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2. Do not scale down or increase dimensions.
3. Correct all errors and omissions to the architect immediately.
4. Drawn in conjunction with all relevant structural and mechanical & electrical engineers drawings.
5. All dimensions critical to proposed building works must be checked on site before building works commence, as certain assumptions have been made due to lack of accessibility and anomalies in the existing building.

Revision:
Rev A: Example upgraded to show rooflight, change to spelling - 06.12.09
Rev B: Notes amended - 10.12.09

Other notes:
1. Existing drawings used with permission from Timothy Halton Architects
2. Roof plan assumed as no existing drawings supplied.

Project Address:
RBKC E-H Feasibility
44 Markham Square

Drawing:
Existing second and third floor and roof plans

For Information:

Date: 01.10.09
Drawing status: 1:100 @ A3
Drawing number: 0915 MS22
Revision: B
Example 3
Existing elevations

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4. Drawn in conjunction with relevant structural and mechanical electrical engineers drawings.
5. Dimensions critical to proposed building works must be checked on site before building works commence, as certain assumptions have been made due to lack of accessibility and anomalies in the existing building.

Other Notes:
1. Existing drawings used with permission from Timothy Hatton Architects.

Project Address:
RBKC EH Feasibility
44 Markham Square

Drawing:
Existing front and rear elevations

Drawing status:
For Discussion Purposes Only

Date: 01.10.09
Scale: 1:100 @ A3
Drawing number: 0915 MS23
Revision: B
Example 3
Existing photographs

A Photo from South East corner of Markham Square

B Photo from South West corner of Markham Square

C Photo from South West over communal garden
Example 3:
Carbon Savings and EcoHomes rating

<table>
<thead>
<tr>
<th>Building Element</th>
<th>Description of Measure</th>
<th>DER (kgCO2/m2/yr)</th>
<th>DER Saving</th>
<th>Cumulative CO2 saved</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Insulation</td>
<td>50mm internal to front elevation and 100mm lining to the rear elevation (U' Value = 0.44 and 0.30 W/m²K)</td>
<td>87</td>
<td>29.1</td>
<td>-123</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Roof Insulation</td>
<td>200mm of mineral fibre insulation (U' Value = 0.2 W/m²K)</td>
<td>80.25</td>
<td>6.75</td>
<td>-144</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Floor Insulation</td>
<td>100mm insulation in suspended timber flooring (U' Value = 0.2 W/m²K)</td>
<td>74.36</td>
<td>5.89</td>
<td>-126</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Window Type B</td>
<td>Replace window frames as existing and use double glazing (U' Value = 1.5 W/m²K)</td>
<td>57.76</td>
<td>16.6</td>
<td>-94</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Rooflights</td>
<td>Replace rooflight to Building Regulations minimum standards (U' Value = 3.3 W/m²K)</td>
<td>67.48</td>
<td>0.3</td>
<td>-139.6</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Air Tightness</td>
<td>Carry out air tightness improvements on building fabric to achieve DAM of 10</td>
<td>45.52</td>
<td>11.94</td>
<td>-80</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Biomass</td>
<td>Install a Ground Source Heat Pump with a COP of 3.0</td>
<td>24.25</td>
<td>21.25</td>
<td>140</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Install and cap existing chimneys</td>
<td>23.84</td>
<td>0.42</td>
<td>121</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Rounding Error: 0.5%
Example 3: Cost Effectiveness Analysis

