

Energy Statement

Issue 2 - Issued as WIP 03/05/2024

14 Bedford Row & 12-14 Jockey's Fields, Camden, London, WC1R 4ED

Prepared for:



Prepared by:

energylab_Consulting Ltd
18 Wenlock road, London, N1 7TA
Tel: 020 37629608
www.energy-lab.co.uk
info@energy-lab.co.uk

| Issue | Date | Issue Details | Changes | Prepared by | Reviewed by | Approved by |
|-------|----------|---------------------|-------------------------------|-------------|-------------|-------------|
| 0 | 12/04/24 | Issued as WIP | | JBF | MA | MA |
| 1 | 23/04/24 | Issued as Draft | Incorporating client comments | JBF | | MA |
| 2 | 03/05/24 | Issued for comments | Incorporating client comments | JBF/MA/RK | MA | MA |



energylab_

part of **the lab**_ collective 18 Wenlock Road London N1 7TA www.energy-lab.co.uk info@energy-lab.co.uk T 020 3752 9608

This document is an **energylab**_ confidential document; it may not be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise disclosed in whole or in part to any third party without our express prior written consent. It should be used by you and the permitted disclosures for the purpose for which it has been submitted and for no other.



Contents

| Exe | ecutive Summary | |
|------|---|----|
| | ntroduction | |
| | 1.1 Existing Site | |
| | 1.1.2 14 Bedford Row | |
| | 1.1.3 12-13 Jockey's Fields | |
| | 1.1.4 14 Jockey's Fields | |
| | 1.2 The Proposal. | |
| | 1.3 Compliance | |
| | 1.4 Carbon Emission Factors | |
| 2. E | Establishing CO2 Emissions | |
| | Building Regulation Targets | |
| | 3.1 Emission Rate | |
| | 3.2 Fabric Energy Efficiency Rate | |
| | 3.3 Primary Energy Requirement | |
| 4. I | Major Refurbishment | |
| | 4.1 Demand Reduction (Be Lean) | |
| | 4.1.1 Passive Measures | |
| | 4.1.1.1 Building Facade and Air Permeability | |
| | 4.1.1.2 Thermal Bridging | |
| | 4.1.1.3 Passive Ventilation | |
| | 4.1.1.4 Passive Measures Summary | |
| | 4.1.2 Active Measures. | |
| | 4.1.2.1 Lighting | |
| | 4.1.2.2 Active Ventilation | |
| | 4.1.2.3 Waste water heat recovery | |
| | 4.1.2.4 Controls | |
| | 4.1.2.5 Active Measures Summary | |
| | 4.1.3 Carbon Emission Reduction after 'Be Lean' | |
| | 4.2 Demand Reduction (Be Clean) | |
| | 4.2.1 Connection to Heating Distribution Network | |
| | 4.2.2 Connection to Shared Heating Network | |
| | 4.2.3 Local Site CHP | |
| | 4.2.4 Space Heating | |
| | 4.2.5 Carbon Emission Reduction after 'Be Clean' | |
| | 4.2.5 Carbon Emission Reduction after Be Clean 4.3 Renewable Energy (Be Green) | |
| | 4.3.1 Technology Options | |
| | 4.3.2 ASHP Technology | |
| | 4.3.2 PV | |
| | 4.3.3 Carbon Emission Reduction after Be Green. | |
| 5 | 4.3.3 Carbon Emission Reduction after be Green | |
| | Overneating Analysis | |
| | | |
| | 'Be Seen' | |
| | Conclusion | |
| AP | Appendix 1. Proliminary Appraisal of Panayable Energy Ontions | |
| | Appendix 1: Preliminary Appraisal of Renewable Energy Options | |
| | Appendix 2: IESVE BRUKL - Baseline | |
| | Appendix 3: IESVE BRUKL - Be Clean | |
| | Appendix 4: IESVE BRUKL - Be Clean | |
| | Appendix 5: IESVE BRUKL - Be Green | |
| | Appendix 6: Overheating Risk assessment - Model A | |
| | Appendix 7: Overheating Risk assessment - Model B | 37 |

energylab_

Building Services and Sustainability Designers

| Appendix 8: Overheating Risk assessment - Model C | 42 |
|--|----|
| Appendix 9: PV Calculations | 47 |
| Appendix 10: GLA Carbon Reporting Spreadsheet | 48 |
| Appendix 11: 'Be Seen' | 49 |
| Appendix 12: Automated Energy Monitoring Platform (AEMP) | 50 |

Executive Summary

This Energy Statement was prepared by Energylab Consulting ltd in support of the full planning application for major refurbishment of 14 Bedford Row and of 12-14 Jockey's Fields, Camden, London, WC1R 4ED to comply with Camden Council's requirements on environmental and low carbon design.

As the proposed development is a major refurbishment, being greater than 1,000 sqm; it will be assessed in line with the relevant paragraphs of section 6 of the GLA Energy Assessment Guidance (June 2022). Where major refurbishments are being carried out, an estimate of the CO2 savings from the refurbishment of the building will be expected. To provide this, applicants are required to estimate the CO2 emission baseline performance of the existing building using Building Regulations approved compliance software.

The energy assessment has clearly identified the carbon footprint after each stage of the energy hierarchy:

- Baseline: Existing building using BRs approved compliance software
- After energy demand reduction (be lean)
- After heat network connection (be clean)
- After renewable energy (be green).

