



Tybalds Estate Regeneration, Camden

Phase 1A Post Completion Review: Energy and Sustainability

August 2024

Document Revision Control

Revisions	Date	Reason for Issue	By	Approved
R0	05/08/2024	Issued for information	KA	PP
R1	08/08/2024	Issued for information	KA	
R2	09/08/2024	Issued for information	KA	

Contents

Document Revision Control 2

1. Introduction 3

2. Post Completion Review..... 5

Design Stage Results

Please see Table 2 below for the EPC Ratings of the dwellings output at the design stage:

Table 2: Design Stage EPC Ratings	
Apartment	EPC rating
Richbell Underbuild 01	C – 78
Richbell Underbuild 02	C – 78
Falcon Underbuild 01	C – 78
Falcon Underbuild 02	C – 78
Falcon Underbuild 03	C – 80
Blemundsbury Underbuild 01	C – 79
Blemundsbury Underbuild 02	C – 80
Blemundsbury Underbuild 03	C – 80
Blemundsbury Underbuild 04	C – 80
Blemundsbury Underbuild 05	C – 78

Sustainability

Please see below targets set out within the Sustainability Report issued in December 2022:

- **Resource efficiency:** The underbuilds will have low flow appliances fitted throughout to reduce on site water usage and limit this to 105 litres/person/day.
- **Embodied Carbon:** The re-use and adaptation of the structure will reduce the amount of new embodied carbon in the complete building.
- **Decentralised Energy Generation:** The underbuilds will be designed to connect into the existing district heating network on site via a plate heat exchanger.
- **Climate Change Adaption Measures:** The development will be designed to reduce the risk of overheating within the developments and limit the use of cooling following the Approved Document O methodology.
- **Sustainable Design and Construction:** The Energy Strategy which accompanies this report details the full measures in place to reduce the energy demand and carbon emissions from the proposed development.

Please see Figures 3a and 3b for the the front covers of the design stage Energy and Sustainability Reports issued, for reference.

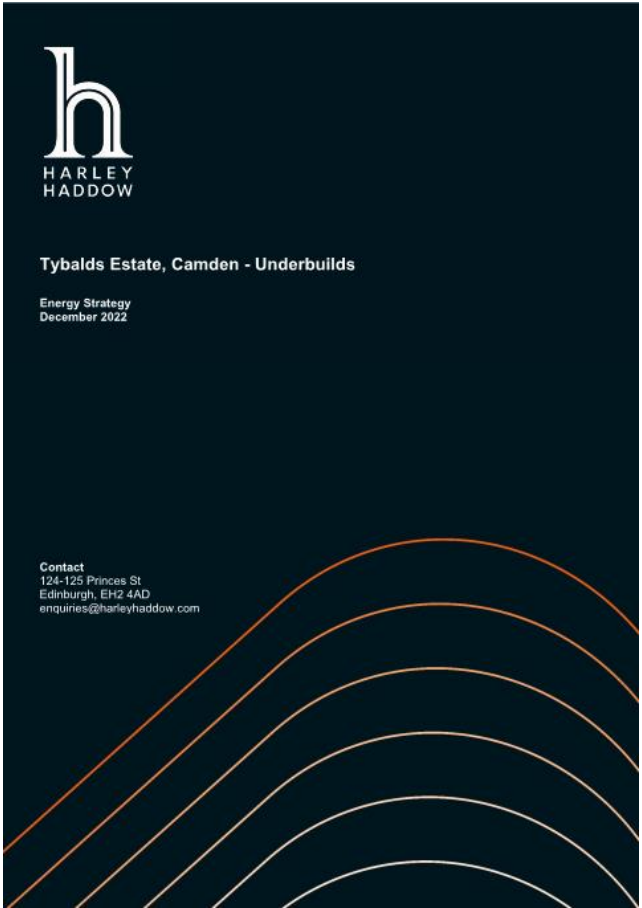


Figure 3a: Energy Strategy (R5 – 03.03.2023)



Figure 3b: Sustainability Plan (R4 – 05.12.2022)

2. Post Completion Review

2.1. Energy Strategy

A review of the initial SAP 10.2 calculation has been conducted, reflecting any changes that occurred at the design stage in relation fabric performances and MEP systems.

Fabric Performances

Please see Table 3 below displaying the proposed U-values for the thermal elements at the design stage, as well as the as-built U-values achieved.

