

Back of Ancoats – Jersey Wharf

Post Constructure Review Statement - Environmental Standards and Energy Statement

JWH-BHE-XX-XX-RP-N-(00) 2001 Post Construction Review

070285

15 March 2026

Revision 01

Revision	Description	Issued by	Date	Checked
00	DRAFT - Issued for comment	JW/MR	15.03.26	MR
01	Final Issue	JW/MR	25.03.26	MR

This Statement has been prepared by Buro Happold ("BH") in accordance with the terms of its appointment for the benefit of John Sisk and Son Limited, in relation to the [Post Construction Review of Environmental Standards and Energy Statement] so to support understanding of the project's performance against the relevant objectives. BH's responsibility is limited to this purpose and BH assumes no liability for any reliance placed on the Statement by any third party.

This Statement reflects BH's professional judgment based on the information and knowledge available at the time of writing, and entirely on as-built information provided by Sisk and without site inspections. BH can review but does not assume responsibility for the accuracy or completeness of any data received. BH does not assume ownership of, or liability for, any third-party design or deliverables, nor responsibility for any related negligence, errors, or omissions. BH exercises reasonable skill and care in the performance of its services, but does not guarantee any particular outcome, and gives no warranty regarding any third-party services, equipment requirements and/or software, and is not responsible for their use or outcome; regardless of whether the content of this Statement is followed."

This report has been prepared for the sole benefit, use and information of John Sisk & Son Limited for the purposes set out in the report or instructions commissioning it. The liability of Buro Happold Limited in respect of the information contained in the report will not extend to any third party.

author **Jonathan Whiteley / Mei Ren**

date **15.03.26**

approved **Mei Ren**

signature **MJR**

date **25.03.26**

Contents

1	Executive Summary	4
1.1	Scope of the Document	5
1.2	Description of Development	6
1.3	Site Description	6
2	Planning Policy Context	7
2.1	Summary of policy review	7
3	Energy Strategy	9
3.1	Introduction	9
3.2	Baseline Information	10
3.3	Emissions Calculations	11
3.4	Conclusion	13
4	Environmental Standards Review	14
4.1	Overview	14
4.2	Energy Efficiency and Renewable Energy	14
4.3	Environmental Design	15
4.4	Water Management and Weather Resilience	19
4.5	Waste Management	21
4.6	Construction Management	22
4.7	Biodiversity	23
4.8	Adaptation to Climate Change	24
5	Overheating Review	26
Appendix A Part L Detailed Design Stage and Overheating Assessment – by Ameen		

1 Executive Summary

This Post Construction Review Statement for Environmental Standards and Energy Statement (ESES) has been prepared based on the design and construction information completed and provided by John Sisk & Son Limited (Sisk) led team, in respect of the planning conditions S73 and ESES planning stage submission for Back of Ancoats – Jersey Wharf.

The Proposed Development is located on Jersey Street to deliver 2 blocks of 8 storey buildings to provide 190 residential units, with ground floor commercial floorspace, and ancillary amenity space, cycle parking provision, hard and soft landscaping, access and servicing and other associated works. The site is located within the Ancoats and New Islington area. In July 2020, Manchester City Council endorsed a refreshed Neighbourhood Development Framework which focused on the Poland Street Zone in Ancoats and was prepared to ensure future development preserved the character of the area whilst meeting future housing, sustainability and community needs.

This Statement seeks to demonstrate that the Design and Construction built by Sisk aligns with the previously submitted ESES statement in 2022. The key Manchester City Council's (MCC) sustainability policies referred to within the ESES include Core Strategy (2012) and Manchester Guide to Development (2007).

Planning conditions: **S73 (139289/JO/2024)**

The development hereby approved shall be carried out in accordance with the Environmental Standards and Energy Statement prepared by Buro Happold stamped as received on the 13 May 2022 and the Environmental Standards and Energy Statement addendum, stamped as received on 16 February 2024. A post construction review certificate/statement for the development shall be submitted for approval, within a timescale that has been previously agreed in writing, to the City Council as Local Planning Authority.

In summary, the development has targeted and achieved the following environmental standards, in line with the planning policy:

- The Constructed Development has met the EN6 planning requirement of 15% improvement on Part L 2010 based on the Part L results submitted by Sisk's team. This aligns with the design target set out for the planning ESES Addendum to JWH-BHE-XX-XX-RP-N-(00)2001, dated 13 February 2024.
- The Constructed Development has adopted "fabric first" approach to developing an efficient, low carbon, comfortable and healthy homes, with heat loss due to building fabric and air leakage being reduced to a minimum.
- The Development proposes roof mounted PVs to further reducing the carbon emission of the building. It is estimated that the PVs installed on the Building A will generate approximately 29,536kWh/year renewable electricity to reduce carbon emissions from the Block A and B.
- The Development can achieve the required 15% improvement on Part L 2010 and the development will retain the facility to expand the PV array in future.
- The overheating assessment using TM59 methodology submitted by the Sisk led team demonstrated that habitable spaces can meet the comfort criteria in line with Part O requirements.

Based on the review of the latest information provided, the development has been designed and built in accordance with the commitments of the original ESS.

1.1 Scope of the Document

An Environmental Standards and Energy Statement (ESES) was submitted in 2022 in support of the Application for Full Planning Permission and Demolition, within a conservation area, for Back of Ancoats – Jersey Wharf. Subsequently an ESES Addendum to JWH-BHE-XX-XX-RP-N-(00)2001, dated 13 February 2024 was submitted.

This Post Construction Review Statement for ESES has been prepared to provide a review statement based on the design and construction information completed and provided by John Sisk & Son Limited (Sisk) and their design team, in respect of the ESES planning application to address the planning conditions S73 (139289/JO/2024):

Planning conditions: **S73 (139289/JO/2024)**

The development hereby approved shall be carried out in accordance with the Environmental Standards and Energy Statement prepared by Buro Happold stamped as received on the 13 May 2022 and the Environmental Standards and Energy Statement addendum, stamped as received on 16 February 2024. A post construction review certificate/statement for the development shall be submitted for approval, within a timescale that has been previously agreed in writing, to the City Council as Local Planning Authority.

This Statement seeks to demonstrate how the Design and Construction built by Sisk aligns with the previously submitted ESES statement in 2022 and ESES Addendum to JWH-BHE-XX-XX-RP-N-(00)2001, dated 13 February 2024.

The Statement comprises the following sections:

- **Planning Policy Review** to provide a short summary of the key policies that have informed the Constructed Development in relation to environmental sustainability targets;
- **Energy Statement** to summarise the carbon emissions that have achieved in comparison with the ESES planning;
- **Environmental Standards Review** to outline the key sustainability features as set out in Chapter 4 of the Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007), and relevant Core Policies (Adopted July 2012) which form part of the Manchester Local Plan.
- **Overheating performance review** to outline the overheating risk assessment for apartments.

It is recognised that sustainable development cuts across a number of issues and disciplines, key design reports and evidence provided by Sisk are appended to this Post Construction Review Statement and should be referred for further technical details. Of particular note are the following documents:

- Water Management and Weather Resilience (Curtins Engineers for Strategy and detailed design by Robert Bird Group (RBG))
- Waste Management (PRP Architects)
- Site Waste Management Plan (Sisk)

- Construction Management Plan (Eric Wright)
- Ecological Survey (Tyler Grange) and Bird and Bat Enhancement and Management Plan (Verity Webster)
- Framework Travel Plan (Hydrock) and Ancoats Mobility Hub for further sustainable travel arrangement (Manchester Life)
- Ventilation Statement and Energy Statement including Part L assessment and SAP results (Ameon)
- Overheating assessment report (Ameon)

The Sisk led main design team consists of :

- Architecture – PRP architect
- Main contractor – Sisk
- Civil & Structures engineering - Robert Bird Group (RBG)
- MEP engineering (including Part L compliance) – Ameon

This Post Construction Review Statement for ESES Statement reflects BH's professional judgment based on the information and knowledge available at the time of writing, and entirely on as-built information provided by Sisk and without site inspections.

1.2 Description of Development

The Constructed Development involves the erection of 2No 8 storey buildings to provide 190 residential units, with ground floor commercial floorspace, and ancillary amenity space, cycle parking provision, hard and soft landscaping, access and servicing and other associated works.

1.3 Site Description

The Site is located on Jersey Street within the Ancoats and New Islington area. The regeneration and development that has taken place so far has been guided by the Ancoats and New Islington Development Framework which was originally endorsed by Manchester City Council in October 2014. In July 2020, Manchester City Council endorsed a refreshed Neighbourhood Development Framework which focused on the Poland Street Zone in Ancoats and was prepared to ensure future development preserved the character of the area whilst meeting future housing, sustainability and community needs.

2 Planning Policy Context

2.1 Summary of policy review

The Constructed Development has been detailed designed and constructed based on the following relevant sustainable development policies, a summary review of which was provided within the ESES planning report. A synopsis of these policy document is provided as follows for ease of reference.

National policy

- National Planning Policy Framework (updated Feb 2019)
- 25 Year Environmental Plan (2018)
- Climate Change Act 2008
- Part L 2020 Building Regulation Consultation (Nov 2019)
 - Due to the nature of the government consultation in 2020-2022, the exact target and the associated tool were not available. A 31% reduction in carbon emissions over the Part L 2013 was used to inform the design approaches and Manchester Life's commitment.

Local policy

- Core Strategy Development Plan Document (Adopted 11th July 2012)
 - The Core Strategy is the key document in Manchester's Local Plan from 2012 to 2027. It sets out the long-term strategic policies for Manchester's future development, forming the framework for planning applications. A summary of key policies relevant to the ESES is summarised below. The Post Construction Review Statement is structured to provide the response to these Policy requirements.

Policy Ref	Summary of Requirements
DM1 Development Management	• Environmental design • BREEAM certification
EN4 Reducing CO2 Emissions by Enabling Low and Zero Carbon Development	• Apply principles of the Energy Hierarchy • Use of building materials with low embodied carbon
EN 6 Target Framework for CO2 reductions from low or zero carbon energy supplies	• 15% CO2 emissions betterment on Part L 2010
EN 8 Adaptation to Climate Change	• Minimise flood risk • Reduction in urban heat island effect through use of Green Infrastructure • Control overheating in buildings through passive design • Linked and diverse green space to assist species to adapt
EN 9 Green Infrastructure	• Maintain and enhance green infrastructure where possible • Encouragement of green roofs, green walls, tree planting and other forms of green infrastructure to allow for the adaptation to climate change in heavily urbanised areas.

EN 14 Flood Risk	- Flood risk assessment in line with PPS25 - Minimise surface water run-off, through SuDS and Green Infrastructure
16 Air Quality	Take measures to minimise and mitigate the impact of emissions from traffic and combustion plant resulting from the development
EN 17 Water Quality	Avoid adverse impact on water quality, including during construction
EN 19 Waste	- Apply principles of the waste hierarchy (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal) - Waste management plan to minimise construction and demolition waste
T1 Sustainable Transport	Encourage modal shift away from car travel to public transport, cycling and walking

- Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007)
 - The Guide to Development in Manchester is effectively a hybrid document bringing together all the development principles. Section 4 Environmental Standards sets out the Council's commitment to making Manchester "the Greenest City in Britain". An Environmental Standards Statement is required to accompany all planning applications, demonstrating the required environmental standards under the following headings have been met.
 - The Post Construction Review Statement is structured to provide the response to these headings.
 - Energy Strategy
 - Environmental design
 - Water management and weather resilience
 - Waste management
 - Construction management
 - Biodiversity
 - Climate resilience

3 Energy Strategy

3.1 Introduction

This section of the report has been written in accordance with Policy EN6 of the Manchester Core Strategy (2012-2027), which requires an Energy Statement be submitted. As such, the contents of this section adhere to the contents listed within Appendix A of the Core Strategy documentation with a focus on reporting the predicted carbon emissions and regulated energy consumption of the Proposed Development.

