard ISO 14001.



CONTENTS

EXECUTIVE SUMMARY

RPS Health Safety & Environment (RPS) was commissioned by *The London Borough of Richmond upon Thames* to produce a Code for Sustainable Homes Pre-Assessment for the development at **Silver Birches, 2 to 6 Marchmont Road, Richmond, TW10 6HH**. The scheme consists of the demolition of the existing care home and the construction of nine residential units and associated works.

In line with the Council's planning Local Plan, Policy DM SC1: Sustainable Construction of the Development Management Plan (2011) the development is required to achieve Code for Sustainable Homes Level 3.

The predicted Code level is based on available information, current drawings and brief and a number of assumptions. This report identifies the potential rating of the scheme based on the information received to date, as well as additional considerations that are necessary in order to achieve Code Level 3. If this option is followed, **64.57** points can be awarded and Code for Sustainable Home level 3 can be achieved.

A summary of the credit scheme targeted per category by the development, can be found in Section 2 of the report. In Section 3, a detailed analysis for all credits targeted is provided.

1 INTRODUCTION

RPS Health Safety & Environment (RPS) was commissioned by *The London Borough of Richmond upon Thames* to produce a Code for Sustainable Homes Pre-Assessment of the proposed development at Silver Birches, 2 to 6 Marchmont Road, Richmond, TW10 6HH.

The development consists of the demolition of the existing care home and the construction of nine residential units and associated works. The scheme will include two houses with six bedrooms, five houses with three bedrooms and two with two bedrooms.

Figure 1: Site Plan

RPS has registered Silver Birches with BRE's CSH 2014. The registration number is BRE-00027816-DS-001-00.

This report outlines the scheme prior to highlighting how the principles of sustainable development have been incorporated into the design in relation to the Code for Sustainable Homes Requirements. The residential element of the development will be assessed under the November 2014 version of the Code for Sustainable Homes.

The Code for Sustainable Homes (the Code) was launched in April 2007 and replaced EcoHomes for the assessment of new housing in England and Wales. The Code is an environmental assessment method for new homes based upon BRE Global EcoHomes and contains mandatory performance levels in six key areas. The Code aims to protect the environment by providing guidance on the construction of high performance homes built with sustainability aspirations.

Code Pre-Assessment

The Code measures the sustainability of a home against design categories, rating the 'whole home' as a complete package. The categories included within the Code are Energy/CO_2 (ENE 1-9), Water (WAT 1-2), Materials (MAT 1-3), Surface water run-off (SUR 1-2), Waste (WAS 1-3), Pollution (POL 1-2), Health and Well-being (HEA 1-4), Management (MAN 1-4), and Ecology (ECO 1-5).

The Code has a scoring system of six levels. The different levels are made up by achieving both the appropriate mandatory minimum standards together with a proportion of the 'flexible' standards. The scores required for the corresponding Code level ratings are summarised in the table below.

Code Level	Points score
Level 1	≥ 36
Level 2	≥ 48
Level 3	≥ 57
Level 4	≥ 68
Level 5	≥ 84
Level 6	≥ 90

This Pre-Assessment follows the guidance set out in the November 2010 Code for Sustainable Homes Technical Guide, Addendum 2014, and thus the resulting score for this report is based on this version.

The details for each category in the environmental ratings are in the completed Pre-Assessment below, together with details of how the development can achieve this.

The rating obtained by using this Code Pre-Assessment is for guidance only. The predicted ratings may differ from those obtained through a formal assessment, which must be carried out by a licensed Code assessor. Advice should be sought from a licensed assessor at an early stage in a project to ensure the estimated rating will be obtained. RPS advises that the client also obtain a copy of the Code technical guidance to ensure that all points are fully understood.

Compliance with the Code

Code assessments are normally carried out in two phases, in order to achieve full certification:

- An initial assessment and interim certification is carried out at the design stage.

- Final assessment and certification is carried out during the construction works.

Design Stage Review

Design specifications are assessed for each individual dwelling before construction begins. A rating is determined, and (subject to quality assurance) a Design Stage or Interim Certificate is awarded for each dwelling. Registered assessors can apply for assessment of a site, compile and submit a design report for assessment and monitor the assessment status online.

Post Construction Stage Review

The Post Construction Stage (PCS) assessment confirms that dwellings have either been built to the Design Stage specifications or to (documented) variations from the Design Stage. Variations must be re-assessed so that new scores and Code levels can be calculated for each affected dwelling. Where a Design Stage assessment has been done, it is used to inform the PCS assessment.

2 SUMMARY OF PREDICTED SCORE

The tables on the following section (Section 3) set out the predicted Code for Sustainable Homes score likely to be achieved for the proposed development. These are based on the commitments and assumptions as defined in the Section 3.

Overall, it is predicted that the proposed development at **Silver Birches** should achieve **a score of 64.57%**, thereby achieving the required **Level 3 rating**. In addition, all mandatory credits for this rating have also been achieved; as is summarised below;

Issue	Minimum Mandatory Requirements Met
Ene 1 – Dwelling Emission Rate	Yes
Wat 1 – Indoor Water Use	Yes
Mat 1 – Environmental Impact of Materials	Yes
Sur 1 – Management of Surface Water Run-off from Developments	Yes
Was 1 – Storage of Non-recyclable Waste and Recyclable Household Waste	Yes

If the required minimum mandatory standards are not met then the target rating will not be achieved regardless of overall score.

Credits obtained in each section (e.g. Waste, Energy etc) have a weighting factor applied to reflect the relative importance of each section. The Energy section has the largest weighting factor; therefore this is where the greatest number of credits is available. In addition, knowing the value that one credit has for each section, is important in effectively targeting and assigning credits to maximise the overall rating. The weightings and scoring values are shown in the table below, which shows that credits in some sections are more valuable in terms of the CSH rating, compared to some in other sections.