The report confirms that the energy and carbon reduction strategy under the climate change mitigation measures proposed for the proposed development is in line and in compliance with the relevant and applicable targets and requirements listed within the following planning policies of the Camden Council and the London Plan:

- 1. Camden Council's Design Guidance B Report 2022
- 2. Camden Local Plan 2017
- 3. The London Plan 2021 relevant planning policies within chapter 9, i.e. Energy Hierarchy and carbon reduction targets
- 4. GLA Energy Assessment Guidance June 2022

The Energy Statement for the development has been developed in line with the London Plan Energy Hierarchy principles (displayed in Figure 1) to reduce the energy and associated CO2 emissions using the "Be Lean, Be Clean, Be Green and Be Seen" approach:

- 1. "Be Lean": Improvements to the building fabric and energy efficient services to minimise energy demand, including efficient building services and 100% low energy LED lightings.
- 2. "Be Clean": It has been concluded that connecting to any DHN or on-site CHP is not practical. Nevertheless, the delivery of energy in an efficient manner has resulted in a reduction of CO2 emissions. Savings have been attained by implementing an efficient space heating system, which includes smart panel radiators for communal areas and UFH for the rooms.
- 3. "Be Green": Low carbon technologies have been proposed via Air Source Heat Pumps (ASHP) technologies with high COP (at least 2.5 COP) and PV system.
- 4. "Be Seen": requirement for all major development proposals to monitor and report on their actual operational energy performance for at least five years.



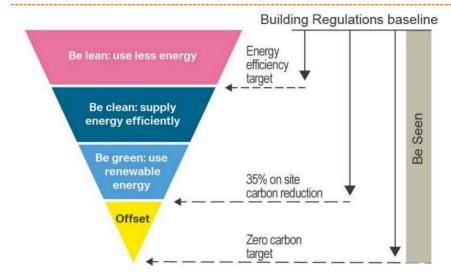


Figure 1: GLA Energy Hierarchy London Plan Figure 9.2

In line with the aforementioned planning policies, as described earlier, a baseline target emission rate has been established and the energy reductions have then been calculated in line with the London Plan Energy Hierarchy.

Table 1 displays the percentage reductions in CO₂ emissions and the improvements against the Part L notional building CO₂ emissions.

| Table 1 : Carbon (CO ₂) Emission Reductions | | | | | |
|---|--|-----|--|--|--|
| | (Tonnes CO ₂ savings per annum) | (%) | | | |
| Baseline Existing Building Emission | 147.64 | | | | |
| Energy Demand Reduction Savings (Be Lean) | 17.06 | 12 | | | |
| Heat Network/Active Savings (Be Clean) | 47.59 | 32 | | | |
| Renewable Technologies Savings (Be Green) | 38.23 | 26 | | | |
| Total Potential On Site Savings | 102.88 | 70 | | | |

As major refurbishments are not held to the net-zero carbon reduction target criteria, this criteria is only applicable to new build major developments only (not applicable to the proposed development). Figure 2 displays predicted CO2 reductions across each phase of the London Plan Energy Hierarchy.

The refurbishment would have the potential to achieve a total reduction of 70% against the baseline CO2 emissions.

.



energylab_

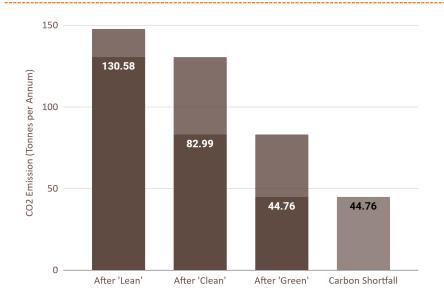


Figure 2: Predicted Major refurb from office (Class E) to apart-hotel (Class C1) $\,$ CO $_2$ reductions against Part L 2021 Baseline

The design team is committed and working to the circular economy principles to repurpose, refurbish and reuse any existing material where technically feasible, in turn, reducing the carbon footprint of the development compared to 'all new' approaches. Furthermore, the proposed development will adopt a number of sustainable design and construction measures to further promote reduced carbon emissions and sustainability.

The proposed development has the potential to comply with GLA requirements, the Building Regulations Part L 2021 performance targets for

refurbished developments, and targets set out in Camden Council's Design Guidance B Report 2022.



1. Introduction

1.1 Existing Site

14 Bedford Row is located within the southern part of the London Borough of Camden. The site comprises three interconnected buildings which stretch from 14 Bedford Row at the front through to 12-13 and 14 Jockey's Fields (via a basement and ground floor link structure) at the rear. The property has been unoccupied for several years, but was last in use as the Headquarters for the Chartered Society of Physiotherapy. The three buildings were built at different times, with different structures, levels, configurations and typologies. Please see figure 3.



Figure 3: Aerial Site Plan (Source: Google Maps)

The surrounding context is a mixture of residential and commercial premises, with buildings varying in height between 4-6 stories. The streets are wide, and tree-lined, providing bicycle racks and curbside parking. The vernacular of the area is or is heavily influenced by Georgian architecture.

1.1.2 14 Bedford Row

14 Bedford Row is Grade II Listed, whilst the entirety of the site sits within the Bloomsbury Conservation Area. This naturally presents limitations to the level of intervention capable of being implemented. Originally constructed in 1717-1718, and rebuilt in 1967 it is 4 stories tall from ground level, with an additional basement floor, being of solid masonry construction with a concrete core/frame. The building currently has individual partitioned offices which host high ceilings. Please see Figure 4 for the front elevation.



Figure 4: 14 Bedford Row elevation