Project Performance Targets

The design target set out for the planning as stated in ESES Addendum to JWH-BHE-XX-XX-RP-N-(00)2001, dated 13 February 2024 is in line with Policy EN6 with a minimum of target of 15% improvement on Part L 2010.

The commercial and amenity spaces represent a small portion of the development. The target performance for these spaces are in line with those outlined within EN6 of the Manchester Core Strategy (2012-2027).

Policy EN6

Policy EN6, Target framework for CO₂ reductions from low or zero carbon energy supplies, of the Manchester Core Strategy (2012-2027) stipulates an improvement of 15% on Part L 2010. Policy EN6 supersedes E1.5 from the UDP as outlined within the SPD thereby reflecting the most current ambitions of the city. The energy statement methodology, as outlined within Appendix A, is detailed below:

- A. Set out baseline information
- B. Calculate the total energy demand of the completed development
- C. Calculate the equivalent annual carbon emissions from the completed development
- D. Apply the appropriate carbon emissions reduction target
- E. Apply the energy hierarchy
- F. Consider all appropriate low carbon, renewable and/or decentralised energy technologies and identify least cost technology

Each of the items above are sufficiently covered within this section of the report.

Note that the Post Construction Review Statement is based on the assessment details and information pertaining to the design and construction outlined within this section are based on:

- Appendix A.1 - Part L1A - SAP Calculation Compliance Summary by Ameen (EYJW-AME-BA-XX-TR-Z-500002_C01 Block A; EYJW-AME-BB-XX-TR-Z-500003_C01 Block B)
- Appendix A.2 - Part L2A – Non-Dwelling Compliance Report by Ameen (EYJW-AME-ZZ-XX-TR-Z-500011_P03_Jersey Wharf Landlord Areas BRUKL Report; and EYJW-AME-ZZ-XX-TR-Z-500013_P03_Jersey Wharf Block A Commercial Unit A BRUKL Reports; and EYJW-AME-ZZ-XX-TR-Z-500017_P03_Jersey Wharf Block B Commercial Unit E BRUKL Reports)

3.2 Baseline Information

Development Summary

The Proposed Development involves the erection of two blocks of 8-storey building to provide 190 residential units, ground floor commercial floorspace, and ancillary amenity space. The table below outlines the quantity of each dwelling type and respective area of amenity spaces, areas shown represent average for each typology as they have been modelled within SAP or Dynamic Simulation Modelling:

Energy Hierarchy

Ensuring optimal performance through passive design measures, commonly referred to as a 'fabric first' approach ensures efficient operation and reduced operational costs for prospective tenants. The energy hierarchy has been applied in order to identify opportunities for carbon emissions reductions:

Proposed Specification and Servicing Strategy

This section briefly outlines the fabric and fixed services specification identified through the successful implementation of the energy hierarchy, highlighting the use of highly efficient whole house ventilation, delivered through MVHR units and highly efficient LED lighting.

The table below outlines the fabric performance specification and a high-level summary of system performance:

Construction Element	Dwelling	Non-Dwelling
Wall U-Value	0.14 W/m ² K	0.14 W/m ² K
Floor U-Value	0.1 W/m ² K	0.1 W/m ² K
Roof U-Value	0.1 W/m ² K	0.1 W/m ² K
Glazing U-Value (overall)	1.33 W/m ² K	1.4 W/m ² K
Glazing G-Value	0.53 on all elevations except 0.35 on South elevation	0.53
Air Permeability	2m ³ /(h.m ²) @ 50Pa	2m ³ /(h.m ²) @ 50Pa
Ventilation	MVHR, Low SFP, HR 89%	MVHR, Low SFP, HR 75%
Lighting	100% Low Energy	100% Low Energy
Space Heating	Electric Panel Heaters	Electric Panel Heaters
Water Heating	Immersion hot water cylinder (electric)	Local point of use (electric)
Space Cooling	Natural ventilation supplemented by MVHR (no mechanical cooling)	MVHR and highly efficient VRF Split System where required.

Table 3-1 Proposed Specification Summary

Block	PV energy generation (kWh/annum) / Installed capacity (kWp)	PV energy contribution (kWh/annum)
Block A	29,536 kWh / 31.96 kWp	15,699
Block B		12,599

Table 3-2 PV Design Summary

5No. commercial facilities, that will be delivered as Shell and Core, will also form a part of this development. Whilst fixed services design will be provided by the fit-out design team and contractor they will benefit from the highly efficient fabric measures identified within this section, thereby ensuring future commercial tenants performance can be met.

The fabric and system performance were taken from the following drawings and reports, submitted by Sisk and reviewed by Buro Happold:

The Post Construction Review of the fabric and system performance information pertaining to the design and construction outlined within this section are based on:

- EYJW-BRI-BA-ZZ-TQ-X-000019_C04, EYJW-BRI-BB-ZZ-TQ-X-000019_C04 – for Window performance
- EYJW-PRP-ZZ-ZZ-DR-A-006000-C03-External Wall Types - Sheet 1 of 3
- EYJW-PRP-ZZ-ZZ-DR-A-006020_C02 Fabric Types – Floors 01
- EYJW-PRP-ZZ-ZZ-DR-A-006030 Fabric Types – Roofs 01
- EYJW-PRP-BA-RF-DR-A-004118_C02 Block A - Detailed GA Roof Plan – RHS
- EYJW-PRP-BA-RF-DR-A-004118_C02 Block A - Detailed GA Roof Plan – LHS
- EYJW-AME-BA-RF-DR-E-610008 – Block A Co-ordinated Roof Level PV Layout
- EYJW-AME-ZZ-XX-TQ-M-000021_P03 Solar Photovoltaic System Technical Submittal
- Jersey Wharf Block A East West PV Installation, Ameon
- EYJW-AME-ZZ-XX-TQ-M-000014-P05 - for MVHR design technical submission
- EYJW-AME-ZZ-XX-TR-M-570001_C01 - Ventilation Compliance Statement by Ameon
- EYJW-AME-BA-XX-TR-Z-500002_C01 Block A for SAP results (Appendix A.1)
- EYJW-AME-BB-XX-TR-Z-500003_C01 Block B for SAP results (Appendix A.1)
- EYJW-AME-ZZ-XX-TR-Z-500011_P03_Jersey Wharf Landlord Areas BRUKL Report (Appendix A.2)
- EYJW-AME-ZZ-XX-TR—Z-500013_P03_Jersey Wharf Block A Commercial Unit A BRUKL Reports (Appendix A.2)
- EYJW-AME-ZZ-XX-TR-Z-500017_P03 Jersey Wharf Block B Commercial Unit E BRUKL Reports (Appendix A.2)
- EYJW-AME-BA-XX-TR-Z-500005_P02 Overheating Report Block A by Ameon (Appendix A.3)
- EYJW-AME-BB-XX-TR-Z-500006_P02 Overheating Report, Block B by Ameon (Appendix A.3)

3.3 Emissions Calculations

Part L Compliance

Through the use of SAP for Dwellings and Dynamic Simulation Modelling (DSM) for Non-Dwellings the regulated carbon dioxide emissions of the respective spatial typologies can be derived in accordance with the requirements set out within Building Regulations, Part L (2010) and Part L (2013).

A baseline, or 'Target Emission Rate' (TER), performance model forms the basis of comparison for which building improvements due to fabric, fixed services and renewable technologies are measured. Design Emission Rate (DER) represents the proposed building's carbon emission rates calculated using Part L methodology.

The table below outlines the averaged TER and DER for the dwellings at Block A and Block B.

Typology	TER (kgCO ₂ /m ² /year)	DER (kgCO ₂ /m ² /year)	% improvement	Meeting EN6
Dwelling Part L 2010 – Block A	24.25	20.61	15.0%	Y
Dwelling Part L 2010 – Block B	24.8	21.08	15%	Y

Table 3-3 Part L results for dwelling

Further assessment on Part L 2013 has been carried out by Sisk's team, to demonstrate the compliance with the Building Regulation applicable to the scheme. The Block A results show TER at 22.08 (kgCO₂/m²/year) and DER 21.18 (kgCO₂/m²/year), representing a 4.08% improvement over the regulation requirement.

The Block B results show TER at 22.54 (kgCO₂/m²/year) and DER 21.46 (kgCO₂/m²/year), representing a 4.79% improvement over the regulation requirement.

The table below shows the TER and BER (Building Emission Rate) for Non-Dwelling portions of the development. Two typical Commercial units (Commercial Unit A at Block A and Commercial Unit E at Block B) have been chosen to indicate the performance.

Typology	TER (kgCO ₂ /m ² /year)	BER (kgCO ₂ /m ² /year) (without PV)	% improvement	Meeting EN6
Non-Dwelling – Landlord area (Part L 2013)	24.3	18.8	22.6%	Y
Non-Dwelling – a typical commercial unit (Block A Commercial A) (Part L 2013)	41.5	31.7	23.6%	Y
Non-Dwelling – a typical commercial unit (Block B Commercial E) (Part L 2013)	40.3	32.8	18.6%	Y

Table 3-4 Part L results for non-dwelling

Lean/Clean: Fabric and Services System

The energy hierarchy has been utilised leading to the adoption of a fabric-first design approach, supplemented by efficient system design.

Adopting a fabric-first approach results in passive reduction of energy usage associated with heating, which is pivotal in residential development design. This is coupled with a highly efficient MVHR unit for mechanical ventilation and efficient LED lighting design.

The building can achieve Part L compliance and this performance has been achieved due to the fabric first approach taken and the use of practical efficient services.

Green: Implementation of Renewable Technologies

The results, included in Appendix A.1 indicate that the following PV renewable electricity contribution is required to meet the EN6 planning requirement of 15% improvement on building regulations Part L 2010. The renewable energy is generated via the PV arrays installed on the Block A roof.

The development has retained the facility to expand the PV array in future, thus retaining the principles of the ESES and facilitate the journey to future carbon reduction.

Block	PV energy generation (kWh/annum)	Carbon Savings (KgCO2/annum)
Block A	15,699	8,148
Block B	12,599	6,539

3.4 Conclusion

This energy strategy outlines the performance of the building by adoption of a fabric-first approach, combined with a highly efficient services design that is further supplemented through integrated on-site renewables to meet performance requirements set out by the Core Strategy and the client's ambitions.

Through the adoption of an all-electric strategy, aimed to future proof the development from a carbon perspective by avoiding fossil fuel use on site. The updated Part L compliance assessment carried out by Ameen demonstrates that the development meets the EN6 planning requirement of 15% improvement on building regulations Part L 2010. The development has been installed with PV arrays on the building roof to reduce the carbon emissions.

4 Environmental Standards Review

4.1 Overview

This section summarises how the Constructed Development has as a minimum, responded to Section 4 Environmental Standards of the Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007) and environmental sustainability policies set out in the Core Strategy (2012).

As environmental sustainability cuts across a number of issues and disciplines, references have been made to accompanying planning submission documents for technical details. Summaries of these documents against the policies set out in the Core Strategy are provided below, organised under the Section 4 Environmental Standards headings within the Guide to Development in Manchester.

4.2 Energy Efficiency and Renewable Energy

Policy EN4 Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development

Energy Strategy in Section 3 has set out the route to compliance with Building Regulations Part L 2013 (applicable for the Jersey Wharf project), the Core Strategy. The design of building adopts the “fabric first” approach with key proposals summarised as follows:

- Improving the envelope thermal performance
- Building envelope and glazing enhanced for thermal insulation, acoustics & air permeability
- Optimise the façade form to reduce unwanted solar gain whilst maximising the potential for daylight
- Efficient heat recovery and fan within the dwelling Mechanical Ventilation Heat Recovery (MVHR) units
- Use of low energy lighting fittings and intelligent lighting controls
- Metering and monitoring provisions for all systems

Policy EN 6 Target Framework for CO₂ reductions from low or zero carbon energy supplies

Applications for residential developments are expected to meet the targets set out in Policy EN6 as a minimum, i.e. 15% improvement on Part L 2010.