Category	Credits Available	Weighting Factor	Value of 1 credit
Energy	31	36.4 %	1.17
Water	6	9 %	1.5
Materials	24	7.2 %	0.3
Surface water Run-off	4	2.2 %	0.55

Waste	8	6.4 %	0.8
Pollution	4	2.8 %	0.7
Health & Wellbeing	12	14 %	1.17
Management	9	10 %	1.11
Ecology	9	12 %	1.33

The predicted Code level is based on available information, current drawings and brief and a number of assumptions. This report identifies the potential rating of the scheme based on the information received to date as well as additional considerations made.

A summary of these assumptions is provided below, where full details for all credits are shown in Section 3.

Energy

A high thermal insulation standard of the floors, walls, roofs and openings is assumed. In addition, high efficiency services are to be installed to achieve a 32% improvement in DER over TER. It has also been assumed that at least four credits can be achieved under the Fabric Energy Efficiency Standard. It is further assumed that correctly specified energy display devices will be installed. Alongside this, it is assumed that Code compliant dedicated light fittings are to be installed for all external lighting. Two credits have also been assumed for the provision of cycle stores, as well as one credit for a room to be used as a Home Office in each dwelling. Finally, sufficient drying space and A rated white goods will be provided.

Water

Within the water section it is mandatory for the internal water use to equate to 105 litres/per person/ per day, in order to achieve the required Code Level 3. Water butts have not been assumed to be used in the development. Should this credit be required a 150 litre water butts are required for the 1 and 2 bedroom dwelling and 200 litre for dwellings of 3 bedroom.

Materials

It is assumed the chosen construction materials have low environmental impact, as defined by the Green Guide to Specification. Additionally, it is assumed that the materials will be responsibly sourced where feasible.

Surface Water Run-off

It is assumed that the surface water runoff post development will be no greater than predevelopment therefore meeting the mandatory requirement. The second part of the Surface Water Runoff section; Sur 2, gains two credit as the site, as identified within the Environmental Agency Flood Maps, is situated within a Flood Zone area having a low risk of flooding. Compliance with the Code guidance and drainage calculations must be confirmed within a Flood Risk Assessment report prepared by an appointed accredited drainage engineer or hydrologist.

Waste

It is assumed waste storage will be designed to be DDA complaint thereby complying with the Was 1 mandatory requirement. A Local Authority collection scheme will be in place with pre-collection sorting and there will also be 30 litres of internal storage capacity (with a minimum of 7 litres for smallest bins) separated in to three sections, within each dwelling. It is assumed that the appointed contractor will be required to operate a Site Waste Management Plan (SWMP) to monitor site waste produced during construction and to divert non- hazardous construction waste from landfill by at least 85%. No compost bins will be installed.

Pollution

Under Pol1, it is assumed that one credit will be achieved as all insulation materials will have global warming potential (GWP) values of less than 5. In addition, in this section it is assumed that 3 credits for Pol2 will be secured, as the heating system will have NOx emission rates of less than 40 mg/kWh.

Health and Wellbeing

According to the Code compliant internal daylight calculations report, Houses 5-9 will gain 2 credits for the daylight factor, while Houses 1-4 will gain 1 credit for the daylight factor. Within the sound insulation section, it is also considered that the dwellings will achieve values of at least 5dB better than the levels set out in the current Building Regulations AD E. It is assumed that all dwellings are built to Lifetime Homes design criteria to gain another four credits within the section.

Management

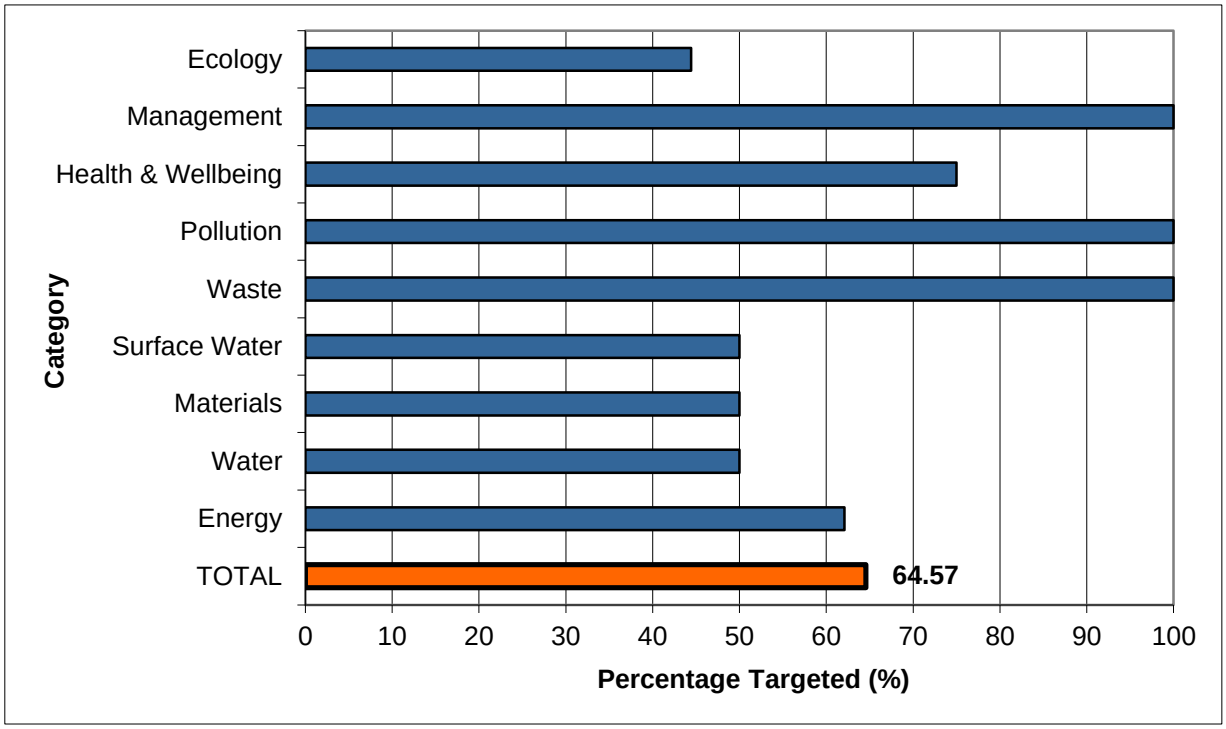
It is assumed that the management sections will score highly. A Home User Guide will be prepared and provided to each dwelling that are sufficiently detailed to explain about the property, the facilities and services in its surrounding area so as to achieve all three credits available. It is assumed a Considerate Constructors Scheme (with a minimum score of 3 points in each section). It has also been assumed that best practice policies in respect of construction site impact will be adopted and that the scheme will meet Secure by Design standards.

