

Sustainability Strategy Review

Site Name:	Kingston Bridge House, Hampton Wick
Planning reference number:	22/1029/FUL
Case officer:	William Tysterman
Consultant:	Sara Bakri
Comments provided on:	16/12/2022

Details:

Façade and elevational improvements, infill extension at ground floor level and change of use of the building to provide 70 new homes with associated landscaping, access, parking/refuse provision and external alterations.

Recommended actions for applicant:

- Address improving the total score in the Sustainable Construction Checklist (SPD).
- The Energy Statement to address connecting the development to future DE network.
- Update the u-values table showing the current Building Regs Part L Values against the proposed u-values.
- The Energy Statement to address the 'Be Seen' option.
- Provide copies of CIBSE TM52 overheating analysis.

Documents considered:

Sustainability & Energy Statement – by Bluesky Unlimited – 26th September 2022

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General requirements

As a major **Residential** development, the following is required:

- Achieve an energy efficiency value at least 10% greater than Part L through energy efficient measures.
- 35% reduction in in CO2 emissions over Building Regulations Part L (2013) achieved on-site with the remaining emissions (up to 100%) to be offset through a contribution into the Council's Carbon Offset Fund.
- Achieve maximum water consumption of 110 litres per person per day (including an allowance of 5 litres for external water consumption)

Key points presented

- Achieves CO2 reduction of 10.57% greater than Part L 2021 through energy efficient measures (Be Lean).
- 0% achieved t for the 'Be Green' option
- Achieves a CO2 reduction of 68.80% when introducing an Air Source Heat Pumps for the (Be Green) option.
- Achieves a CO2 reduction of 80.96% when adding Photovoltaic panels (PV) panels for the (Be Green) option.
- Overall CO2 reduction of 91.53% compared to Building Regulations Part L.
- This results in a carbon offset payment of £14,002 (18.008 tonnes CO2)
- Achieves 102.10 litres per person per day water consumption the external use.

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The London Borough of Richmond-upon-Thames

Adopted Local Plan 2018- Policy LP 22 Sustainable Design and Construction

A. Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:

1. Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD.
2. Development that results in a new residential dwelling, including conversions, change of use, and extensions that result in a new dwelling unit, will be required to incorporate water conservation measures to achieve maximum water consumption of 110 litres per person per day for homes (including an allowance of 5 litres or less per person per day for external water consumption).
3. New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard.
4. Proposals for change of use to residential will be required to meet BREEAM Domestic Refurbishment 'Excellent' standard (where feasible).

Comment:

Appendix 6 of the Sustainability and Energy Statement includes the Sustainable Construction Checklist SPD showing a score of 55.5 (B rating) has been achieved.

The Sustainability and Energy statement (page 29) provided the sanitary water specification with calculations which confirms the domestic units achieve 102.10 litres per person per day excluding an allowance of 5 litres for external use.

Action:

Address improving the total score in the Sustainable Construction Checklist (SPD).

Reducing Carbon Dioxide Emissions

B. Developers are required to incorporate measures to improve energy conservation and efficiency as well as contributions to renewable and low carbon energy generation. Proposed developments are required to meet the following minimum reductions in carbon dioxide emissions:

1. All new major residential developments (10 units or more) should achieve zero carbon standards in line with London Plan policy.
2. All other new residential buildings should achieve a 35% reduction.
3. All non-residential buildings over 100sqm should achieve a 35% reduction. From 2019 all major non-residential buildings should achieve zero carbon standards in line with London Plan policy. Targets are expressed as a percentage improvement over the target emission rate (TER) based on Part L of the 2013 Building Regulations.