Through adopting the ‘fabric first’ approach summarised above, using SAP 2012, the Constructed Development will exceed the target set in the Core Strategy requirement of 15% improvement on Part L 2010, which is approximately 9% reduction against Part L 2013 for dwellings.

This section should be read in conjunction with Section 3. Note that the Post Construction Review Statement is based on the assessment details and information pertaining to the design and construction outlined in both the Part L1A and Part L2A performance:

- EYJW-AME-BA-XX-TR-Z-500002_C01 Block A for SAP results (Appendix A.1)
- EYJW-AME-BB-XX-TR-Z-500003_C01 Block B for SAP results (Appendix A.1)
- EYJW-AME-ZZ-XX-TR-Z-500011_P03_Jersey Wharf Landlord Areas BRUKL Report (Appendix A.2)
- EYJW-AME-ZZ-XX-TR—Z-500013_P03_Jersey Wharf Block A Commercial Unit A BRUKL Reports (Appendix A.2)
- EYJW-AME-ZZ-XX-TR-Z-500017_P03 Jersey Wharf Block B Commercial Unit E BRUKL Reports (Appendix A.2)

4.3 Environmental Design

This section aims to summarise key headlines on how the Constructed Development has addressed Core Policy DM 1 Development Management.

Sustainable and Efficient use of Materials

Reducing the environmental and social impact of the material used for the development has been considered by the design and construction team and been informed by the early engagement and consultation with contractors. This is further discussed in the waste section. This has included undertaking:

- With regards to material efficiencies, the design has been developed using an efficient grid with columns running generally full height through the floors, avoiding the need for transfer structure at the lower levels. In terms of end of life / recycling opportunities, whilst the frame cannot be deconstructed and re-used elsewhere, the reinforcement can be recycled and the concrete can be crushed and re-used as an aggregate for future mixes.
- To minimise the frequency of replacement and maximise material optimisation, the durability and resilience of key finishes and components has been considered from the early stages of the project. Consideration has been given to the longevity, and therefore sustainability, of materials and is reflected within the specification.

Internal areas which will see high levels of pedestrian traffic such as main entrances, public areas and circulation routes will be well detailed to ensure durability. In these zones hard-wearing and easily maintainable finishes will be specified.

- The structure design has maximised the opportunities for functional adaptability to keep the commercial units in use throughout its useful design life.

In addition to the above, sustainable procurement and responsible sourcing have been considered at detailed design and during construction by Sisk. For example, Sisk's Responsible Procurement Policy states that *Sisk will specify and procure using credible and recognised responsible sourcing and certification schemes, where available. Sisk will specify and procure materials, products and services with the greatest circular economy benefits whilst seeking to minimise impact of carbon, waste, energy and water consumption.*

Reference should be made to the following documents for further details, pertaining to the design and construction outlined within this section:

- Design and Access Statement (PRP Architects)

- Responsible Procurement Policy (Sisk)

Policy EN 16 Air Quality

An Air Quality Assessment has been undertaken for the Proposed Development by Hoare Lea. This concludes:

- The results of the Air Quality Assessment show no significant impacts associated with the construction and operational phase of the Proposed Development; and
- The impacts of construction work have been assessed and appropriate mitigation measures have been identified.

In line with the ESES for planning, the Constructed Development have taken measures to minimise the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself:

- **Traffic** – There will be a shared residential/commercial vehicle loading bay at the west of the site. In addition, there shall be 3 No disabled parking bays at ground level. Given the limited vehicle access it is envisaged that the Constructed Development will not generate significant vehicle trips; therefore, there is not expected to be any impacts to local air quality and no mitigation measures are required.
- **Building Services** - The installed energy strategy is for an all-electric approach with no combustion systems on-site therefore, there is not expected to be any impacts to local air quality and no mitigation measures are required.

The results of the site suitability assessment indicate pollutant concentrations are below the relevant objectives, therefore no further mitigation measures are required.

Reference should be made to the following documents for further details, pertaining to the design and construction outlined within this section:

- Air Quality Assessment (Hoare Lea)
- Framework Travel Plan (Hydrock) and Ancoats Mobility Hub for further sustainable travel arrangement
- EYJW-AME-BA-XX-TR-Z-500002_C01 Block A for SAP results (Appendix A.1)
- EYJW-AME-BB-XX-TR-Z-500003_C01 Block B for SAP results (Appendix A.1)
- EYJW-AME-ZZ-XX-TR-Z-500011_P03_Jersey Wharf Landlord Areas BRUKL Report (Appendix A.2)
- EYJW-AME-ZZ-XX-TR—Z-500013_P03_Jersey Wharf Block A Commercial Unit A BRUKL Reports (Appendix A.2)
- EYJW-AME-ZZ-XX-TR-Z-500017_P03 Jersey Wharf Block B Commercial Unit E BRUKL Reports (Appendix A.2)
- EYJW-AME-BA-XX-TR-Z-500005_P02 Overheating Report Block A by Ameen (Appendix A.3)
- EYJW-AME-BB-XX-TR-Z-500006_P02 Overheating Report, Block B by Ameen (Appendix A.3)
- EYJW-AME-ZZ-XX-TQ-M-000014-P05 - for MVHR design technical submission

- EYJW-AME-ZZ-XX-TR-M-570001_C01 - Ventilation Compliance Statement by Ameen

Policy T1 Sustainable Transport

The Proposed Development benefits from excellent existing sustainable transport options and local amenities. The Constructed Development are :

- The site is located within short walking distance of public transport facilities and numerous local amenities, including a, supermarket, doctors' surgery, public houses, several places of worship, numerous primary schools and other educational institutions, cafes, restaurants, shops, leisure centres and places of recreational activity such as Ancoats Green and the Islington Marina.
- Existing high quality pedestrian facilities, including footways, street lighting and signalised crossing points linking the Development to the surrounding area and beyond to key pedestrian routes.
- 190 cycle parking spaces have been provided on site. These spaces are provided across both blocks in secure and covered cycle storage areas on the building's ground floor accessed off Jersey Street in Block A, and from the rear of Block B (see below PRP GA layout).
- The site is within an accessible 5km cycle route to a number of local areas including the whole of Manchester city centre, Hulme, Rusholme, Cheetham Hill and Longsight.

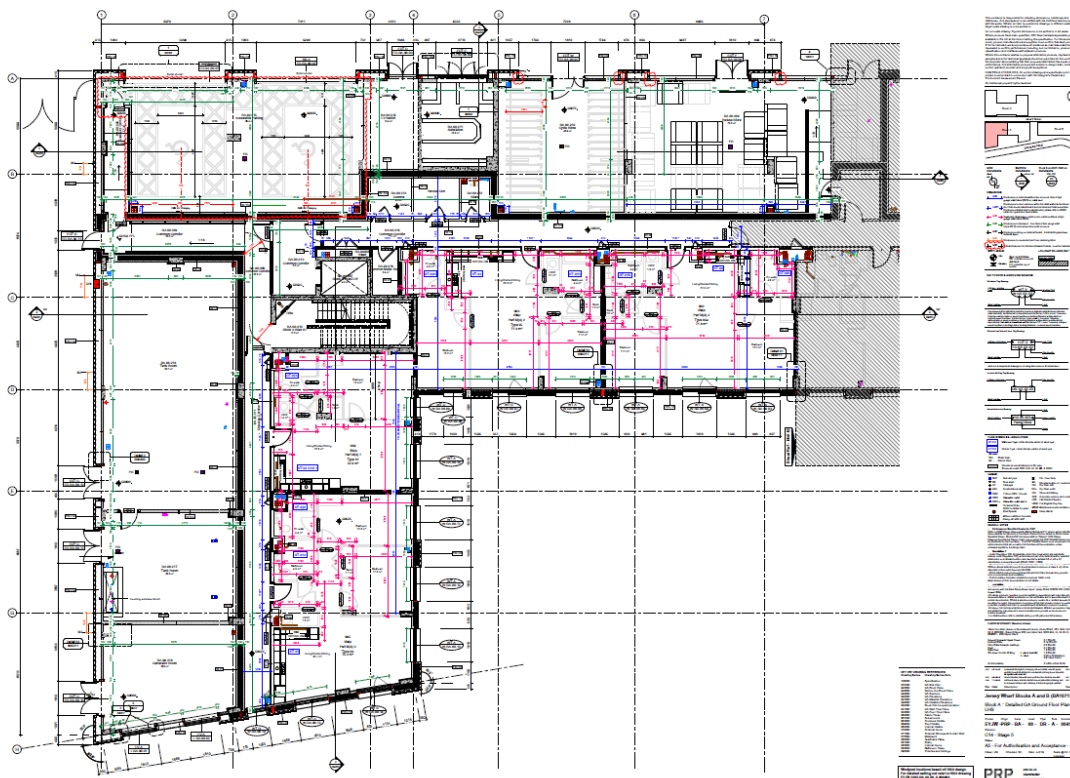


Figure 4-1 Ground Floor Layout - LHS, PRP, provided by Sisk

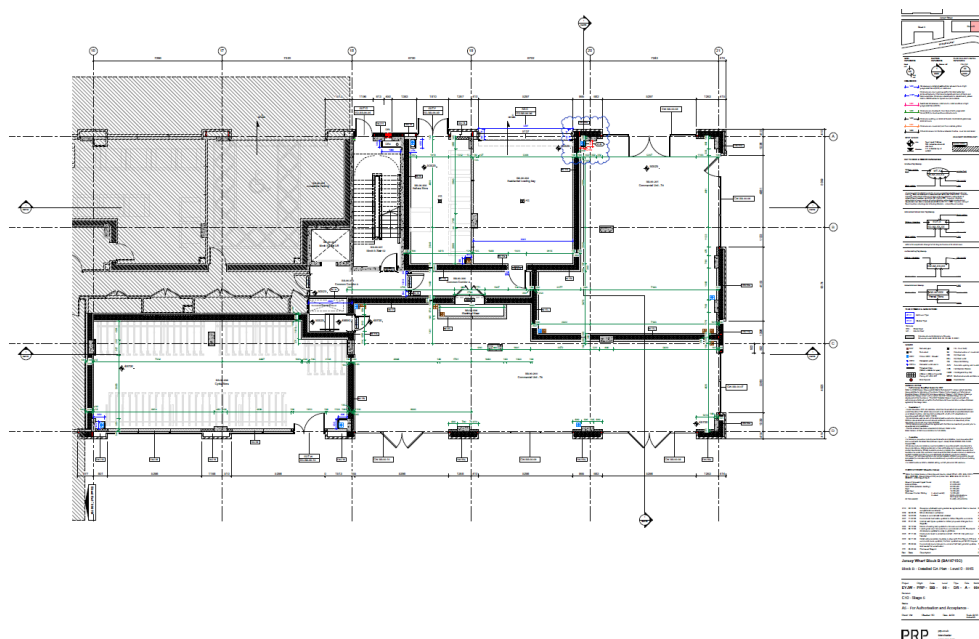


Figure 4-2 Ground Floor Layout - RHS, PRP, provided by Sisk

- The site is located within an approximately 1.2km walking distance of Manchester Piccadilly Rail Station and Victoria Station which provide frequent regular trains for both regional commuting and access to the national rail network, as well as acting as transport interchanges for local rail services and Metrolink services across Greater Manchester. The stations are easily accessible through pedestrian friendly walking and cycling routes in the city centre and free Metroshuttle buses connecting all parts of the city centre.
- The site benefits from a high number of bus stops located within 800m, with the closest pair located on the A62 Oldham Street, approximately 250m north of the site, accessed via Poland Street. The proximity of the site to the local bus network provides opportunities to travel further afield using linked trips. This enables access to be gained to a variety of local destinations.