Ecology

Finally, to achieve the required ecology credits, a qualified accredited ecologist will be appointed to carry out a pre-development ecology report that formulates a strategy for maximising these Ecology

credits. All the key recommendations in the report will they be followed by the main contractor and the landscape architect.

The graph and table below provide a summary of the credits identified as being achieved for the proposed development (refer to Section 3 for further details on specific credits).



Code for Sustainable Homes Predictive Assessment

Version 2014

Silver Birches

Section	Category	Credits Available	Potential Credits	Weighted Section Score
Energy	Dwelling Emission Rate	10	3	21.14
	Fabric Energy Efficiency	9	4	
	Energy Display Devices	2	2	
	Drying Space	1	1	
	Energy Labelled White Goods	2	2	
	External Lighting	2	2	
	Zero or Low Carbon (ZLC) Energy Technologies	2	2	
	Cycle Storage	2	1	
	Home Office	1	1	
	Section Credit Total	*31*	*18*	
Water	Internal Potable Water Use	5	3	4.50
	External Potable Water Use	1	0	
	Section Credit Total	*6*	*3*	
Materials	Environmental Impact of Materials	15	6	3.60
	Responsible Sourcing of Basic Building Elements	6	4	
	Responsible Sourcing of Finishing Elements	3	2	
	Section Credit Total	*24*	*12*	
Surface Water	Management of Surface Water Run-off from Developments	2	0	1.10
	Flood risk	2	2	
	Section Credit Total	*4*	*2*	
Waste	Storage of Non-recyclable Waste and Recyclable Household Waste	4	4	5.60
	Construction Site Waste Management	3	3	
	Composting	1	0	
	Section Credit Total	*8*	*7*	
Pollution	Global Warming Potential (GWP) of Insulants	1	1	2.80
	NOx Emissions	3	3	
	Section Credit Total	*4*	*4*	
Health and Wellbeing	Daylighting	3	1	10.50
	Sound Insulation	4	3	
	Private Space	1	1	
	Lifetime Homes	4	4	
	Section Credit Total	*12*	*9*	
Management	Home User Guide	3	3	10.00
	Considerate Constructors Scheme	2	2	
	Construction Site Impacts	2	2	
	Security	2	2	
	Section Credit Total	*9*	*9*	
Ecology	Ecological Value of Site	1	0	5.33
	Ecological Enhancement	1	1	
	Protection of Ecological Features	1	1	
	Change of Ecological Value of Site	4	2	
	Building Footprint	2	0	
	Section Credit Total	*9*	*4*	
	Total Credits	**107**	**68**	
	Weighted Score	**64.57**		
	Code Level	**3**		

3 DETAILED PRE-ASSESSMENT

The following pages provide a summary of which credits are being pursued as part of the Code for Sustainable Homes Pre-Assessments, based on the information that has been reviewed by RPS.

<table>
<tr><th colspan="3">CATEGORY 1 ENERGY
31 Credits available</th></tr>
<tr><td>Ene 1

Percentage (%) improvement DER over TER</td><td>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. <u>Minimum mandatory standards for each code level apply.</u>

<table>
<tr><th></th><th>Credits</th><th>Mandatory Requirements</th></tr>
<tr><td>≥ 6% improvement</td><td>1</td><td></td></tr>
<tr><td>≥ 12% improvement</td><td>2</td><td></td></tr>
<tr><td>≥ 19% improvement</td><td>3</td><td>Level 4</td></tr>
<tr><td>≥ 32% improvement</td><td>4</td><td></td></tr>
<tr><td>≥ 44% improvement</td><td>5</td><td></td></tr>
<tr><td>≥ 56% improvement</td><td>6</td><td></td></tr>
<tr><td>≥ 70% improvement</td><td>7</td><td></td></tr>
<tr><td>≥ 84% improvement</td><td>8</td><td></td></tr>
<tr><td>≥ 100% improvement</td><td>9</td><td>Level 5</td></tr>
<tr><td>Zero Net CO_2 Emissions</td><td>10</td><td>Level 6</td></tr>
</table>
</td><td>3 / 10 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">A minimum improvement of 32% above 2013 Building regulations is targeted to achieve three credits.</td></tr>
</table>