<table>
<thead>
<tr>
<th>Building Element</th>
<th>Description of Measure</th>
<th>Initial U-Value / Wm²K</th>
<th>U-value / Wm²K</th>
<th>DWR</th>
<th>DWR Savings</th>
<th>Kg CO₂ saved</th>
<th>CO₂ savings from insulating or replacing existing fabric</th>
<th>CO₂ savings from replacing existing fabric</th>
<th>Cost per replacement cycle</th>
</tr>
</thead>
</table>
| Wall Insulation  | 20mm internal to front elevation and 100mm internal lining to the rear elevation: U-value = 0.44 and 0.36 Wm²K
| Insulation       | 2.3 | 0.44 & 0.36 | 87 | 29.1 | 5238.982 | 26270.18 | 11101.12 | 3080.04 | 618.0882 | 60 | 1 | 47 | £ 9,248.13 | 314 | -123 |
| Roof Insulation  | 200mm of mineral fibre insulation: U-Value = 0.2 Wm²K
| Roof Insulation  | 2.4 | 0.2 | 90.25 | 6.75 | 1015.13 | 23790 | 2578.18 | 2195.44 | 2111.12 | 60 | 1 | 22 | £ 624.27 | 70 | -144 |
| Floor Insulation | 150mm in suspended timber flooring: U-Value = 0.2 Wm²K
| Floor Insulation | 1.2 | 0.2 | 74.36 | 5.09 | 1006.2170 | 21454.96 | 2245.04 | 2161.90 | 23710.70 | 60 | 1 | 22 | £ 1,006.24 | 64 | -135 |
| Window type B    | Replace windows frames as existing and use double glazing: U-Value = 1.8 Wm²K
| Window type B    | 4.8 | 1.8 | 67.18 | 16.6 | 2986.33 | 18130.91 | 4324.08 | 4996.58 | 4773.36 | 61 | 3 | 1750 | £ 49,000.00 | 175 | -369 |
| Asphault         | Reduce asphalt to Building Regulations minimum standards: U-Value = 3.2 Wm²K
| Asphault         | 4.9 | 3.2 | 51.40 | 0.3 | 54.086 | 10019.09 | 111.82 | 20.07 | 5990.07 | 30 | 2 | 1250 | £ 2,000.00 | 3 | -1395 |
| Air Tightness    | Carry out all tightness improvements on building fabric to achieve EPC of T0
| Air Tightness    | 46.87 | 11.94 | 2149.438 | 10486.13 | 5522.98 | 7377.05 | 410.627 | 18.12 | 3 | 1000 | £ 3,000.00 | 132 | -48 |
| Renovation       | Install a Ground Source Heat Pump with a COP of 3.0 (300%) to provide for heating and hot water
| Renovation       | 24.36 | 21.36 | 3827.232 | 10668.13 | 5796.67 | 5796.67 | 645.346 | 46 | 4 | 2000 | £ 5,000.00 | 240 | -149 |
| Other            | Initial dry and existing chimneys
| Other            | 23.84 | 0.42 | 76.6884 | 10539.69 | 63.66 | 85.63 | 231.86 | 60 | 1 | 1250 | £ 2,500.00 | 5 | 121 |

Total: £ 11,008.74

CO₂ savings from insulating or replacing existing fabric: 7800.00 kg CO₂

Exxra CO₂ saved: 121
Example 3
Proposed plans

A Proposed second floor plan
B Proposed third floor plan
C Proposed roof plan

Key
- 50mm insulation & lining
- Infilling chimneys, cap and replace chimney pots
- Photovoltaic panels (PVs) 5.2m²
- Solar Hot Water (SHW) 5.2m²
- Replacement with new double glazed sash / or secondary glazing / rooflight

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2. Do not scale drawings or show building dimensions.
3. Details should be checked with the architect immediately.
4. Drawn in conjunction with all relevant structural and mechanical & electrical engineers drawings.
5. Information critical to proposed building works must be checked on site before building works commence, as certain assumptions have been made due to lack of accessibility and anomalies in the existing building.

Revisions:
Rev A - Rooflight shown, amended chimney note - 08.10.09
Rev B - Notes amended - 08.10.09

Other Notes:
1. Existing drawings used with permission from Timothy Hylton Architects
2. Roof plan assumed as no existing drawings supplied

PITMAN TOZER
ARCHITECTS
311 Westbourne Studios
242 Acklam Road
London
W10 5J

Proposed second, third floor and roof plans

Project Address:
RBKC EH Feasibility
44 Markham Square

Drawing:
Proposed second, third floor and roof plans

For Information
01.10.09
1:100 @ A3
Drawing number
0915 MS06
Revision
B
Chimney pots capped and replaced (as existing)
Height of roof raised 150mm