As part of the Constructed Development, further initiatives to support and encourage sustainable modes of travel are outlined in the Travel Plan, notably:

- The development is being brought forward in conjunction with the Ancoats Mobility Hub. The Hub will contain alternative mobility options including car clubs and car sharing options. Membership of these facilities will be advertised to new residents and Manchester Life will liaise with the Mobility Hub operator to establish promotional discounted rates designed to encourage car club and car sharing uptake.
- The Mobility Hub was recently completed. From the outset, sustainable travel will be promoted to residents of the development. The Travel Plan will be launched as soon as possible following 40% occupation and will be continually marketed through the provision and updating of travel information, leaflets and communication sessions.

- All residents will also be issued with travel 'Welcome Packs' promoting the alternative transport available from the hub and local area, including details of the public transport, walking and cycling routes between their homes, workplace and surrounding amenities. Details of the Mobility Hubs digital platform will also be included in the welcome pack.
- The 3no parking bays are to be provided with 7.4kW electric vehicle chargers to promote the usage of electric vehicles.
- In order to integrate the Travel Plan with the wider sustainable travel agenda, the Welcome Pack may be used to promote national and international initiatives such as 'Bike Week', 'Catch the Bus Week', 'European Mobility Week' and 'Walk to Work Week'.

Reference should be made to the following documents for further details, pertaining to the design and construction outlined within this section:

- Framework Travel Plan (Hydrock)
- Manchester Life proposal for using Mobility Hub to promote sustainable travel plan. Mobility Hub <https://www.apcoa.co.uk/find-parking/locations/manchester/ancoats-mobility-hub-manchester>
- EYJW-PRP-BA-00-DR-A-004101_C14 - Block A - Detailed GA Ground Floor Plan – LHS
- EYJW-PRP-BB-00-DR-A-004120_C10 - Block B - Detailed GA Ground Floor Plan - Level 0 - RHS

4.4 Water Management and Weather Resilience

Policy EN14 Flood Risk

A Flood Risk Assessment (FRA) was undertaken as part of the planning application in line with national and local policy. This concludes the proposed development is at low risk of flooding from all sources and represents no risk of flooding to adjacent areas. Notably:

- The site is located entirely within Flood Zone 1, according to the national flood map produced by the Environment Agency (EA), which is classified as having a low risk of fluvial flooding.
- The drainage strategy has been designed for a 1 in 100 year storm with 40% increase for climate change.
- The development is proposing potential options to include areas of permeable paving within the courtyard, alongside tree pit systems. Areas of hardstanding have been minimized with the introduction of soft landscaped areas to the north of the courtyard and the proposed planting beds. The strategy proposes onsite below ground attenuation of surface water run-off to achieve a restricted maximum flow discharge rate of 5 l/s for storm events. With the proposed strategy in place, the overall surface water flood risk at the site is considered low.

- Nature-base sustainable drainage features are not feasible. Systems such as infiltration trenches and soakaways were considered as part of the surface water management strategy however, the ground conditions and the results of the falling head permeability testing indicate limiting permeability of the underlying clay. Therefore, infiltration systems are not considered suitable for the site. In addition, the site is tight therefore above ground storage, such as swales and attenuation ponds, are not practical. Green/Blue roofs were considered for the site however, found not viable due to all available roof area being utilised for Photovoltaic (PV) panels.
- Detailed drainage design has been developed based on the strategy (Curtins) at the planning stage. The following figure shows the RIBA Stage 4 drainage layout by Robert Bird Group, indicating the attenuation tank and permeable surface area,



Figure 4-3 Drainage layout RIBA Stage 4, Robert Bird Group, provided by Sisk

The Post Construction Review of the performance information pertaining to the design and construction outlined within this section are based on:

- Flood Risk Assessment and Drainage Strategy Report (Curtins)
- EYJW-RBG-ZZ-00-DR-C-8601 Drainage Layout Ground Floor, RIBA Stage 4 (Robert Bird Group)

Policy EN 17 Water Quality

The development recognises the importance of mitigating against any adverse impact on water quality, in line with Policy EN 17. Since there are only 2 onsite disabled parking spaces and one loading bay and is no other significant sources of potential water pollution, such as chemical stores, no measures to minimise pollution are considered necessary.

Construction site impacts have been managed through Construction Management Plan and Site Waste Management Plan with their pollution prevention policies and demonstrate how these are implemented on site, for example through site specific procedures, tool box talks and site noticeboards.

The Post Construction Review of the performance information pertaining to the design and construction outlined within this section are based on:

- Construction Management Plan (Eric Wright)
- Site Waste Management Plan (Sisk)

4.5 Waste Management

Policy EN 19 Waste

A Waste Management Strategy has been prepared by PRP for the development, demonstrating compliance with local and national policy. Waste streams and quantities have been estimated to ensure sufficient space has been allocated for storage and collection, as well as opportunities to minimise waste and facilitate high recycling rates. Key waste proposals from the Waste Management Strategy are summarised below:

- Residential refuse provision has exceeded the MCC GD04 Guidance with a total of 148m² of refuse storage to accommodate for 40x1100l residential refuse bins, located in a dedicated waste storage area across the two blocks.
- 50% of the bins in the store will be dedicated to recycling, with flexibility to increase this as recycling rates increase.
- The above is based on an estimated fortnightly waste collection
- A separate refuse store for commercial bins for each block is included. A total volume storage requirement of 8,040 litres will be met with 8x1100L Eurobins. They are located in a separate refuse area.

Construction waste

The construction has adopted a waste management plan to minimise the use of resources and materials as well as to minimise the generation of waste during construction works. Where feasible, the contractor will incorporate secondary and recycled materials with low embodied impacts.

Sisk's Site Waste Management Plan, (alternatively called Resource Management Plan) set out the strategy for achieving the targets, including procedures to minimise waste to landfill through procurement and site waste segregation and monitoring on site or through a licensed external waste contractor. It has been used throughout the construction process, to promote 'designing out waste'. It will also be used to monitor waste arisings and optimise waste strategy during construction.

The Post Construction Review of the performance information pertaining to the design and construction outlined within this section are based on:

- Waste Management Strategy (PRP Architects)
- Site Waste Management Plan (Sisk)

4.6 Construction Management

Sisk's construction management for the Jersey Wharf development is based on Eric Wright's CMP and the construction impacts have been minimised and monitored through Sisk's Site Waste Management Plan using their Smart Waste portal. The Plan was prepared prior to the commencement of development including the following:

- Adopt responsible construction management practices – The site is the registered site under Considerate Constructor Scheme (Issue date: 27/01/2026, Site ID: 514124), with implementation of the Code of Considerate Practice designed to encourage best practice beyond statutory requirements.
- Monitoring of construction site energy and water consumption

Sisk uses Smart Waste portal to monitor all construction related activities from a waste/emissions perspective, as shown in the following extract from Smart Waste to indicate the site energy consumptions.

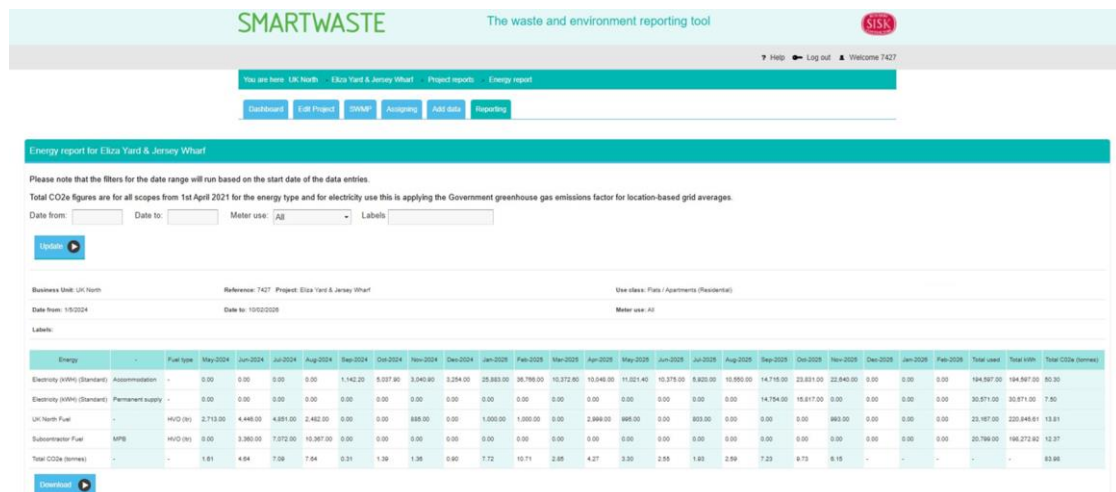


Figure 4-4 Sisk Energy monitoring data, provided by Sisk

- During construction, best practice measures have been implemented to minimise potential impacts to sensitive local receptors resulting from emissions to air and water, noise and vibration and from site lighting.
- Recording of CO₂ emissions associated with construction site vehicles (deliveries and waste removal). See the image below to indicate the site data taken from Sisk's Smart Waste.



Figure 4-5 Sisk CO2 emission monitoring data, provided by Sisk

- Sisk's Site Waste Management Plan were in place before commencement on site to set out how any waste produced would be diverted from landfill through consideration of re-use and recycling opportunities.

The Post Construction Review of the performance information pertaining to the design and construction outlined within this section are based on:

- Construction Management Plan (Eric Wright)
- Site Waste Management Plan (Sisk)

4.7 Biodiversity

Core Policy EN15 Biodiversity and Geological Conservation requires the protection and enhancement of sites of biodiversity value in line with Manchester's Biodiversity Strategy.

Tyler Grange have been appointed as the Ecologists for the Proposed Development. An extended Phase 1 habitat survey, preliminary roost assessment (PRA) and subsequent nocturnal bat surveys of the site were undertaken throughout 2021 to identify any potential ecological constraints, remit of mitigation required and opportunities to include biodiversity enhancements through the Proposed Development.

A summary of the ecological value of the existing site and recommendation for enhancement are as follows:

- No direct impacts are expected to Rochdale Canal, north east of the proposed development. However a Construction Environmental Management Plan (CEMP) should be put in place to prevent dust pollution into the canal which may lead to incidental hydrological impacts to the Rochdale Canal SAC, Rochdale Canal: Stott's Lane – Ducie Street Basin SBI and Ashton Canal (West) SBI.
- Though the site falls within the Sites of Special Scientific Interest (SSSI) risk zone for Rochdale Canal SSSI, Hollinwood Branch Canal and Huddersfield Narrow Canal – the proposed development does not trigger the need for further action for any of these sites.

- The site is generally of negligible ecological importance, comprising built form and a small area of amenity grassland. More valuable habitats are present in the form of scattered trees and bramble scrub/ruderal vegetation, but their area is minor. With appropriate soft landscaping detail and other ecological enhancements, it is considered that the development proposals would not result in any net loss in biodiversity.
- The results of the surveys confirmed the presence of two small common pipistrelle roosts within the building and one tree present within the site. All other trees were considered to provide negligible roost potential for bats. Sufficient opportunity exists in the proposals to mitigate for the loss of these roosts through the installation of replacement, integrated roost features in the re-developed building within the site. The canal corridor was only recorded to support common pipistrelle bats, so is not considered to be adversely affected as a significant commuting corridor for bats using the locality.
- Habitat loss due to vegetation clearance can be mitigated for through the provision of new nest box features targeting species of conservation concern and those locally rare (i.e. black redstart) and through sensitive landscaping.
- There is opportunity to enhance the site by aiming to implement replacement tree planting in the landscape proposals. With the implementation of appropriate mitigation and compensation, it is expected that the development proposals within the site would be in conformance with Local and National Planning Policy in relation to protected/notable species, habitats and sites.

Verity Webster was commissioned to establish Bird and Bat Enhancement and Management Plan aiming to create new habitat to improve opportunities for wildlife and to ensure retention and enhancement of ecological functionality of the site. The plan has identified location of the bird and bat boxes as well as the maintenance requirement.