<table>
<tr>
<td>Ene 2
Fabric Energy Efficiency</td>
<td>Credits are awarded based on the Fabric Energy Efficiency confirmed in the SAP outputs (2012). This is based on the energy demand for heating and cooling per square metre per year (kWh/m^2/year).
<table>
<tr><th colspan="3">Dwelling Type</th></tr>
<tr><td colspan="2">Apartment Blocks, Mid-Terrace</td><td>End Terrace, Semi-Detached & Detached</td></tr>
<tr><td colspan="3">Fabric Energy Efficiency kWh/m^2/year</td></tr>
<tr><td>≤ 48</td><td>≤ 60</td><td>3 credits</td></tr>
<tr><td>≤ 45</td><td>≤ 55</td><td>4</td></tr>
<tr><td>≤ 43</td><td>≤ 52</td><td>5</td></tr>
<tr><td>≤ 41</td><td>≤ 49</td><td>6</td></tr>
<tr><td>≤ 39</td><td>≤ 46</td><td>7</td></tr>
<tr><td>≤ 35</td><td>≤ 42</td><td>8</td></tr>
<tr><td>≤ 32</td><td>≤ 38</td><td>9</td></tr>
</table>
</td>
<td>4 / 9 Credits available</td>
</tr>
<tr>
<td>Comments:</td>
<td colspan="2">It is assumed that minimum fabric efficiency will be equal to 45 or less.</td>
</tr>
<tr>
<td>Ene 3
Energy Display Devices</td>
<td>Credits are awarded based on the provision and type of energy display device installed in the home.
<table>
<tr><th></th><th>Credits</th></tr>
<tr><td>No device installed</td><td>0</td></tr>
<tr><td>OR device displays current electricity OR primary heating fuel consumption</td><td>1</td></tr>
<tr><td>OR device displays current electricity AND primary heating fuel consumption</td><td>2</td></tr>
</table>
Default - If heating is provided by electricity then two credits can be awarded for an energy display device solely for electricity.</td>
<td>2 / 2 Credits available</td>
</tr>
<tr>
<td>Comments:</td>
<td colspan="2">Energy suppliers are obliged to provide these for free. Currently Eon provides a compliance smart meter which meets both credits.</td>
</tr>
</table>

<table>
<tr><td>Ene 4
Drying
Space</td><td>One credit is awarded for the provision of either internal or external drying space with posts and footing, 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?
<table><tr><td></td><td>Yes</td><td></td></tr><tr><td>OR</td><td>No</td><td></td></tr></table></td><td>1 / 1
Credit
available</td></tr>
<tr><td>Comments:</td><td colspan="2">Internal drying space will be fitted in the bathroom which will comply with building regulations Part F.</td></tr>
<tr><td>Ene 5

Energy Labelled White Goods</td><td>Credits are awarded where each dwelling is provided with either information about the EU Energy Labelling Scheme or White Goods with the ratings stated below:

<table><tr><td></td><td>EU Energy Labelling Information</td><td></td></tr><tr><td>OR</td><td>A+ rated fridges and freezers</td><td></td></tr><tr><td>And/or</td><td>A rated washing machines and dishwashers</td><td></td></tr><tr><td>And</td><td>B rated washer dryers and tumble dryers</td><td></td></tr></table></td><td>2 / 2
credits
available</td></tr>
<tr><td>Comments:</td><td colspan="2">A rated white goods are to be supplied.</td></tr>
</table>

<table>
<tr>
<td>Ene 6
External
Lighting</td>
<td>Credits are awarded based on the provision of space lighting with dedicated energy efficient fittings and security lighting with appropriate control gear.
Space Lighting
<table>
<tr><td></td><td>None provided</td><td></td></tr>
<tr><td>OR</td><td>Non Code compliant lighting</td><td></td></tr>
<tr><td>OR</td><td>Code compliant lighting</td><td></td></tr>
</table>
Security Lighting
<table>
<tr><td></td><td>None provided</td><td></td></tr>
<tr><td>OR</td><td>Non Code compliant Lighting</td><td></td></tr>
<tr><td>OR</td><td>Code compliant lighting</td><td></td></tr>
</table>
Security lighting notes:
All burglar security lights have:
• A maximum wattage of 150 W
AND
• Movement detecting control devices (PIR)
AND
• Daylight cut-off sensors
All other security lighting:
• Is provided by dedicated energy efficient fittings
AND
• Is fitted with daylight cut-off sensors OR a time switch</td>
<td>2 / 2 credits available</td>
</tr>
<tr>
<td>Comments:</td>
<td colspan="2">Space and security lighting will be Code compliant. These will be designed for energy efficiency with appropriate control systems.</td>
</tr>
</table>

<table>
<tr><td>Ene 7
Low or Zero Carbon Technologies</td><td>Credits are awarded where either 10% or 15% of the dwellings heating energy requirements (SAP 2012) are met by low or zero carbon technologies. Note that where funding has not been granted through the Low Carbon Buildings Programme, a feasibility study is required that meets the Code requirements.

Select % contribution made by low or zero carbon technologies:

<table><tr><th></th><th></th><th>Credits</th></tr><tr><td></td><td>Less than 10% of demand</td><td>0</td></tr><tr><td>OR</td><td>10% of demand or greater</td><td>1</td></tr><tr><td>OR</td><td>15% of demand or greater</td><td>2</td></tr></table></td><td>2 / 2 credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">It is stated in the London Borough of Richmond Core strategy all new developments achieve a 20% reduction in carbon dioxide emissions from on-site renewable energy generation. Therefore two credits have been assumed.</td></tr>
<tr><td>Ene 8
Cycle Storage</td><td>Credits are awarded where safe, secure and weatherproof cycle storage is provided according to the Code requirements.