C. This should be achieved by following the Energy Hierarchy:

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1. Be lean: use less energy
2. Be clean: supply energy efficiently
3. Be green: use renewable energy Decentralised Energy Networks

D. The Council requires developments to contribute towards the Mayor of London target of 25% of heat and power to be generated through localised decentralised energy (DE) systems by 2025. The following will be required:

1. All new development will be required to connect to existing DE networks where feasible. This also applies where a DE network is planned and expected to be operational within 5 years of the development being completed.
2. Development proposals of 50 units or more, or new non-residential development of 1000sqm or more, will need to provide an assessment of the provision of on-site decentralised energy (DE) networks and combined heat and power (CHP).
3. Where feasible, new development of 50 units or more, or new non-residential development of 1000sqm or more, as well as schemes for the Proposal Sites identified in this Plan, will need to provide on-site DE and CHP; this is particularly necessary within the clusters identified for DE opportunities in the borough-wide Heat Mapping Study. Where on-site provision is not feasible, provision should be made for future connection to a local DE network should one become available.

Applicants are required to consider the installation of low, or preferably ultra-low, NOx boilers to reduce the amount of NOx emitted in the borough.

Local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies will be encouraged where appropriate

Comment:

The Sustainability and Energy Statement confirms (page 3) a communal heating system using a Daikin Altherma Geo-Collective air source heat pump system, has been proposed.

Each apartment will have its own heat pump cylinder and heating controls, which will be connected to a medium temperature heating loop within the building, which in turn will be connected to a common outdoor chiller unit (s)

The Energy Statement demonstrates addressing the Energy Hierarchy achieving the below CO2 reductions for each option;

- 10.57% for the Be Lean scenario
- 0% for the Be Clean scenario
- 68.80% with ASHP for the Be Green scenario.
- 80.96% with ASHP and PV panels for the Be Green scenario.
- Overall CO2 reduction of 91.53%

The Be Lean

SAP10 calculations have been provided for sample bedrooms (1, 2 and 3 bedrooms) facing different directions.

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Appendix 1 of the Energy Statement includes sample copies of SAP2012 calculation showing the TER & DER sheets covering all types of different dwellings units based on Gas.

Appendix 2 shows SAP 2012 Methodology SAP 10 Carbon Factors for the 'Be Lean' option showing the TER & DER sheets covering all types of different dwellings units confirming 10.57% total CO2 reduction.

The units u-values provided (page 13) should be compared to the new Building Regs 2021 u-values (incorrect u-values have been shown).

A good air permeability value (4.0 m³/hr/m²) has been proposed.

Be Clean

The Sustainability and Energy Statement confirms (page 24) that there are no heat networks in the vicinity of the development and therefore it is proposed to install a communal heating system within the scheme.

Nothing has been mentioned about connection to future DE networks.

Be Green

The Sustainability and Energy Statement includes in Appendix 3 sample copies of SAP2012 calculation showing the TER & DER sheets covering all types of different dwellings units using a Communal ASHP System.

Appendix 4 provides the SAP2012 Methodology SAP10 Carbon Factors for the Be Green using ASHPs confirming 68.80% CO2 reduction is met.

In order to maximise the reduction in emissions it is also proposed to install a photovoltaic array of 155 x 400W photovoltaic panels (62.0 kW).

Appendix 5 shows the Roof plan with PV panels located all around which would achieve extra CO2 reduction to meet a total figure of 91.53%.

Action:

The Energy Statement to address connecting the development to future DE network.

Update the u-values table showing the current Building Regs Part L Values against the proposed u-values.

London Local Plan (2021)

Requirement: SI 2 Minimising greenhouse gas emissions

Requirement: SI 2 A

Major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:

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- 1) be lean: use less energy and manage demand during operation.
- 2) be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
- 3) be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
- 4) be seen: monitor, verify and report on energy performance.

Comment:

The energy report demonstrates compliance with the energy hierarchy (Be Lean, Be Green and Be Green).

The 'Be Seen' has not been acknowledged.

Action:

The Energy Statement to address the 'Be Seen' option.

Requirement: SI 2 B

Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.

Comment:

Detailed energy assessment has been provided with clear energy hierarchy.

Net zero will be met with £95/tonne per year over 30 years, resulting in a payment of £14,002.

Action:

None

Requirement: SI 2 C

A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should achieve 15 per cent through energy efficiency measures.

Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided, in agreement with the borough, either:

- 1) through a cash in lieu contribution to the borough's carbon offset fund, or
- 2) off-site provided that an alternative proposal is identified, and delivery is certain

Comment:

10.57% CO2 reduction has been met through the specification of energy efficiency measures.

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The Energy Statement provides sufficient details covering the energy efficient design features including windows size and orientation (daylighting), insulation, Accredited Construction Details, good U values and air tightness.

SAP10 calculations sheets have been provided along with SAP2012 Methodology SAP10 Carbon Factors for the Be Green using ASHPs.

Offsetting requirement is correctly calculated as £14,002

Action:

None

Requirement: SI 2E

Major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions.

Comment:

The Sustainability and Energy Statement provides in Appendix 7 copy of the calculations for the unregulated emissions confirming a total of 33,983 kg CO₂ per year will be produced from appliances & Cooking.

Action:

None

Requirement: SI 2F

Development proposals referable (150+ homes, 300m+ high, Greenbelt or open land) to the Mayor should calculate whole lifecycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.”

Comment:

I’m not aware of this being referable

Action:

None

Policy SI 3 – Energy Infrastructure

- A. Boroughs and developers should engage at an early stage with relevant energy companies and bodies to establish the future energy and infrastructure requirements arising from large-scale development proposals such as Opportunity Areas, Town Centres, other growth areas or clusters of significant new development.

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- B. Energy masterplans should be developed for large-scale development locations (such as those outlines in Part A and other opportunities) which establish the most effective energy supply options. Energy masterplans should identify;
- 1) major heat loads (including anchor heat loads, with particular reference to sites such as universities, hospitals and social housing)
 - 2) heat loads from existing buildings that can be connected to future phases of a heat network
 - 3) major heat supply plant including opportunities to utilise heat from energy from waste plants
 - 4) secondary heat sources, including both environmental and waste heat
 - 5) opportunities for low and ambient temperature heat networks
 - 6) possible land for energy centres and/or energy storage
 - 7) possible heating and cooling network routes
 - 8) opportunities for futureproofing utility infrastructure networks to minimise the impact from road works
 - 9) infrastructure and land requirements for electricity and gas supplies

Comment:

This is not relevant to the project

Action:

None

Policy SI 4 - Managing heat risk

- A. Development proposals should minimise adverse impacts on the urban heat island through design, layout, orientation, materials and the incorporation of green infrastructure.
- B. Major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the following cooling hierarchy:
- 1) reduce the amount of heat entering a building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure
 - 2) minimise internal heat generation through energy efficient design
 - 3) manage the heat within the building through exposed internal thermal mass and high ceilings
 - 4) provide passive ventilation
 - 5) provide mechanical ventilation
 - 6) provide active cooling systems

Comment:

The Energy Statement has covered the cooling hierarchy (pages 16- 17).

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Appendix 8 includes a copy of Early-Stage Overheating Risk Tool confirming a score of 10 has been achieved.

Action:

Provide copies of CIBSE TM52 overheating analysis.

Policy SI 5 - Water Infrastructure

- A. In order to minimise the use of mains water, water supplies and resources should be protected and conserved in a sustainable manner.
- B. Development Plans should promote improvements to water supply infrastructure to contribute to security of supply. This should be done in a timely, efficient and sustainable manner taking energy consumption into account.
- C. Development proposals should;
 - 1) Through the use of Planning Conditions minimise the use of mains water in line with the optional Requirement of the Building Regulations (residential development) achieving mains water consumption of 105 litres or less per head per day (excluding allowance of up to five litres for external water consumption).
 - 2) Achieve at least the BREEAM Excellent standard for the 'Wat01' water category or equivalent (commercial developments)
 - 3) Incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise future-proofing.

Comment:

The provided Water calculation table (page 29) confirms the dwellings achieve 102.10 litres per person per day excluding an allowance of 5 litres for external use.

The Energy Statement demonstrates (page 28) water efficiency measures which is incorporated in the design including, water efficient taps/toilets/showers, flow restrictors and water meters.

Comment:

None