**Key**
- Photovoltaic panels (PVs) 5.2m²
- Solar Hot Water (SHW) 5.2m²

**44 Markham Square**

**A** Proposed front elevation

**B** Proposed rear elevation (rendered insulation)

**Example 3**
**Proposed elevations**
A Proposed view from South West over communal garden showing PVs

B Proposed view from South West corner of Markham Square showing PVs
6. Policy Recommendations
EcoHomes Analysis of RBKC LDF

Following both the EcoHomes Analysis and Carbon Savings Analysis for the case study dwellings within the borough, the following section summarises the results and provides recommendations of clauses and requirements that can be included within RBKC’s Core Strategy Policy.

Key Recommendations

Key recommendations are as follows:

- EcoHomes VERY GOOD is a suitable target to promote best practice.
- Best practice will further be ensured through requiring developments to achieve at least 40% of the credits in each of the following EcoHomes sections: energy, water and materials credits.
- An EcoHomes preliminary assessment should be required at Planning Stage. In addition, schemes should provide a Design Stage certificate prior to work starting on site and a Post Construction Stage Assessment prior to occupancy.
- Carbon savings requirements in this report are achievable on the sites with current building materials, practices and technologies.
- The design and conservation implications of the current policy are predominantly low for the case studies in Conservation Areas and lower for those outside Conservation Areas. For Grade II listed buildings each scheme should be treated on a case by case basis.
<table>
<thead>
<tr>
<th>Building Element</th>
<th>Description of Measure</th>
<th>Listed Buildings</th>
<th>Conservation Area</th>
<th>Non Conservation Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Insulation</td>
<td>50mm insulation and lining to the front (internal)</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Wall Insulation</td>
<td>50mm insulation and lining to the rear (internal)</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Wall Insulation</td>
<td>50mm insulation and render to the front (external)</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Wall Insulation</td>
<td>50mm insulation and render to the rear (external)</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Roof Insulation</td>
<td>200mm of mineral fibre insulation in roof space</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Floor Insulation</td>
<td>100mm insulation in suspended timber flooring</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Window Type A</td>
<td>Replacement 10mm glazing within existing frame and sash boxes</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Window Type B</td>
<td>Replace window frames as existing and use 24mm double glazing</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Window Type C</td>
<td>Replace with casement windows</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Doors</td>
<td>Replace entrance door</td>
<td>High</td>
<td>Low(1)</td>
<td>Low</td>
</tr>
<tr>
<td>Windows</td>
<td>Replace rooflights</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Boiler</td>
<td>Install 92% efficient system boiler</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Other</td>
<td>Infill and cap existing chimneys</td>
<td>High</td>
<td>Low(2)</td>
<td>Low</td>
</tr>
<tr>
<td>Air Tightness</td>
<td>Carry out air tightness improvements on building fabric to achieve DfE or 10</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Ventilation</td>
<td>Install Mechanical Ventilation with Heat Recovery</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Renewables</td>
<td>Install 5.2 m² Solar Hot Water panel to the front</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Renewables</td>
<td>Install 5.2 m² Solar Hot Water panel to the rear</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Renewables</td>
<td>Install 5.2 m² (0.75 kWp) photovoltaic panel to the front</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Renewables</td>
<td>Install 5.9 m² (0.5 kWp) photovoltaic panel to the rear</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Renewables</td>
<td>Install a Ground Source Heat Pump with a COP of 3.0 (0.80%) to provide for heating and hot water</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Renewables</td>
<td>Install a Wind Turbine</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Cooling</td>
<td>Install Comfort Cooling with plantwork to the front</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Cooling</td>
<td>Install Comfort Cooling with plantwork to the rear</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

(1) Replacement may be acceptable subject to Design and Conservation comments or approval.
(2) Subject to replacement of chimney pots and detailed approval from Design and Conservation.
Typical details
Internal insulation

A  Existing window/ wall detail - cut away axonometric (nts)

B  Proposed window/ wall detail - cut away axonometric (nts)

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3. The proposed materials or finishes may be subject to change.
4. The information contained in this drawing shall be subject to alterations in consultation with the architect.