Studios or 1 bedroom dwellings – storage for 1 cycle for every two dwellings
2 and 3 bedroom dwellings –- storage for 1 cycle per dwelling
4 bedrooms and above –- storage for 2 cycles per dwelling
OR for 2 credits:
Studios or 1 bedroom dwellings – storage for 1 cycle per dwelling
2 and 3 bedroom dwellings – storage for 2 cycles per dwelling
4 bedrooms and above – storage for 4 cycles per dwelling

Note: The requirements for secure cycle storage are met where compliance with clause 35 of Secured by Design (SBD) New Homes 2010 is achieved.</td><td>1 / 2 credits available</td></tr>
<tr><td>Comment:</td><td colspan="2">Based on design plans, secure cycle storage will be present in the development outside each of the dwellings. Please note a physics cycle storage structure will be required. Based on this one credit is targeted resulting in a total of 11 cycle storage spaces.</td></tr>
<tr><td>Ene 9
Home Office</td><td>One credit is awarded for the provision of space for a home office. The location, space and services provided must meet the Code requirements.</td><td>1 / 1 credit available</td></tr>
</table>

Comment:	One credit is awarded on the basis that each dwelling will have sufficient space and services to allow the occupants to set up a home office and that the space dedicated for use as a home office must have adequate ventilation and daylight. For dwellings with three or more bedrooms, a suitable room is a room other than the kitchen, living room, master bedroom or bathroom. For dwellings with one or two bedrooms or studio homes, a suitable room is the living room, one of the bedrooms or any other suitable area in the home such as a large hall or dining area (provided the minimum service requirements defined above are met). In all cases, the room must be large enough to allow the intended use of that room, e.g. if a home office is to be set up in the main bedroom, that room also needs to be able to fit in a double bed and other necessary furnishing. The following services must be provided in the suitable room intended as a home office: • Two double power sockets • Two telephone points (or double telephone point), or one telephone point where cable or broadband is available. • A window that can be opened. (The room chosen to be the nominated home office must have a daylight factor of at least 1.5%).

<table>
<tr><th colspan="3">CATEGORY 2 WATER
6 Credits available</th></tr>
<tr><td>Wat 1
Internal Portable Waste Use</td><td>Credits are awarded based on the predicted average household water consumption, calculated using the Code Water Calculator Tool. <u>Minimum mandatory standards for each code level apply</u>.

<table>
<tr><th></th><th>Credits</th><th>Mandatory requirement</th></tr>
<tr><td>Greater than 120 litres / person / day</td><td></td><td></td></tr>
<tr><td>OR Less than 120 litres / person / day</td><td>1</td><td>Levels 1 & 2</td></tr>
<tr><td>OR Less than 110 litres / person / day</td><td>2</td><td></td></tr>
<tr><td>OR Less than 105 litres / person / day</td><td>3</td><td>Levels 3 & 4</td></tr>
<tr><td>OR Less than 90 litres / person / day</td><td>4</td><td></td></tr>
<tr><td>OR Less than 80 litres / person / day</td><td>5</td><td>Levels 5 & 6</td></tr>
</table></td><td>3 / 5 Credits available</td></tr>
</table>

Comments	The development will achieve predicted average water consumption of less than 105 litres per person per day. This could be achieved by the use of a combination of water saving fittings such as the following: - 6/4lt dual flush toilet, - 150lt capacity to overflow bath, - 7lt/m shower, - 5lt/m kitchen taps and wash hand basins Where white goods are provided these should have: - washing machine: 8.17lt/kg - dishwasher: 1.25lt per place setting An additional credit could be achieved through implementation of fittings of increased efficiency. For example, an average water consumption could be achieved if the following combination was implemented into the proposed development: -5/2.5lt dual flush toilet, - 130lt capacity to overflow bath, - 6lt/m shower, - 5lt/m kitchen taps and wash hand basins Where white goods are provided these should have: - washing machine: 6lt/kg - dishwasher: 0.46 lt per place setting.

<table>
<tr>
<td>Wat 2
External Potable Water Use</td>
<td>One 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 predicted water use:
<table>
<tr><th></th><th></th><th>Credits</th></tr>
<tr><td></td><td>No internal or communal outdoor space</td><td>1</td></tr>
<tr><td>OR</td><td>Outdoor space with collection system</td><td>1</td></tr>
<tr><td>OR</td><td>Outdoor space without collection system</td><td>0</td></tr>
</table>
</td>
<td>0 / 1 Credit available</td>
</tr>
<tr>
<td>Comments:</td>
<td colspan="2">Credit not targeted.</td>
</tr>
</table>

<table>
<tr><th colspan="3">CATEGORY 3 MATERIALS

24 Credits available</th></tr>
<tr><td>Mat 1
Environmental Impact of Materials</td><td><u>Mandatory Requirement:</u> At least three of the five key building elements must achieve a Green Guide 2007 Rating of A+ to D.
<u>Tradable Credits:</u> 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.

Enter the predicted score:
<table><tr><td>Will the mandatory requirement be met?</td><td>yes</td></tr><tr><td>What is the predicted number of credits?</td><td></td></tr></table></td><td>6 / 15 Credits available</td></tr>
<tr><td>Comments</td><td colspan="2">Therefore 6 credits can be achieved under this section.</td></tr>
<tr><td>Mat 2
Responsible Sourcing of Materials – Basic Building Elements</td><td>Credits are awarded where materials used in the key building elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.