The Post Construction Review of the performance information pertaining to the design and construction outlined within this section are based on:

- Ecological Survey and Assessment (Tyler Grange)
- Bird and Bat Enhancement and Management Plan (Verity Webster)

4.8 Adaptation to Climate Change

Policy EN 8 Adaptation to Climate Change

Climate change presents one of the biggest global challenges of our time. The design team took necessary steps to develop local solutions recommended by the Core Strategy Policy EN 8 Adaptation to Climate Change. Steps taken to increase climate resilience of this development include:

- The drainage strategy has been designed for a 1 in 100 year storm with 40% increase for climate change. The detailed design and calculations follow this strategy and designed by Robert Bird Group.

- The building is mechanically ventilated using heat recovery for providing background ventilation. Natural ventilation is also provided for each dwelling via openable windows. The systems are inherently resilient to cope with rising external temperatures due to climate change. Provision has been made for the ground floor commercial units to install cooling units when needed.
- The building's adaptation to climate change will be further enhanced by the future landscaped green corridor and the green park nearby as part of Neighbourhood Development Framework. The proximity to the green infrastructure would benefit the proposed development with biodiversity and water management.

The Post Construction Review of the performance information pertaining to the design and construction outlined within this section are based on:

- Drainage Strategy (Curtins)
- EYJW-RBG-ZZ-00-DR-C-8601 Drainage Layout Ground Floor, RIBA Stage 4 (Robert Bird Group)
- Ventilation Statement (BuroHappold Engineering)
- EYJW-AME-ZZ-XX-TQ-M-000014-P05 - for MVHR design technical submission
- EYJW-AME-ZZ-XX-TR-M-570001_C01 - Ventilation Compliance Statement by Ameen

5 Overheating Review

This section summarises the overheating risks carried out by the Sisk led team. It can be confirmed that the assessment is in line with the methodology and conclusion as reported for planning submission within *Overheating and Performance Review Design Note prepared by Buro Happold (dated May 2022)*.

The overheating risk has been assessed in accordance with Approved Document Part O, following TM59 methodology.

The overheating report uses room and occupancy profiles detailed within the CIBSE TM59:2017 design methodology technical memorandum (Design methodology for the assessment of overheating risk in homes, 2017).

TM59 Assessment Criteria:

Criteria A: For living rooms, kitchens and bedrooms, the number of hours during which ΔT is greater than or equal to 1°C during the period May to September inclusive shall not be more than 3 per cent of occupied hours.

Criteria B: For bedrooms, to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26 °C for more than 1% of annual hours (>32 hours per year).

Part O requires the additional considerations for secure and easy access of openings shall be implemented. This has been taken into account for Jersey Wharf building. The assessment has assumed that windows/doors located in a position that pose a security risk are closed during nighttime hours. The louvre/window openings have been modelled with 25° restriction.

The simulated model assesses the internal temperatures for the residential units including the ground floor, and the upper floors. The results show that the internal temperatures in the occupied spaces of the building fall within the performance standards.

The Post Construction Review of the performance information pertaining to the design and construction outlined within this section are based on the following report provided by Sisk and Ameen:

- EYJW-AME-BA-XX-TR-Z-500005_P02 Overheating Report Block A by Ameen (Appendix A.3)
- EYJW-AME-BB-XX-TR-Z-500006_P02 Overheating Report, Block B by Ameen (Appendix A.3)

Appendix A Part L Detailed Design Stage Assessment – by Ameon

- A.1 Part L1A - SAP Block Compliance Summary – by Ameon**
- A.2 Part L2A – Non-Dwelling Compliance Report – by Ameon**
- A.3 EYJW-AME-BA-XX-TR-Z-500005_P02 Overheating Report Block A and EYJW-AME-BB-XX-TR-Z-500006_P02 - Overheating Report Block B by Ameon**

Jonathan Whiteley / Mei Ren
Buro Happold Limited
Eastgate
2 Castle Street, Castlefield
Manchester
M3 4LZ
UK

T: +44 (0)161 233 5000
Email: Mei.Ren@burohappold.com

Manchester Life Development Company 3

Jersey Wharf – Block A

SAP Calculation Report

EYJW-AME-BA-XX-TR-Z-500002

PROJECT	Jersey Wharf Block A
DATE	04/06/2025
REVISION	C01
STATUS	A5
AUTHOR	J Bailey



CARBONCONSULTANTS



Revision History

Revision	Date	Author	Note
P01	22/02/2024	D Connor	Preliminary Issue
P02	14/03/2024	J Bailey	Revised to U-value changes
C01	04/06/2025	J Bailey	Construction Issue

Contents

Contents.....	2
1.0 Introduction	4
2.0 Input Data	4
2.1 Fabric Data	4
2.1.1 Party Walls (Apartment to Apartment)	5
2.1.2 Party Walls (Apartment to Corridor).....	5
2.1.3 Core Walls (adjacent to apartments).....	5
2.2 Thermal Bridging.....	5
2.3 Building Services Input Data	6
3.0 Air tightness	6
3.1 Air Permeability	6
3.1 Air Testing	6
4.0 Results.....	7
4.1 SAP Calculation Sheets.....	7
4.2 Compliance – Building Regulations.....	7
4.0 Appendices.....	7

1.0 Introduction

This report has been compiled to demonstrate how compliance with **SAP 2012** has been achieved. In addition, this report also demonstrates how compliance with Manchester City Council's Core Strategy Development Plan (Policy EN6) is achieved in line with the developments planning conditions.

The content of the report includes; the input data used (including fabric data, building services data and air permeability), impact on internal partitioning and the results (for both block compliance and individual apartments).

All SAP calculations have been carried out by Zero3 Consulting

2.0 Input Data

This section summarises the input data used within the calculations.

2.1 Fabric Data

The fabric data used is listed below, which has been taken from the Buro Happold Environmental Standards & Energy Statement (ref: JWH-BHE-XX-XX-RP-N-(00)2001). Any deviation from these figures may affect the overall building CO₂ emissions and therefore compliance with the Building Regulations.

- Roof U-Value = 0.1 W/m²K
- External Wall U-Value = 0.14 W/m²K
- Ground Floor U-Value = 0.1 W/m²K
- Soffit to car park U-Value = 0.1 W/m²K
- Windows (whole unit) U-Value = 1.33 W/m²K
- Windows G-Value = 0.35 (South Elevation) / 0.53 (All other elevations)
- Wall between core and apt = 0.0 W/m²K
- Party Wall U-Value = 0.0 W/m²K
(Apt to Apt)
- Party Wall U-Value = 0.0 W/m²K
(Apt to corridor)

N.B. Evidence of the above u-values will need to be provided at the as-built stage to enable to EPCs to be lodged and issued.

A checklist has been provided in Appendix A, which needs to be completed and returned to verify the fabric details that have been used are in line with the Contractors Proposals.

2.1.1 Party Walls (Apartment to Apartment)

Party walls have not been designed to deliver a specific thermal transmittance and are therefore classified as a partition wall with a fully filled cavity with all edges sealed as described in '*BCA Technical Guidance Note 12: Cavity Separating Wall Guidance for Part L 2010*'. This ensures that there is no continuous air path for heat loss through the partition.

As the party wall is between two heated apartments resulting in a neutral heat loss, a u-value of 0.0 can be assigned.

2.1.2 Party Walls (Apartment to Corridor)

Party walls have not been designed to deliver a specific thermal transmittance and are therefore classified as a partition wall with a fully filled cavity with all edges sealed as described in '*BCA Technical Guidance Note 12: Cavity Separating Wall Guidance for Part L 2010*'. This ensures that there is no continuous air path for heat loss through the partition.

In order to demonstrate compliance with these wall builds-ups the apartment corridors need to be classified as heated and therefore the wall U-value can be entered as 0.0W/m²K.

2.1.3 Core Walls (adjacent to apartments)

The Core walls have not been designed to deliver a specific thermal transmittance but are a solid wall with no cavity and are therefore classified as a 'fully filled' wall.

In order to demonstrate compliance with these wall builds-ups the cores need to be classified as heated and therefore the wall U-value can be entered as 0.0W/m²K.

2.2 Thermal Bridging

All elements have been inputted into the calculations using the standard 'Accredited Construction Details' database within the SAP software, to assess the associated heat loss through the various junctions (thermal bridges).

These standard details have been used in lieu of calculated Y-values at this stage. If thermal bridging calculations are to be undertaken at a later stage, these can be reviewed and used within the SAP calculations where they offer an improvement.

As part of the evidence submission for the as-built SAPS/EPCs, the accredited details checklists must be ticked and signed by the appropriate party. These checklists will be issued along with this report.

2.3 Building Services Input Data

The following information has been inputted in to the calculations based on the equipment selections as detailed in the Contractors Proposals.

- MVHR - Envirovent EnergiSava 200 (FAI & EXH ductwork insulated)
- Hot Water Cylinders - OSO Super Xpress Direct Hot Water Cylinders
 - [1 Bed -120 Litre, losses of 0.96 kWhr/day]
 - [2 Bed -150 Litre, losses of 1.13 kWhr/day]
 - [3 Bed -210 Litre, losses of 1.34 kWhr/day]
- Heating - Electric panel heaters c/w appliance programmer and thermostats
- Lighting - 100% Low energy lighting

2.4 Renewable Technology

The following renewable technology has been included within the calculations to obtain Building Regulations Compliance:-

Photovoltaic Array = 15,699 kWh/annum

3.0 Air tightness

3.1 Air Permeability

The design air permeability figure used within the calculations is confirmed as:-

[2.0 m³/(h.m²) @ 50 Pa]

3.1 Air Testing

Air test certificates will be required for all apartments to enable the actual air permeability figures to be inputted into the as-built calculations. Any deviation from the above design figure may affect the overall building CO₂ emissions and therefore compliance with the Building Regulations.

N.B. Building Regulations Part L1a (paragraph 2.9) requires air tests to be carried out for each apartment and dictates that any untested apartments shall have a penalty factor of +2 added to the air permeability figure. However, the necessity to test every apartment is generally over and above the requirements of Building Control. Therefore, if air tests are to be conducted on a sample of apartments only; a statement from the building control officer will need to be provided, confirming the deviation from Part L1a para 2.9 stating *'the*

average air permeability of the tested apartments can applied to the untested apartments’; this will then be supplied to the SAP assessment governing body as documentary evidence.

4.0 Results

4.1 SAP Calculation Sheets

For full details of the individual SAP assessments please see separate submission. Block compliance sheets can be found in Appendix B.

4.2 Compliance – Building Regulations (Part L 2013 / SAP 2012)

The development must demonstrate compliance with the Standard Assessment Procedure (SAP) 2012. The Building passes this criteria which is shown in Appendix B under ‘Block A - Block Compliance (SAP2012)’ where a DER/TER improvement of **4.08%** is confirmed.

4.2 Compliance – Planning Requirements

In compliance with Policy EN6 of the Core Strategy Development Plan, the project Dwelling Emission Rate (DER) must demonstrate a 15% betterment over notional Target Emission Rate (TER) based on Part L 2010 / SAP 2009. To demonstrate this compliance, the project has been modelled in both SAP 2012 and SAP 2009. Any PV requirements are first determined based on the 15% betterment target in SAP 2009, then re-run through SAP 2012 to ensure Building Regulations compliance.

The Building passes this criteria which is shown in Appendix C under ‘Block A - Block Compliance (SAP2009)’ where a DER/TER improvement of **15.02%** is confirmed.

4.0 Appendices

Appendix A

Fabric Details Checklist

Appendix B

Block A - Block Compliance (SAP2012)

Appendix C

Block A - Block Compliance (SAP2009)

Appendix A

Fabric Details Checklist



CARBONCONSULTANTS



Project Name - SAP Assessment

Fabric Details Checklist

Please review the fabric details listed below and confirm that they are in line with the agreed construction designs. Any deviations from the values stated below may affect the overall building CO₂ emissions and therefore compliance with the Building Regulations. Therefore it is imperative that any changes are highlighted to Ameon and verified prior to fabrication/procurement.