Table 3: As-Built Fabric Performances			
Building Fabric Element	Minimum Part L1B U-Value (W/m²K)	Proposed Target U-Value (W/m²K)	As Built U-Value (W/m²K)
External Wall	0.55	0.30	0.24
Floor	0.25	0.25	0.25 - 0.28
Glazing	1.6	1.4	1.3 – 1.4
Doors	1.8	1.4	1.4

Please note, all units achieved a tested air permability of less than 4.9 m³hr/m² @ 50Pa.

MEP Systems

The initial strategy included in Harley Haddow’s design stage Energy Statement included the proposal of connection to a local CHP heating system. This was substituted to be connected to the **existing heat network** on site, incorporating a high efficiency communal LTHW gas boiler system, in line with the original strategy proposed by TGA. The strategy for replacement of the existing estate plant was agreed and carried out separately to the regeneration works.

The dwellings are to be connected to a PV system to be installed on the roofs of the residential buildings. These works will be implemented in Autumn 2024 on completion of the roof refurbishment which is part of a separate programme of works to the construction of the underbuilds themselves. Accordingly, the as-built EPCs carried out on completion of the underbuilds does not include the PV, but this has been incorporated in the post-completion calculations carried out below.

As-Built Results

Please refer to Table 4 below, displaying EPC ratings over stages of the project. An additional column, highlighted in green, has been included to display the potential EPC when the PV system is introduced to the development.

Table 4: EPC Results – Design Stage, As-Built, Potential with PV

Apartment	EPC (Design)	EPC (Lodged EPC)	EPC (As Built + PV)
Richbell Underbuild 01	C – 78	C – 76	B – 84
Richbell Underbuild 02	C – 78	C – 75	B – 82
Falcon Underbuild 01	C – 78	C – 74	B – 82
Falcon Underbuild 02	C – 78	C – 75	B – 84
Falcon Underbuild 03	C – 80	C – 75	B – 83
Blemundsbury Underbuild 01	C – 79	C – 74	B – 84
Blemundsbury Underbuild 02	C – 80	C – 75	B – 85
Blemundsbury Underbuild 03	C – 80	C – 75	B – 83
Blemundsbury Underbuild 04	C – 80	C – 75	B – 84
Blemundsbury Underbuild 05	C – 78	C – 75	B – 85

Please note, 2 no. 440W panels have been applied to each unit, south facing at a 30° angle. These panels will be connected directly to each unit.

2.2. Sustainability Plan

Please see Table 5 below, commenting on each of the sustainability targets set out in December 2022, at the As Built stage.

Table 5: Sustainability Report Targets – Post Completion Comments	
Item	Post Completion Comment
Resource Efficiency	<p>Generally, low flow fittings were adopted for each sanitaryware appliance to minimise water usage. Please refer to Table 6 for the Approved Document: Part G water efficiency calculation.</p> <p>Please note, the onerous target of 105 litres/person/day target was not achieved at the as-built stage. Nevertheless, this informed the selection of a number of low flow fittings throughout the development, reducing general water consumption.</p> <p>Please note some fittings e.g. washing machines were not provided as part of the works.</p>
Embodied Carbon	<p>With the development being a refurbishment, embodied carbon was reduced significantly when compared to a new-build development.</p> <p>Furthermore, the structural works were minimised where possible to reduce the amount of highly contributing materials such as steel and concrete.</p>
Decentralised Energy Generation	<p>The estate has an existing heat network, which the new residential units are now connected into.</p> <p>The initial strategy included in Harley Haddow's design stage Energy Statement included the proposal of connection to a local CHP heating system. This was substituted to be connected to the existing heat network on site, incorporating a high efficiency communal LTHW gas boiler system, in line with the original strategy proposed by TGA.</p>
Climate Change Adaption Measures	<p>Please refer to the CIBSE TM59 Overheating Report issued in May 2022.</p> <p>U-value performances stated in this report for the external walls and ground floor are far worse than the as-built figures. Therefore, overheating risk will be reduced against the design stage assessment.</p>
Sustainable Design and Construction	<p>Please refer to the Energy Strategy Report issued in March 2023. All energy efficiency measures proposed have been adopted at the as-built stage, with the only inconsistency being the change from CHP to TGA's original strategy, connecting to the existing heat network on the estate.</p>

Table 6: Approved Document Part G Water Efficiency

Flat	Total Water Consumption (l/person/day)
Falcon Flat 1	109.58
Falcon Flat 2	115.72
Falcon Flat 3	115.72
Blemundsbury Flat 1	125.49
Blemundsbury Flat 2	115.72
Blemundsbury Flat 3	115.72
Blemundsbury Flat 4	115.72
Blemundsbury Flat 5	115.72
Blemundsbury Caretaker's Room	64.43
Richbell Flat 1	125.49
Richbell Flat 2	125.49