Where 80% of the assessed materials in the following Building Elements are responsibly sourced:
a) Frame
b) Ground floor
c) Upper floors (including separating floors)
d) Roof
e) External walls
f) Internal walls (including separating walls)
g) Foundation/substructure (excluding sub-base materials)
h) Staircase
Additionally, 100% of any timber in these elements must be legally sourced.</td><td>4 / 6 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">It is assumed that materials will be environmentally sourced where possible, resulting in 4 credits.</td></tr>
<tr><td>Mat 3
Responsible Sourcing of Materials –</td><td>Credits are awarded where materials used in the finishing elements are responsibly sourced. Where 80% of the assessed materials in the following Finishing Elements are responsibly sourced:</td><td>2 / 3 Credits available</td></tr>
</table>

Finishing Element	a) Staircase b) Windows c) External & internal doors d) Skirting e) Paneling f) Furniture g) Fascias h) Any other significant use Additionally, 100% of any timber in these elements must be *legally sourced* The Code Materials Calculator can be used to predict a potential score.	
Comments:	It is assumed that materials will be environmentally sourced where possible, resulting in 2 credits.	

<table>
<tr><th colspan="3">CATEGORY 4 SURFACE WATER RUN-OFF
4 Credits available</th></tr>
<tr><td>Sur 1
Reduction of Surface Water Run-off from Site</td><td><u>Mandatory Requirements</u>: Peak run-off rates and annual run-off volumes post development must not exceed the previous conditions for the site. <u>Tradable Credits</u>: Where rainwater holding facilities / SUDs are used to provide attenuation of water run-off for the volumes required and in accordance with the Code criteria.
Provide the following information:

To achieve the mandatory requirements of the Code whereby there is an increase in impermeable area the following criteria must be met:
1. ensure the peak rate of run-off will be no greater for the new development following a 1 year and 100 year event.
2. ensure that the post development volume of run-off is no greater than it would have been before the development.
3. demonstrate that flooding of the property would not occur in the event of a local drainage system failure

<table><tr><td>Will the mandatory requirement be met?</td><td>yes</td></tr><tr><td>Ensure there is no discharge from the developed site for rainfall depths up to 5 mm</td><td></td></tr><tr><td>The run-off from all hard surfaces shall receive an appropriate level of treatment in accordance with The SuDS Manual to minimise the risk of pollution</td><td></td></tr></table></td><td>0 / 2 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">The mandatory requirements will be met and it is assumed that the development will include SuDS. Therefore one credit will be achieved.</td></tr>
<tr><td>Sur 2
Flood Risk</td><td>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 Code criteria.

Select the appropriate option:
- Flood Zone 1 and FRA undertaken

- Flood Zones 2 and 3a (FRA undertaken and must demonstrate to the satisfaction of the local planning authority and statutory body that the development is</td><td>2 / 2 Credits available</td></tr>
</table>

	appropriately flood resilient and resistant, including safe access and escape routes where required, and that any *residual risk* can be safely managed)	
Comments:	Based on preliminary search, the site is located in a flood risk zone, therefore two credits can be achieved. Please note a full FRA is required to achieve the credits.	

<table>
<tr><th colspan="3">CATERGORY 5 WASTE
8 Credits available</th></tr>
<tr><td>Was 1
Household Waste Storage</td><td><u>Mandatory Requirement</u>: The space provided for waste storage should be sized to hold the largest of either all external containers provided by the Local Authority or the min capacity calculated from BS 5906.
<u>Tradable Credits</u> are awarded for adequate internal and/ or external recycling facilities.</td><td></td></tr>
<tr><td></td><td>
<table>
<tr><th></th><th>Dwelling Type</th><th>Credits available</th></tr>
<tr><td>Will the minimum space be provided?</td><td>All</td><td>Mandatory</td></tr>
<tr><td>Internal storage (capacity 60 litres) (no external storage)</td><td>All</td><td>2 credits</td></tr>
<tr><td>Internal storage (capacity 30 litres) (adequate external storage)</td><td rowspan="2">All</td><td rowspan="2">4 credits</td></tr>
<tr><td>Local Authority Collection Scheme</td></tr>
<tr><td>External storage (180 litres)</td><td>Houses</td><td>4 credits</td></tr>
<tr><td>Private recycling operator</td><td rowspan="2">Flats</td><td rowspan="2">4 credits</td></tr>
<tr><td>3 types of waste or greater collected?</td></tr>
</table>
</td><td>4 / 4 Credits available</td></tr>
<tr><td>Comments</td><td colspan="2">Preliminary investigations have indicated that the London Borough of Richmond provides weekly collections of household waste and recycling for houses.</td></tr>
</table>

<table>
<tr>
<td>Was 2
Site Waste Management Plan (SWMP) / Construction Waste</td>
<td>The SWMP must contain the following:

Contents of the SWMP:
<table>
<tr><th>Does the SWMP include:</th><th>Credits available</th></tr>
<tr><td>+ Target benchmarks for resource efficiency</td><td rowspan="3">1 credit</td></tr>
<tr><td>+ Procedures and commitments to minimise non-hazardous waste at DS Actions for 3 waste groups</td></tr>
<tr><td>+ Procedures to minimise hazardous waste?</td></tr>
<tr><td>+ Monitoring and reporting of all waste production according to the defined waste groups in the scope of works</td><td></td></tr>
</table>
<table>
<tr><td>AND Includes procedures and commitments to sort and divert waste from landfill</td><td></td></tr>
<tr><td>+ 50% non-hazardous construction waste generated to be diverted from landfill</td><td>2 credits</td></tr>
<tr><td>+ 85% non-hazardous construction waste generated to be diverted from landfill</td><td>3 credits</td></tr>
</table>
</td>
<td>3 / 3 Credits available</td>
</tr>
<tr>
<td>Comments:</td>
<td colspan="2">The site waste management plan will comply with Code requirements and in excess of 85% non- hazardous waste that is generated will be diverted from Landfill.</td>
</tr>
</table>

<table>
<tr>
<td>Was 3

Composting</td>
<td>One 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.