<u>Element</u>	<u>U-Value</u>	<u>Verified</u>
Roof U-Value	0.1 W/m ² K	☐
External Wall U-Value	0.14 W/m ² K	☐
Ground Floor U-Value	0.1 W/m ² K	☐
Soffit to car park U-Value	0.1 W/m ² K	☐
Windows (whole unit) U-Value	1.33 W/m ² K	☐
Windows G-Value	0.53 / 0.35 (South Elevation only)	☐
Wall between core and apt	0.0 W/m ² K	☐
Party Wall U-Value (Apt to Apt)	0.0 W/m ² K	☐
Party Wall U-Value (Apt to corridor)	0.0 W/m ² K	☐
Core walls (adjacent to Apts)	0.0 W/m ² K	☐

I hereby confirm that the above information is an accurate representation of the design intent and approved to be used in the SAP calculations. N.B. Any deviations are to be highlighted under separate cover.

Signed.....

Date.....

Print Name.....

Company.....



CARBONCONSULTANTS



Appendix B

Block A – Block Compliance (SAP 2012)



CARBONCONSULTANTS



BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

zero3

Block Reference	Block A	Issued on Date	13/02/2024
Block Name	Jersey Wharf		
Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

Block Compliance Report - DER

Block Reference: Block A		Block Name: Jersey Wharf			
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)	% DER/TER
JW-001-001	1	51.3	22.41	23.96	6.45 %
JW-002-001	1	71.4	21.07	21.80	3.34 %
JW-003-001	1	71.5	20.83	21.84	4.64 %
JW-004-001	1	51.7	23.00	25.19	8.68 %
JW-005-001	1	74.7	25.50	24.88	-2.50 %
JW-006-001	1	110.3	21.82	23.40	6.74 %
JW-007-001	1	82	22.56	23.37	3.47 %
JW-008-001	1	71.5	27.55	27.94	1.39 %
JW-009-001	1	71.5	17.23	18.64	7.57 %
JW-010-001	1	51.9	23.38	27.09	13.71 %
JW-011-001	1	71.6	17.53	18.67	6.11 %
JW-012-001	1	71.7	23.78	25.21	5.66 %
JW-013-001	1	71.5	17.23	18.64	7.57 %
JW-014-001	1	51.7	24.77	27.15	8.76 %
JW-015-001	1	51.8	18.69	21.62	13.56 %
JW-016-001	1	71.6	23.79	25.22	5.69 %
JW-017-001	1	75.1	21.87	21.52	-1.62 %
JW-018-001	1	51.9	24.72	27.09	8.76 %
JW-019-001	1	51.5	25.76	27.31	5.67 %
JW-020-001	1	71.6	27.10	26.50	-2.28 %
JW-021-001	1	51.7	22.82	24.92	8.43 %
JW-022-001	1	71.4	21.61	22.75	5.03 %
JW-023-001	1	82	19.39	19.08	-1.65 %
JW-024-001	1	110.3	18.75	19.13	2.00 %
JW-025-001	1	71.5	17.23	18.64	7.57 %
JW-026-001	1	71.5	24.02	23.36	-2.84 %
JW-027-001	1	71.6	17.53	18.67	6.11 %
JW-028-001	1	51.9	19.83	22.43	11.59 %
JW-029-001	1	71.5	17.23	18.64	7.57 %
JW-030-001	1	71.7	19.10	20.75	7.95 %
JW-031-001	1	51.8	18.69	21.62	13.56 %
JW-032-001	1	51.7	19.88	22.48	11.56 %
JW-033-001	1	75.1	21.87	21.52	-1.62 %
JW-034-001	1	71.6	19.12	20.77	7.93 %
JW-035-001	1	51.5	20.96	22.58	7.18 %
JW-036-001	1	51.9	19.83	22.43	11.59 %
JW-037-001	1	51.7	18.64	20.72	10.05 %

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

zero3

JW-038-001	1	71.6	22.61	22.04	-2.57 %
JW-039-001	1	71.4	17.56	18.70	6.09 %
JW-040-001	1	110.3	18.75	19.13	2.00 %
JW-041-001	1	82	19.39	19.08	-1.65 %
JW-042-001	1	71.5	24.02	23.36	-2.84 %
JW-043-001	1	71.5	17.23	18.64	7.57 %
JW-044-001	1	51.9	19.83	22.43	11.59 %
JW-045-001	1	71.6	17.53	18.67	6.11 %
JW-046-001	1	71.7	19.10	20.75	7.95 %
JW-047-001	1	71.5	17.23	18.64	7.57 %
JW-048-001	1	51.7	19.88	22.48	11.56 %
JW-049-001	1	51.8	18.69	21.62	13.56 %
JW-050-001	1	71.6	19.12	20.77	7.93 %
JW-051-001	1	75.1	21.87	21.52	-1.62 %
JW-052-001	1	51.9	19.83	22.43	11.59 %
JW-053-001	1	51.5	20.96	22.58	7.18 %
JW-054-001	1	71.6	22.61	22.04	-2.57 %
JW-055-001	1	51.7	18.64	20.72	10.05 %
JW-056-001	1	71.4	17.56	18.70	6.09 %
JW-057-001	1	82	19.39	19.08	-1.65 %
JW-058-001	1	110.3	18.75	19.13	2.00 %
JW-059-001	1	71.5	17.23	18.64	7.57 %
JW-060-001	1	71.5	24.02	23.36	-2.84 %
JW-061-001	1	71.6	17.53	18.67	6.11 %
JW-062-001	1	51.9	19.83	22.43	11.59 %
JW-063-001	1	71.5	17.23	18.64	7.57 %
JW-064-001	1	71.7	19.10	20.75	7.95 %
JW-065-001	1	51.8	18.69	21.62	13.56 %
JW-066-001	1	51.7	19.88	22.48	11.56 %
JW-067-001	1	75.1	21.87	21.52	-1.62 %
JW-068-001	1	71.6	19.12	20.77	7.93 %
JW-069-001	1	51.5	20.96	22.58	7.18 %
JW-070-001	1	51.9	19.83	22.43	11.59 %
JW-071-001	1	51.7	18.64	20.72	10.05 %
JW-072-001	1	71.6	22.61	22.04	-2.57 %
JW-073-001	1	71.4	17.56	18.70	6.09 %
JW-074-001	1	110.3	18.75	19.13	2.00 %
JW-075-001	1	82	19.39	19.08	-1.65 %
JW-076-001	1	71.5	24.02	23.36	-2.84 %
JW-077-001	1	71.5	17.23	18.64	7.57 %
JW-078-001	1	51.9	19.83	22.43	11.59 %
JW-079-001	1	71.6	17.53	18.67	6.11 %
JW-080-001	1	71.7	19.10	20.75	7.95 %
JW-081-001	1	71.5	17.23	18.64	7.57 %
JW-082-001	1	51.7	19.88	22.48	11.56 %
JW-083-001	1	51.8	18.69	21.62	13.56 %
JW-084-001	1	71.6	19.12	20.77	7.93 %

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

zero3

JW-085-001	1	75.1	21.87	21.52	-1.62 %
JW-086-001	1	51.9	19.83	22.43	11.59 %
JW-087-001	1	51.5	20.96	22.58	7.18 %
JW-088-001	1	71.6	22.61	22.04	-2.57 %
JW-089-001	1	51.7	18.64	20.72	10.05 %
JW-090-001	1	71.4	17.56	18.70	6.09 %
JW-091-001	1	82	22.60	21.98	-2.82 %
JW-092-001	1	110.3	21.83	21.90	0.34 %
JW-093-001	1	71.5	19.19	20.53	6.53 %
JW-094-001	1	71.5	27.74	26.70	-3.89 %
JW-095-001	1	71.5	19.21	20.54	6.47 %
JW-096-001	1	51.9	22.01	24.37	9.67 %
JW-097-001	1	71.5	19.19	20.53	6.53 %
JW-098-001	1	71.7	20.88	22.56	7.43 %
JW-099-001	1	51.8	20.37	23.23	12.30 %
JW-100-001	1	51.7	22.04	24.41	9.71 %
JW-101-001	1	75.1	24.48	24.62	0.58 %
JW-102-001	1	71.6	20.90	22.57	7.41 %
JW-103-001	1	51.5	25.21	26.39	4.48 %
JW-104-001	1	51.9	21.98	24.36	9.76 %
JW-105-001	1	51.7	20.41	22.41	8.92 %
JW-106-001	1	71.6	26.19	25.28	-3.59 %
JW-107-001	1	71.4	19.50	20.53	5.02 %
JW-108-001	1	97.9	29.07	27.80	-4.56 %
JW-109-001	1	98	27.58	25.99	-6.10 %
JW-110-001	1	71.6	27.31	27.38	0.27 %
JW-111-001	1	77.1	25.05	24.32	-3.00 %
JW-112-001	1	71.4	27.36	27.43	0.24 %
JW-113-001	1	77.2	25.03	24.30	-2.99 %
JW-114-001	1	71.4	27.36	27.43	0.24 %
JW-115-001	1	98	27.50	26.29	-4.60 %
JW-116-001	1	97.9	26.64	25.36	-5.05 %
JW-117-001	1	73.4	27.08	26.52	-2.11 %
Totals:	117	8056.2	2,467.69	2,594.70	
Average DER = 21.18 kgCO ₂ /m ²		% DER/TER	PASS		
Average TER = 22.08 kgCO ₂ /m ²		4.08 %			

Block Compliance Report - DFEE

Block Reference: Block A		Block Name: Jersey Wharf			
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)	% DFEE/TFEE
JW-001-001	1	51.3	29.27	32.80	10.75 %
JW-002-001	1	71.4	29.79	33.97	12.31 %
JW-003-001	1	71.5	29.10	33.62	13.45 %
JW-004-001	1	51.7	30.76	36.58	15.92 %
JW-005-001	1	74.7	39.99	46.17	13.38 %
JW-006-001	1	110.3	37.03	49.70	25.49 %

BLOCK COMPLIANCE**Calculation Type: New Build (As Designed)****zero3**

JW-007-001	1	82	34.84	43.51	19.93 %
JW-008-001	1	71.5	43.73	55.12	20.66 %
JW-009-001	1	71.5	20.94	21.47	2.43 %
JW-010-001	1	51.9	31.94	43.79	27.07 %
JW-011-001	1	71.6	21.91	22.00	0.40 %
JW-012-001	1	71.7	35.69	45.38	21.36 %
JW-013-001	1	71.5	20.94	21.47	2.43 %
JW-014-001	1	51.7	34.65	43.88	21.03 %
JW-015-001	1	51.8	21.22	23.44	9.47 %
JW-016-001	1	71.6	35.71	45.41	21.35 %
JW-017-001	1	75.1	32.84	35.30	6.97 %
JW-018-001	1	51.9	34.58	43.79	21.04 %
JW-019-001	1	51.5	36.03	44.18	18.45 %
JW-020-001	1	71.6	42.77	50.48	15.27 %
JW-021-001	1	51.7	30.24	36.25	16.58 %
JW-022-001	1	71.4	30.91	37.15	16.82 %
JW-023-001	1	82	28.30	29.39	3.70 %
JW-024-001	1	110.3	30.98	35.87	13.63 %
JW-025-001	1	71.5	20.94	21.47	2.43 %
JW-026-001	1	71.5	36.90	40.16	8.12 %
JW-027-001	1	71.6	21.91	22.00	0.40 %
JW-028-001	1	51.9	24.44	28.17	13.25 %
JW-029-001	1	71.5	20.94	21.47	2.43 %
JW-030-001	1	71.7	26.27	30.68	14.39 %
JW-031-001	1	51.8	21.22	23.44	9.47 %
JW-032-001	1	51.7	24.49	28.23	13.25 %
JW-033-001	1	75.1	32.84	35.30	6.97 %
JW-034-001	1	71.6	26.29	30.70	14.38 %
JW-035-001	1	51.5	26.07	28.20	7.52 %
JW-036-001	1	51.9	24.44	28.17	13.25 %
JW-037-001	1	51.7	20.60	18.92	-8.91 %
JW-038-001	1	71.6	33.94	35.88	5.40 %
JW-039-001	1	71.4	21.94	22.02	0.38 %
JW-040-001	1	110.3	30.98	35.87	13.63 %
JW-041-001	1	82	28.30	29.39	3.70 %
JW-042-001	1	71.5	36.90	40.16	8.12 %
JW-043-001	1	71.5	20.94	21.47	2.43 %
JW-044-001	1	51.9	24.44	28.17	13.25 %
JW-045-001	1	71.6	21.91	22.00	0.40 %
JW-046-001	1	71.7	26.27	30.68	14.39 %
JW-047-001	1	71.5	20.94	21.47	2.43 %
JW-048-001	1	51.7	24.49	28.23	13.25 %
JW-049-001	1	51.8	21.22	23.44	9.47 %
JW-050-001	1	71.6	26.29	30.70	14.38 %
JW-051-001	1	75.1	32.84	35.30	6.97 %
JW-052-001	1	51.9	24.44	28.17	13.25 %
JW-053-001	1	51.5	26.07	28.20	7.52 %