Restraint
Rev A - Notes amended - 28.10.09

Project Address
RBKC EH Feasibility Study

Drawing
Existing & proposed internal insulation detail

Drawing status
For Discussion Purposes Only

Date
03.10.09

Drawing number
0915/DET02

Scale
nts @ A3

Revision
A

Notes:
14mm (4-6-4) double glazed unit in existing frame & sash boxes typical U value 2.5 W/(m2K)

24mm (4-16-4) double glazed unit in a new sash window typical U value 1.9-2.0 W/(m2K)

36mm (4-12-4-12-4) triple glazed unit in a new casement window typical U value 0.8-1.0 W/(m2K)
Appendix 1
The Brief
EcoHomes Analysis of RBKC LDF

Royal Borough of Kensington and Chelsea
Viability and feasibility study of achieving the Council's required Code for Sustainable Homes standards for existing residential buildings
Brief for consultants – 15 September 2009

Background
The Royal Borough of Kensington and Chelsea has a statutory duty to contribute to the mitigation of and adaptation to climate change. Government planning policy requires local authorities to "ensure that development plans contribute to global sustainability by addressing the causes and potential impacts of climate change – through policies which reduce energy use, reduce emissions, promote the development of renewable energy resources and take climate change impacts into account in the location and design of development".

The Council’s planning policies for climate change are set out in the draft Publication version of the Core Strategy, which is being published for the final soundness consultation (Regulation 27) in October 2009. The Council proposes to use the Code for Sustainable Homes (CfSH) to set the environmental performance levels for residential development and BREEAM standards to set the environmental performance levels of non-residential development. This policy applies to all new buildings, all extensions and conversions defined as major development, the entire dwelling where substantial extensions are proposed and other development identified as in-douces. However, the purpose of this study is to determine the viability and feasibility to which existing residential buildings can be retrofitted to meet the Council’s required CfSH standards.

The study will not consider non-residential development as the BREEAM standards have already been reduced to aid viability and feasibility in existing non-residential buildings.

The Royal Borough has an exceptional historic townscape, with over 4,000 listed buildings and over 70% of the Borough's affixed conservation area status. The Council acknowledges that measures to mitigate and adapt to climate change must be sensitive to the historic townscape. However, it is unclear how existing residential buildings can be retrofitted to achieve the required CfSH standards and what might be an acceptable impact on the townscape.

The aim of this study is therefore to consider the viability and feasibility to which existing residential buildings can be retrofitted to meet the Council’s required Code for Sustainable homes standards, without an unacceptable impact on the townscape.

This study will be used as evidence in support of the Council’s policies in the Core Strategy.

Methodology

In order to assess viability and feasibility to which existing residential buildings can be retrofitted to meet the CfSH standards, the Council has set out the following project methodology:

1. The Council, together with the consultants, will identify 3-4 ‘practice examples’ of residential buildings typical of the Royal Borough. These must include one listed building and examples within conservation areas. Gaining access to private dwellings within the project timescales will prove difficult. A desktop study and modelling using images and floorplans will therefore be required, where any assumptions about the internal arrangements and building structure will need to be clearly stated.

2. Identify all the environmental measures which will ensure that each building meets the required CfSH level in the Council’s draft Core Strategy. The consultant will then be required to identify the additional environmental measures to ensure that the development meets future CfSH levels in the Core Strategy. The consultant will be required to identify the potential saving from each measure proposed (such as X% for energy and gas; Y% for water and potential CO2 savings)

3. Critically analyse the visual impact of each environmental measure identified in 2 above on the building and existing townscape, having regard to the impact on the historical environment while maximising the potential of the measures proposed (e.g. facing for PV, etc.). Consultant to provide qualitative advice, which measures might, or might not, be acceptable in various locations. Ranking the measures in terms of their impact on the townscape. The Council will offer Conservation Areas and Listed Building advice, in the form of a workshop session. The consultant may also wish to involve English Heritage in this workshop. The consultant would be required to prepare graphic material (plans, sketches and photographs) showing the potential impact of the measures, especially those with a visible townscape impact.