<table>
<tr><td></td><td>No composting facilities</td><td></td></tr>
<tr><td></td><td>Individual composting facilities</td><td></td></tr>
<tr><td>OR</td><td>Communal / community composting?</td><td></td></tr>
<tr><td></td><td>Local Authority</td><td></td></tr>
<tr><td></td><td>OR Private with management plan</td><td></td></tr>
</table>
</td>
<td>0 / 1 Credit available</td>
</tr>
<tr>
<td>Comments:</td>
<td colspan="2">Credit not targeted.</td>
</tr>
</table>

<table>
<tr><th colspan="3">CATEGORY 6 POLUTION
4 Credits available</th></tr>
<tr><td>Pol 1
Global Warming Potential (GWP) of Insulants</td><td>One credit is awarded where all insulating materials have Global Warming Potential (GWP) of less than 5.</td><td>1 / 1 Credit available</td></tr>
<tr><td>Comments:</td><td colspan="2">It is assumed that a low GWP insulation will be specified.</td></tr>
<tr><td>Pol 2
NOx Emissions</td><td>To promote the reduction of nitrogen oxide (NO_x) emissions into the atmosphere.
<table>
<tr><th>Dry NOX Level (mg/kWh)</th><th>Boiler Class (BS EN 297: 1994)</th><th>Credits</th></tr>
<tr><td>≤ 100
≤ 70
≤ 40</td><td>4
5
–</td><td>1
2
3</td></tr>
<tr><td colspan="2">Default Cases
Where all space heating and hot water energy requirements are fully met by systems which do not produce NO_X emissions.</td><td>3</td></tr>
</table></td><td>3 / 3 credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">It is assumed the houses will have boilers of low NOx gas boiler will be specified for the dwellings.</td></tr>
</table>

<table>
<tr><th colspan="3">CATEGORY 7 HEALTH & WELLBEING
12 Credits available</th></tr>
<tr><td>Hea 1
Daylighting</td><td>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:

<table><tr><th>Criteria</th><th>Credits</th></tr><tr><td>Kitchens must achieve a minimum Average Daylight Factor of at least 2%.</td><td>1</td></tr><tr><td>All living rooms, dining rooms and studies (including any room designated as a home office under Ene 9 – Home Office) must achieve a minimum Average Daylight Factor of at least 1.5%.</td><td>1</td></tr><tr><td>80% of the working plane in each kitchen, living room, dining room and study (including any room designated as a home office under Ene 9 – Home Office) must receive direct light from the sky.</td><td>1</td></tr></table>
Any room used for Ene 9 Home Office must also achieve a min DF of 1.5%. If there is no study / home office as this aspect of the credit will be awarded by default.</td><td>1 / 3 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">According to the Code compliant internal daylight calculations report, Houses 5-9 will gain 2 credits for the average daylight factor, while Houses 1-4 will gain 1 credit.</td></tr>
</table>

<table>
<tr><td>Hea 2
Sound Insulation</td><td>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.

<table><tr><th></th><th></th><th>Credits</th></tr><tr><td></td><td>Airborne: 3db higher; Impact: 3db lower</td><td>1</td></tr><tr><td>OR</td><td>Airborne: 5db higher; Impact: 5db lower</td><td>3</td></tr><tr><td>OR</td><td>Airborne: 8db higher; Impact: 8db lower</td><td>4</td></tr><tr><td></td><td>Default Cases</td><td></td></tr><tr><td></td><td>Detached Property</td><td>4</td></tr><tr><td>OR</td><td>Separating walls and floors only occur between non habitable spaces</td><td>3</td></tr><tr><td>OR</td><td>Separating walls and floors only occur between habitable and non-habitable spaces</td><td>3</td></tr></table></td><td>3 / 4 credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">Given the nature of the development it is assumed that airborne transfer will be 5db higher and Impact transfer 5db lower than Building Regulations part E. To improve the sound insulation and achieve 4 credits, would incur increased costs.</td></tr>
<tr><td>Hea 3
Private Space</td><td>One 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.

Where outdoor space (private or semi-private) has been provided that is:
a) Of a minimum size that allows all occupants to use the space.
b) Provided with inclusive access and usability (Checklist IDP).
c) Accessible only to occupants of designated dwellings.</td><td>1 / 1 Credit available</td></tr>
<tr><td>Comments:</td><td colspan="2">Each of the dwellings benefit from private garden areas that are of the minimum size to achieve one credit.</td></tr>
</table>

Hea 4 Lifetime Homes	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme.	4 / 4 Credits available
Comments:	It is assumed lifetime homes will be achieved.	

<table>
<tr><th colspan="3">CATEGORY 8 MANAGEMENT
9 Credits available</th></tr>
<tr><td>Man 1
Home User Guide</td><td>Credits are awarded where a guide is provided to each dwelling that covers information relevant to the ‘non-technical’ home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request.

Topics to be covered by the Home User Guide:

<table><tr><td></td><td>Operational Issues (in accordance with Checklist Man 1, Part 1)</td><td>2 credits available</td></tr><tr><td></td><td>Site and Surroundings (in accordance with Checklist Man 1, Part 2)</td><td>1 credit available</td></tr></table></td><td>3 / 3 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">A comprehensive home user guide will be provided.</td></tr>
<tr><td>Man 2
Considerate Constructors Scheme</td><td>Credits are awarded where there is a commitment to comply with or go significantly beyond best practice site management principles using either the Considerate Constructors Scheme or an alternative locally / nationally recognised scheme.