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

zero3

JW-054-001	1	71.6	33.94	35.88	5.40 %
JW-055-001	1	51.7	20.60	18.92	-8.91 %
JW-056-001	1	71.4	21.94	22.02	0.38 %
JW-057-001	1	82	28.30	29.39	3.70 %
JW-058-001	1	110.3	30.98	35.87	13.63 %
JW-059-001	1	71.5	20.94	21.47	2.43 %
JW-060-001	1	71.5	36.90	40.16	8.12 %
JW-061-001	1	71.6	21.91	22.00	0.40 %
JW-062-001	1	51.9	24.44	28.17	13.25 %
JW-063-001	1	71.5	20.94	21.47	2.43 %
JW-064-001	1	71.7	26.27	30.68	14.39 %
JW-065-001	1	51.8	21.22	23.44	9.47 %
JW-066-001	1	51.7	24.49	28.23	13.25 %
JW-067-001	1	75.1	32.84	35.30	6.97 %
JW-068-001	1	71.6	26.29	30.70	14.38 %
JW-069-001	1	51.5	26.07	28.20	7.52 %
JW-070-001	1	51.9	24.44	28.17	13.25 %
JW-071-001	1	51.7	20.60	18.92	-8.91 %
JW-072-001	1	71.6	33.94	35.88	5.40 %
JW-073-001	1	71.4	21.94	22.02	0.38 %
JW-074-001	1	110.3	30.98	35.87	13.63 %
JW-075-001	1	82	28.30	29.39	3.70 %
JW-076-001	1	71.5	36.90	40.16	8.12 %
JW-077-001	1	71.5	20.94	21.47	2.43 %
JW-078-001	1	51.9	24.44	28.17	13.25 %
JW-079-001	1	71.6	21.91	22.00	0.40 %
JW-080-001	1	71.7	26.27	30.68	14.39 %
JW-081-001	1	71.5	20.94	21.47	2.43 %
JW-082-001	1	51.7	24.49	28.23	13.25 %
JW-083-001	1	51.8	21.22	23.44	9.47 %
JW-084-001	1	71.6	26.29	30.70	14.38 %
JW-085-001	1	75.1	32.84	35.30	6.97 %
JW-086-001	1	51.9	24.44	28.17	13.25 %
JW-087-001	1	51.5	26.07	28.20	7.52 %
JW-088-001	1	71.6	33.94	35.88	5.40 %
JW-089-001	1	51.7	20.60	18.92	-8.91 %
JW-090-001	1	71.4	21.94	22.02	0.38 %
JW-091-001	1	82	34.91	38.95	10.38 %
JW-092-001	1	110.3	37.05	44.85	17.39 %
JW-093-001	1	71.5	25.59	29.20	12.37 %
JW-094-001	1	71.5	44.10	51.07	13.66 %
JW-095-001	1	71.5	25.64	29.24	12.29 %
JW-096-001	1	51.9	29.15	34.71	16.02 %
JW-097-001	1	71.5	25.59	29.20	12.37 %
JW-098-001	1	71.7	29.74	36.13	17.68 %
JW-099-001	1	51.8	25.26	30.03	15.88 %
JW-100-001	1	51.7	29.17	34.77	16.09 %

BLOCK COMPLIANCE**Calculation Type: New Build (As Designed)****zero3**

JW-101-001	1	75.1	38.04	45.46	16.34 %
JW-102-001	1	71.6	29.77	36.16	17.67 %
JW-103-001	1	51.5	34.94	41.11	15.00 %
JW-104-001	1	51.9	29.10	34.68	16.09 %
JW-105-001	1	51.7	25.00	27.69	9.74 %
JW-106-001	1	71.6	41.00	46.50	11.83 %
JW-107-001	1	71.4	26.44	29.73	11.07 %
JW-108-001	1	97.9	49.46	61.38	19.42 %
JW-109-001	1	98	46.77	55.75	16.11 %
JW-110-001	1	71.6	42.50	52.54	19.11 %
JW-111-001	1	77.1	38.89	44.84	13.26 %
JW-112-001	1	71.4	42.56	52.61	19.10 %
JW-113-001	1	77.2	38.86	44.81	13.26 %
JW-114-001	1	71.4	42.56	52.61	19.10 %
JW-115-001	1	98	46.39	56.55	17.96 %
JW-116-001	1	97.9	44.68	53.55	16.58 %
JW-117-001	1	73.4	42.20	50.86	17.03 %
Totals:	117	8056.2	3,440.27	3,910.65	
Average DFEE = 30.10 kWh/m ² /yr		% DFEE/TFEE	PASS		
Average TFEE = 34.29 kWh/m ² /yr		12.22 %			

Appendix C

Block A – Block Compliance (SAP 2009)



CARBONCONSULTANTS



Block Compliance

Page 1 of 2

Property Reference: JW-001

Issued on Date: 13.Feb.2024

Survey Reference: 001

Prop Type Ref: 1B2P

Property:

SAP Rating: 161 A CO2 Emissions (t/year): -4.18 DER:-79.54 Pass Reduction: 359.1% FEE: 28.9 ZC8: -58.68
 Environmental: 158 A General Requirements Compliance: Fail TER: 30.70 HLP: 0.65 Energy cost: £ -2699

CfSH Results Version: ENE1 Credits: N/A ENE2 Credits: N/A ENE7 Credits: N/A CfSH Level: N/A

Surveyor: admin admin, Tel: unknown

Surveyor ID: admin

Address:

Client:

Software Version: Elmhurst Energy Systems SAP2009 Calculator (Design System) version 4.04r04

SAP version: SAP 2009, Regs Region: England and Wales (Part L1A 2010), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Block Compliance Report

Property-Survey Reference	Multiplier (M)	Floor Area (F)	DER (D)	TER (T)	F x M	D x F x M	T x F x M
JW-001-001	1	51.3	-79.54	30.70	51.30	-4,080.40	1,574.91
JW-002-001	1	71.4	-20.67	27.57	71.40	-1,475.84	1,968.50
JW-003-001	1	71.5	21.51	27.56	71.50	1,537.97	1,970.54
JW-004-001	1	51.7	24.15	29.79	51.70	1,248.56	1,540.14
JW-005-001	1	74.7	25.83	28.83	74.70	1,929.50	2,153.60
JW-006-001	1	110.3	23.15	26.00	110.30	2,553.45	2,867.80
JW-007-001	1	82	24.04	28.18	82.00	1,971.28	2,310.76
JW-008-001	1	71.5	28.98	29.40	71.50	2,072.07	2,102.10
JW-009-001	1	71.5	17.82	22.07	71.50	1,274.13	1,578.01
JW-010-001	1	51.9	20.97	25.07	51.90	1,088.34	1,301.13
JW-011-001	1	71.6	17.80	22.06	71.60	1,274.48	1,579.50
JW-012-001	1	71.7	19.05	22.04	71.70	1,365.89	1,580.27
JW-013-001	1	71.5	17.82	22.07	71.50	1,274.13	1,578.01
JW-014-001	1	51.7	25.88	30.59	51.70	1,338.00	1,581.50
JW-015-001	1	51.8	19.95	24.29	51.80	1,033.41	1,258.22
JW-016-001	1	71.7	18.71	22.04	71.70	1,341.51	1,580.27
JW-017-001	1	74.7	22.34	23.26	74.70	1,668.80	1,737.52
JW-018-001	1	51.9	25.83	30.54	51.90	1,340.58	1,585.03
JW-019-001	1	51.5	26.86	33.29	51.50	1,383.29	1,714.44
JW-020-001	1	71.6	27.44	29.38	71.60	1,964.70	2,103.61
JW-021-001	1	51.7	23.97	30.59	51.70	1,239.25	1,581.50
JW-022-001	1	71.7	17.40	22.04	71.70	1,247.58	1,580.27
JW-024-001	4	110.3	19.28	20.37	441.20	8,506.34	8,987.24
JW-023-001	4	82	18.57	22.61	328.00	6,090.96	7,416.08
JW-025-001	4	71.5	17.82	22.07	286.00	5,096.52	6,312.02
JW-026-001	4	71.5	24.41	23.83	286.00	6,981.26	6,815.38
JW-027-001	4	71.6	17.87	22.06	286.40	5,117.97	6,317.98
JW-028-001	4	51.9	21.04	25.07	207.60	4,367.90	5,204.53
JW-029-001	4	71.5	17.82	22.07	286.00	5,096.52	6,312.02
JW-030-001	4	71.7	19.14	22.04	286.80	5,489.35	6,321.07
JW-031-001	4	51.8	19.95	24.29	207.20	4,133.64	5,032.89
JW-032-001	4	51.7	21.09	25.12	206.80	4,361.41	5,194.82
JW-033-001	4	74.7	22.37	23.26	298.80	6,684.16	6,950.09
JW-034-001	4	71.6	19.63	22.06	286.40	5,622.03	6,317.98
JW-035-001	4	51.5	22.16	27.75	206.00	4,564.96	5,716.50
JW-036-001	4	51.9	21.04	25.07	207.60	4,367.90	5,204.53

PASS

Manchester Life Development Company 3

Jersey Wharf – Block B

SAP Calculation Report

EYJW-AME-BB-XX-TR-Z-500003

PROJECT	Jersey Wharf Block B
DATE	04/06/2025
REVISION	C01
STATUS	A5
AUTHOR	J Bailey



CARBONCONSULTANTS



Revision History

Revision	Date	Author	Note
P01	22/02/2024	D Connor	Preliminary Issue
P02	14/03/2024	J Bailey	Revised to U-value changes
C01	04/06/2025	J Bailey	Construction Issue

Contents

1.0 Introduction	4
2.0 Input Data	4
2.1 Fabric Data	4
2.1.1 Party Walls (Apartment to Apartment)	5
2.1.2 Party Walls (Apartment to Corridor).....	5
2.1.3 Core Walls (adjacent to apartments).....	5
2.2 Thermal Bridging.....	5
2.3 Building Services Input Data	6
2.4 Renewable Technology	6
3.0 Air tightness	6
3.1 Air Permeability	6
3.1 Air Testing	6
4.0 Results.....	7
4.1 SAP Calculation Sheets.....	7
4.2 Compliance – Building Regulations (Part L 2013 / SAP 2012).....	7
4.3 Compliance – Planning Requirements	7
4.0 Appendices.....	7

1.0 Introduction

This report has been compiled to demonstrate how compliance with **SAP 2012** has been achieved. In addition, this report also demonstrates how compliance with Manchester City Council's Core Strategy Development Plan (Policy EN6) is achieved in line with the developments planning conditions.