4. Identify cost for each environmental measure with a total for each example to meet each of the standards in this Strategy. This must consider the capital cost, any cost savings from energy savings and funds available for selling energy back to the grid.

5. Revise the environmental measures proposed in 2, having regard to the impact on the townscape (findings from 3 above) and cost (findings from 4 above), recommending which environmental measures would be preferred to meet the CfSH standards at the various stages in the Core Strategy. The ranking proposed in 2 will also need to be reviewed to reflect these findings. This might be presented in the form of a matrix chart, comparing cost, carbon reduction and townscape implications, in relation to the required CfSH level.

6. Make recommendations to the feasibility and viability of requiring existing residential buildings to meet the CfSH standards as set out in the Council’s emerging Core Strategy.

7. Present study findings and recommendations in draft and final report, in electronic and hard copy format.

Timelines
The timescales in this project are uncertain and very tight. This is mainly to ensure that the recommendations of the study can be used to inform the Core Strategy, which is scheduled for publication on the 29th October 2009. The detailed timescales are set out as follows:
Appendix 1

The Brief

EcoHomes Analysis of RBKC LDF

Milestone 1: Project inception meeting and discussion on proposed ‘practice examples’ (item 1 above) [22 Sept 09]

Milestone 2: Consultant to identify certain ‘show stoppers’ which would result in the Council’s CSH levels being unachievable, unduly costly or unreasonable. [23 Sept 09]

Milestone 3: Project team workshop to discuss the environmental measures required to meet the Council’s CSH standards (item 2 above), with specific emphasis placed on assessing the impact on townscape (item 1 above). [7 Oct 09]

Milestone 4: Consultant to submit draft final report, highlighting findings and recommendations [12 Oct 09]

Milestone 5: Project team meeting to discuss draft final report [14 Oct 09]

Milestone 6: Consultant to submit final report [19 Oct 09]

Outputs

The output of this study is a report identifying the environmental measures required to achieve the Council’s required Code for Sustainable Homes standards, over the duration of the Plan and identify the impact such measures might have on townscape. This report must also identify the capital costs expected to meet the Council’s requirements and also consider payback and potential savings over the life of the building. The report would need to conclude whether the Council’s emerging policy is viable and feasible.

Budget

A budget of £4,950 excluding VAT is available for this project. This will include subcontracting, such as appointing a certified Code for Sustainable Homes assessor. However, the Council will support the consultant to obtain match funding to supplement this budget, should the need arise.

Useful information, available upon request:
- draft Core Strategy with a focus on North Kensington
- The Code for Sustainable Homes, technical guide
- Cracking the Code, How to achieve code level 3 and above, Sustainable Homes
- Cost Analysis of the Code for Sustainable Homes, Final Report
- Retrofitting, Improving the Sustainability of the Historic Core Areas
- Conservation Area Appraisals
- English Heritage guidance
Appendix 2
The Policy
EcoHomes Analysis of RBKC LDF

36 Respecting Environmental Limits
Climate change, flooding, waste, biodiversity, air quality and noise and vibration

36.1 Introduction
36.1.1 The Council recognises the scientific consensus that climate change and global warming is happening, that human activity is contributing to it significantly, and that it has potentially damaging environmental, social and economic impacts (RBKC Climate Change Strategy 2008 – 2015).

36.1.2 Development plans should contribute to global sustainability by addressing the causes and potential impacts of climate change; through the minimisation of energy consumption, soil, air and noise pollution and greenhouse gas emissions, promote the development of renewable energy resources, and make climate change impacts into account in the location and design of development” (Planning Policy Statement 1, Delivering Sustainable Development, 2005).

36.1.3 Across the planet, we use too many natural resources too quickly, and beyond the capacity of one planet to replenish them at the same rate. It is important that we all play our part to reduce the impact of human activity on the global and local environment. Respecting Environmental Limits is therefore about ensuring that we live within our means and make decisions to help reduce these pressures and contribute to achieving the environmental elements of sustainable development.