<table><tr><th colspan="2">Considerate Constructors</th><th>Credits</th></tr><tr><td>OR</td><td>Best Practice: Score between 25 and 34</td><td>1</td></tr><tr><td>OR</td><td>Best Practice+: Score between 35 and 50</td><td>2</td></tr><tr><th colspan="2">Alternative Scheme*</th><th></th></tr><tr><td>OR</td><td>Mandatory + 50% optional requirements</td><td>1</td></tr><tr><td>OR</td><td>Mandatory + 80% optional requirements</td><td>2</td></tr></table>
* In the first instance, contact BRE if you are considering using an alternative scheme.</td><td>2 / 2 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">It is assumed a minimum score of 35 will be achieved.</td></tr>
</table>

<table>
<tr><td>Man 3
Construction Site Impacts</td><td>Credits are awarded where procedures meeting the Code requirements are in place for the following:

1 credit – two or more options targeted
2 credits – four or more options targeted.

Tick the impacts that will be assessed:

<table>
<tr><td>80% of site timber is responsibly sourced</td><td></td></tr>
<tr><td colspan="2"><u>Monitor, report and set targets for:</u></td></tr>
<tr><td>- CO_2 / energy use from site activities</td><td></td></tr>
<tr><td>- CO_2 / energy use from site related transport</td><td></td></tr>
<tr><td>- water consumption from site activities</td><td></td></tr>
<tr><td colspan="2"><u>Adopt best practice policies in respect of:</u></td></tr>
<tr><td>- Air (dust) pollution from site activities</td><td></td></tr>
<tr><td>- water (ground and surface) pollution</td><td></td></tr>
</table></td><td>2 / 2 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">The highlighted impacts above will be assessed in order to achieve two credits.</td></tr>
<tr><td>Man 4
Security</td><td>Credits are awarded for complying with Section 2 – Physical Security form Secured by Design – New Homes. An architectural Liaison Office (ALO), or alternative, needs to be appointed early in the design process and their recommendations incorporated.</td><td>2 / 2 Credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">An Architectural Liaison officer should be contacted as soon as possible so that two credits can be achieved.</td></tr>
</table>

<table>
<tr><th colspan="3">CATEGORY 9 ECOLOGY
9 Credits available</th></tr>
<tr><td>Eco 1
Ecological Value of Site</td><td>One credit is awarded for developing land of inherently low value.

Where the development site is confirmed as land of inherently low ecological value
EITHER
By meeting the criteria for low ecological value (using Checklist Eco 1 – Land of Low Ecological Value under Checklists and Tables below)
OR
By being confirmed by a suitably qualified ecologist
OR
Where an independent ecological report of the site, prepared by a suitably qualified ecologist, 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 site will remain undisturbed by the construction works.</td><td>0 / 1 Credit available</td></tr>
<tr><td>Comments:</td><td colspan="2">Based on information provided, this credit has not been assumed.</td></tr>
<tr><td>Eco 2
Ecological Enhancement</td><td>One credit is awarded where there is a commitment to enhance the ecological value of the development site.
<table><tr><td></td><td>Will a Suitably Qualified Ecologist be appointed to recommend appropriate ecological features?</td><td>Yes</td></tr><tr><td>AND</td><td>Will all key recommendations be adopted?</td><td>Yes</td></tr><tr><td>AND</td><td>30% of other recommendations be adopted</td><td>Yes</td></tr></table></td><td>1 / 1 Credit available</td></tr>
<tr><td>Comments:</td><td colspan="2">It is assumed that a suitably qualified ecologist will be appointed and all key recommendations and 30% of other recommendations are adopted. The ecologist will be required to undertake a site visit prior to the commencement of any works.</td></tr>
</table>

<table>
<tr><td>Eco 3
Protection of Ecological Features</td><td>One credit is awarded.

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.

Default Cases
The credit can be awarded by default where the site has been classified as having low ecological value in accordance with Section 1 of Checklist Eco 1, Ecological features of the site, AND no features of ecological value have been identified.</td><td>1 / 1 Credit available</td></tr>
<tr><td>Comments:</td><td colspan="2">The highlighted text will apply and one credit will be achieved.</td></tr>
<tr><td>Eco 4
Change of Ecological Value of Site</td><td>Credits are awarded where the change in ecological value has been calculated in accordance with the Code requirements and is calculated to be:

The change in Ecological Value is measured by the change in the number of species per hectare:

<table><tr><th></th><th>Credits</th></tr><tr><td>Minor negative change: between -9 and -3</td><td>1</td></tr><tr><td>Neutral: between -3 and +3</td><td>2</td></tr><tr><td>Minor enhancement: between +3 and +9</td><td>3</td></tr><tr><td>Major enhancement: greater than 9</td><td>4</td></tr></table></td><td>2 / 4 credits available</td></tr>
<tr><td>Comments:</td><td colspan="2">It is assumed that there will be a neutral change in ecological value at the site.</td></tr>
</table>

<table>
<tr>
<td>Eco 5
Building Footprint</td>
<td>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 to Net Internal Ground Floor Area:

<table>
<tr><th colspan="2"></th><th>Credits</th></tr>
<tr><td>OR</td><td>Houses: 2.5:1 OR Flats: 3:1</td><td>1</td></tr>
<tr><td>OR</td><td>Houses: 3:1 OR Flats: 4:1</td><td>2</td></tr>
<tr><td>OR</td><td colspan="2">Houses & Flats Weighted (2.5:1 & 3:1)</td><td>1</td></tr>
<tr><td>OR</td><td colspan="2">Houses & Flats Weighted (3:1 & 4:1)</td><td>2</td></tr>
</table>
</td>
<td>0 / 2 credits available</td>
</tr>
<tr>
<td>Comments:</td>
<td colspan="2">No credits can be achieved as the dwellings have four floors.</td>
</tr>
</table>