36.1.4 The social, economic and other environmental elements of sustainable development are considered elsewhere in the Core Strategy, including encouraging the use of public transport, sustainable economic growth, providing local employment opportunities, providing a diversity of housing, providing community facilities and opportunities within walkable neighbourhoods, protecting open space and encouraging greater opportunities for pedestrians and cyclists.

36.1.5 Most of our energy and fuel, including for the production and transportation of food, comes from non-renewable fossil fuels (coal, oil and gas) which emit carbon dioxide when burned. Carbon dioxide is one of the six principal greenhouse gases, which contributes to global warming resulting in climate change. This leads to less predictable weather conditions and more extreme weather events, which may reduce food production and increase the risk of flooding. Over two thirds of the UK’s greenhouse gas emissions come from energy use in buildings and industrial processes. The remaining emissions come from transport, agriculture, and waste disposal; although the Thames Energy from Waste plant is due to be commissioned in 2011, this remains to be proven control and recycling. The loss of biodiversity we are currently experiencing on a global scale, is considered by many, to be the greatest since the mass extinction of the dinosaurs.

36.1.6 In addition to the global concerns mentioned above, there are several important local concerns. Vehicles, including those vehicles passing through the Borough, the heating and cooling of buildings, especially the use of old and inefficient boilers, the growth of vehicles and the production of greenhouse gases (some of which are also greenhouse gases) and increase air pollution. The ambient noise levels in many parts of the Borough are high, which are exacerbated by noise from plant and equipment attached to buildings, road traffic, construction, noisy neighbours and powered vehicles. Vibration is also an issue in the Borough, mostly caused by surface and underground trains, but also by plant and equipment which has not been properly attenuated.

36.1.7 Respecting Environmental Limits is an integral part of the Royal Borough’s vision of Building on Success. Tackling these issues is central in upholding our residents quality of life and providing a good place to live.

CO1.7 Strategic Objective for Respecting Environmental Limits
Our strategic objective to respect environmental limits is to contribute to the mitigation of, and adaptation to, climate change; significantly reduce carbon dioxide emissions; maintain low and further reduce car use; carefully manage flood risk and water quality; protect and enhance biodiversity and the environment; and reduce and control noise within the Borough.

1 Global Biodiversity Outlook 2 Report, United Nations, 2008
Appendix 2

The Policy EcoHomes Analysis of RBKC LDF

36.2 What this means for the Borough

36.2.1 We have one of the most cherished historic tenement block in London. If we do not adapt to and lead climate change the historic asset will be progressively damaged, and the cultural, social and economic benefits will be lost. We have a statutory duty to contribute to the mitigation of and adaptation to, climate change. Therefore, the need to take action to reduce carbon emissions, including emissions from alternative fuel sources.

36.3 Planning Policies

36.3.1 The Polynomial 2006 and 103.110 of the Royal Borough of Kensington and Chelsea and the Code for Sustainable Homes is considered reasonable.

36.3.2 In 2005, the Royal Borough emitted an estimated 8.06 tonnes of CO2 per capita, which is above the London average of 4.45 tonnes but below the national average of 8.84 tonnes.

36.3.3 The Climate Change Strategy 2008 to 2010 states that 32% of the Royal Borough's carbon dioxide emissions are from commercial activities and 8% from industrial and commercial use. DfT's projections show that a significant proportion of CO2 savings can be made within the domestic sector.

36.3.4 The Department for Environment and Rural Affairs issued a Code for Sustainable Homes (CfSH) guidance on energy efficiency in new dwellings.

36.3.5 An ecological footprint of less than half a hectare per capita, which is the 2.8 highest in London (4.8 London average is 3.30). The primary contribution in the Borough is food (28%) and housing (21%).

36.3.6 The evidence on climate change shows that we need a policy to ensure that development within the Borough is in accordance with the climate change strategy.

36.3.7 The Code for Sustainable Homes (CfSH) is considered reasonable.

36.3.8 EcoHomes Very Good is considered reasonable.

36.3.9 The Code for Sustainable Homes is considered reasonable.

36.4.10 The Royal Borough contains over 10,000 buildings and over 70% of the Borough has a conservation area status. Re-using historic buildings may significantly reduce energy consumption as existing buildings represent the most efficient energy used to produce them, whereas new buildings require more energy in transportation and manufacture. By reusing existing buildings and energy use in our buildings, through energy efficient design, materials and construction, such as maximising natural heat and ventilation. Reusing the heat and energy we require locally through decentralised district heat and energy networks and renewable sources, also minimises greenhouse gas emissions, minimises heat and energy lost during its transportation and contributes to securing heat and energy supply for the future.

36.4.11 English Heritage acknowledges the importance of reducing excessive carbon emissions from historic buildings.

36.4.12 Planning applications for sustainable development in the Borough are increasing, with 130 new flats, 450 dwellings, 102, 152, and 212 in 2006. This type of development produces a significant amount of greenhouse gases through the excavation and transportation of soil, use of concrete, ventilation and lighting. It is right for the planning system to address the climate change impact. Given the nature of sustainable development and the complexity of calculating and assessing CO2 emissions and savings, as a policy the Council will take a pragmatic approach and use the Code for Sustainable Homes (CfSH) to achieve energy savings across the whole of the original building. In most circumstances this will secure a substantial carbon saving, while not penalising the owners of properties that already have a low carbon footprint.

36.4.13 The code of practice for sustainable development in the Borough is considered reasonable.

36.4.14 The Council recognises that the Government's targets to reduce national carbon dioxide emissions by 60% against 1990 levels by 2020 in order to meet a 65% reduction by 2020 and will require development to make a significant contribution towards this target. To deliver this the Council will:

a. require an assessment to demonstrate that all new buildings and extensions defined as major development achieve the following Code for Sustainable Homes standards:

i. Residential Development: Code for Sustainable Homes.
Appendix 2
The Policy
EcoHomes Analysis of RBKC LDF

3.5 Respecting Environmental Limits

- Up to 2012: Level Four
- 2013 to 2016: Level Four
- 2016 onwards: Level Six

ii. Non Residential Development: Relevant BREEAM Assessment
   a. Up to 2011: Excellent
   b. 2016 onwards: Outstanding

iii. Require an assessment to demonstrate that conversions and refurbishment defined as major development achieves the following relevant BREEAM standards:
   a. Residential Development: EcoHomes Very Good (at design and post construction) with 40% of credits achieved under the Energy, Water and Materials sections; comparable when BREEAM for refurbishment published.
   c. 2016 onwards: Excellent (with 40% of credits achieved under the Energy, Water and Materials sections)

iv. Require an assessment to demonstrate that the entire dwelling where intervention retentions are proposed achieves Code for Sustainable Homes Level Four.

v. Require that carbon dioxide and other greenhouse gas emissions, including those from energy heating and cooling, are reduced to meet the Code for Sustainable Homes and BREEAM standards in accordance with the following hierarchy:
   a. more efficient building design, construction and materials, including the use of passive design, natural heating and natural ventilation;
   b. energy-efficient heating, cooling and energy supply, through Combined Cooling, Heat and Power (CCHP) or similar, whilst ensuring that heat and energy production does not result in unacceptable levels of air pollution;
   c. on-site renewable and low-carbon energy sources;

vi. Require the provision of a Combined Cooling, Heat and Power plant, or similar, which is if of a suitable size to service the planned development and contribute to a district heat and energy network:
   a. strategic site allocations at Kinsail, Worthington Green, North Kensington Sports Centre and Fours Court;
   b. significant redevelopment and regeneration proposals at Holford Hill Gate and Latimer as set out in the plans section of this document;

vii. Require all CCHP plant or similar to connect to, or be able to connect to, either existing or planned CCHP plant or similar to form a district heat and energy network;

viii. Require development to connect into any existing district heat and energy network, connecting to the nearest available district energy infrastructure to be accessible to that development;

ix. Require development to incorporate measures that will contribute to on-site sustainable level production commensurate with the scale of development;

x. Require, in due course, development to further reduce carbon dioxide emissions and/or adapt to climate change, especially from the existing building stock, through financial contributions, planning conditions and seeking or allowing the use of EcoHomes and BREEAM standards for other types of development.