The content of the report includes; the input data used (including fabric data, building services data and air permeability), impact on internal partitioning and the results (for both block compliance and individual apartments).

All SAP calculations have been carried out by Zero3 Consulting

2.0 Input Data

This section summarises the input data used within the calculations.

2.1 Fabric Data

The fabric data used is listed below, which has been taken from the Buro Happold Environmental Standards & Energy Statement (ref: JWH-BHE-XX-XX-RP-N-(00)2001). Any deviation from these figures may affect the overall building CO₂ emissions and therefore compliance with the Building Regulations.

- Roof U-Value = 0.1 W/m²K
- External Wall U-Value = 0.14 W/m²K
- Ground Floor U-Value = 0.1 W/m²K
- Soffit to car park U-Value = 0.1 W/m²K
- Windows (whole unit) U-Value = 1.33 W/m²K
- Windows G-Value = 0.53
- Wall between core and apt = 0.0 W/m²K
- Party Wall U-Value = 0.0 W/m²K
(Apt to Apt)
- Party Wall U-Value = 0.0 W/m²K
(Apt to corridor)

N.B. Evidence of the above u-values will need to be provided at the as-built stage to enable to EPCs to be lodged and issued.

A checklist has been provided in Appendix A, which needs to be completed and returned to verify the fabric details that have been used are in line with the Contractors Proposals.

2.1.1 Party Walls (Apartment to Apartment)

Party walls have not been designed to deliver a specific thermal transmittance and are therefore classified as a partition wall with a fully filled cavity with all edges sealed as described in '*BCA Technical Guidance Note 12: Cavity Separating Wall Guidance for Part L 2010*'. This ensures that there is no continuous air path for heat loss through the partition.

As the party wall is between two heated apartments resulting in a neutral heat loss, a u-value of 0.0 can be assigned.

2.1.2 Party Walls (Apartment to Corridor)

Party walls have not been designed to deliver a specific thermal transmittance and are therefore classified as a partition wall with a fully filled cavity with all edges sealed as described in '*BCA Technical Guidance Note 12: Cavity Separating Wall Guidance for Part L 2010*'. This ensures that there is no continuous air path for heat loss through the partition.

In order to demonstrate compliance with these wall builds-ups the apartment corridors need to be classified as heated and therefore the wall U-value can be entered as 0.0W/m²K.

2.1.3 Core Walls (adjacent to apartments)

The Core walls have not been designed to deliver a specific thermal transmittance but are a solid wall with no cavity and are therefore classified as a 'fully filled' wall.

In order to demonstrate compliance with these wall builds-ups the cores need to be classified as heated and therefore the wall U-value can be entered as 0.0W/m²K.

2.2 Thermal Bridging

All elements have been inputted into the calculations using the standard 'Accredited Construction Details' database within the SAP software, to assess the associated heat loss through the various junctions (thermal bridges).

These standard details have been used in lieu of calculated Y-values at this stage. If thermal bridging calculations are to be undertaken at a later stage, these can be reviewed and used within the SAP calculations where they offer an improvement.

As part of the evidence submission for the as-built SAPS/EPCs, the accredited details checklists must be ticked and signed by the appropriate party. These checklists will be issued along with this report.

2.3 Building Services Input Data

The following information has been inputted in to the calculations based on the equipment selections as detailed in the Contractors Proposals.

- MVHR - Envirovent EnergiSava 200 (FAI & EXH ductwork insulated)
- Hot Water Cylinders - OSO Super Xpress Direct Hot Water Cylinders
 - [1 Bed -120 Litre, losses of 0.96 kWhr/day]
 - [2 Bed -150 Litre, losses of 1.13 kWhr/day]
 - [3 Bed -210 Litre, losses of 1.34 kWhr/day]
- Heating - Electric panel heaters c/w appliance programmer and thermostats
- Lighting - 100% Low energy lighting

2.4 Renewable Technology

The following renewable technology has been included within the calculations to obtain Building Regulations Compliance:-

Photovoltaic Array = 12,599 kWh/annum

3.0 Air tightness

3.1 Air Permeability

The design air permeability figure used within the calculations is confirmed as:-

[2.0 m³/(h.m²) @ 50 Pa]

3.1 Air Testing

Air test certificates will be required for all apartments to enable the actual air permeability figures to be inputted into the as-built calculations. Any deviation from the above design figure may affect the overall building CO₂ emissions and therefore compliance with the Building Regulations.

N.B. Building Regulations Part L1a (paragraph 2.9) requires air tests to be carried out for each apartment and dictates that any untested apartments shall have a penalty factor of +2 added to the air permeability figure. However, the necessity to test every apartment is generally over and above the requirements of Building Control. Therefore, if air tests are to be conducted on a sample of apartments only; a statement from the building control officer will need to be provided, confirming the deviation from Part L1a para 2.9 stating 'the

average air permeability of the tested apartments can applied to the untested apartments’; this will then be supplied to the SAP assessment governing body as documentary evidence.

4.0 Results

4.1 SAP Calculation Sheets

For full details of the individual SAP assessments please see separate submission. Block compliance sheets can be found in Appendix B.

4.2 Compliance – Building Regulations (Part L 2013 / SAP 2012)

The development must demonstrate compliance with the Standard Assessment Procedure (SAP) 2012. The Building passes this criteria which is shown in Appendix B under ‘Block B - Block Compliance (SAP2012)’ where a DER/TER improvement of **4.79%** is confirmed.

4.3 Compliance – Planning Requirements

In compliance with Policy EN6 of the Core Strategy Development Plan, the project Dwelling Emission Rate (DER) must demonstrate a 15% betterment over notional Target Emission Rate (TER) based on Part L 2010 / SAP 2009. To demonstrate this compliance, the project has been modelled in both SAP 2012 and SAP 2009. Any PV requirements are first determined based on the 15% betterment target in SAP 2009, then re-run through SAP 2012 to ensure Building Regulations compliance.

The Building passes this criteria which is shown in Appendix C under ‘Block B - Block Compliance (SAP2009)’ where a DER/TER improvement of **15.00%** is confirmed.

4.0 Appendices

Appendix A

Fabric Details Checklist

Appendix B

Block A - Block Compliance (SAP2012)

Appendix C

Block A - Block Compliance (SAP2009)

Appendix A

Fabric Details Checklist



CARBONCONSULTANTS



Project Name - SAP Assessment

Fabric Details Checklist

Please review the fabric details listed below and confirm that they are in line with the agreed construction designs. Any deviations from the values stated below may affect the overall building CO₂ emissions and therefore compliance with the Building Regulations. Therefore it is imperative that any changes are highlighted to Ameon and verified prior to fabrication/procurement.

<u>Element</u>	<u>U-Value</u>	<u>Verified</u>
Roof U-Value	0.1 W/m ² K	☐
External Wall U-Value	0.14 W/m ² K	☐
Ground Floor U-Value	0.1 W/m ² K	☐
Soffit to car park U-Value	0.1 W/m ² K	☐
Windows (whole unit) U-Value	1.33 W/m ² K	☐
Windows G-Value	0.53	☐
Wall between core and apt	0.0 W/m ² K	☐
Party Wall U-Value (Apt to Apt)	0.0 W/m ² K	☐
Party Wall U-Value (Apt to corridor)	0.0 W/m ² K	☐
Core walls (adjacent to Apts)	0.0 W/m ² K	☐

I hereby confirm that the above information is an accurate representation of the design intent and approved to be used in the SAP calculations. N.B. Any deviations are to be highlighted under separate cover.

Signed.....

Date.....

Print Name.....

Company.....



Appendix B

Block B – Block Compliance (SAP 2012)



CARBONCONSULTANTS



BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

zero3

Block Reference	Block B	Issued on Date	13/02/2024
Block Name	Jersey Wharf		
Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

Block Compliance Report - DER

Block Reference: Block B		Block Name: Jersey Wharf			
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)	% DER/TER
JW-118-001	1	71.5	23.55	24.41	3.53 %
JW-119-001	1	51.9	21.17	24.85	14.82 %
JW-120-001	1	74.6	24.37	26.32	7.41 %
JW-121-001	1	51.8	21.72	24.88	12.69 %
JW-122-001	1	71.6	23.45	25.43	7.78 %
JW-123-001	1	71.8	21.35	22.75	6.13 %
JW-124-001	1	71.5	23.36	25.45	8.20 %
JW-125-001	1	71.4	20.21	22.81	11.38 %
JW-126-001	1	51.5	24.42	27.18	10.16 %
JW-127-001	1	71.6	24.73	25.63	3.51 %
JW-128-001	1	71.6	26.90	27.70	2.88 %
JW-129-001	1	71.5	20.59	20.30	-1.42 %
JW-130-001	1	74.6	21.02	21.83	3.72 %
JW-131-001	1	51.9	18.22	20.68	11.88 %
JW-132-001	1	71.6	19.03	20.89	8.91 %
JW-133-001	1	51.8	18.24	20.70	11.87 %
JW-134-001	1	71.5	19.05	20.91	8.88 %
JW-135-001	1	71.8	17.27	18.68	7.53 %
JW-136-001	1	51.5	19.53	22.52	13.28 %
JW-137-001	1	71.4	17.33	18.73	7.47 %
JW-138-001	1	71.6	23.59	23.21	-1.64 %
JW-139-001	1	71.6	21.62	21.34	-1.31 %
JW-140-001	1	71.5	20.59	20.30	-1.42 %
JW-141-001	1	51.9	18.22	20.68	11.88 %
JW-142-001	1	74.6	21.02	21.83	3.72 %
JW-143-001	1	51.8	18.24	20.70	11.87 %
JW-144-001	1	71.6	19.03	20.89	8.91 %
JW-145-001	1	71.8	17.27	18.68	7.53 %
JW-146-001	1	71.5	19.05	20.91	8.88 %
JW-147-001	1	71.4	17.33	18.73	7.47 %
JW-148-001	1	51.5	19.53	22.52	13.28 %
JW-149-001	1	71.6	21.62	21.34	-1.31 %
JW-150-001	1	71.6	23.59	23.21	-1.64 %
JW-151-001	1	71.5	20.59	20.30	-1.42 %
JW-152-001	1	74.6	21.02	21.83	3.72 %
JW-153-001	1	51.9	18.22	20.68	11.88 %
JW-154-001	1	71.6	19.03	20.89	8.91 %

BLOCK COMPLIANCE**Calculation Type: New Build (As Designed)****zero3**

JW-155-001	1	51.8	18.24	20.70	11.87 %
JW-156-001	1	71.5	19.05	20.91	8.88 %
JW-157-001	1	71.8	17.27	18.68	7.53 %
JW-158-001	1	51.5	19.53	22.52	13.28 %
JW-159-001	1	71.4	17.33	18.73	7.47 %
JW-160-001	1	71.6	23.59	23.21	-1.64 %
JW-161-001	1	71.6	21.62	21.34	-1.31 %
JW-162-001	1	74.6	21.02	21.83	3.72 %
JW-163-001	1	71.5	20.59	20.30	-1.42 %
JW-164-001	1	51.9	18.22	20.68	11.88 %
JW-165-001	1	51.8	18.24	20.70	11.87 %
JW-166-001	1	71.6	19.03	20.89	8.91 %
JW-167-001	1	71.8	17.27	18.68	7.53 %
JW-168-001	1	71.5	19.05	20.91	8.88 %
JW-169-001	1	71.4	17.33	18.73	7.47 %
JW-170-001	1	51.5	19.53	22.52	13.28 %
JW-171-001	1	71.6	21.62	21.34	-1.31 %
JW-172-001	1	71.6	23.59	23.21	-1.64 %
JW-173-001	1	71.5	23.80	23.24	-2.42 %
JW-174-001	1	74.6	24.60	25.01	1.65 %
JW-175-001	1	51.9	20.04	22.41	10.58 %
JW-176-001	1	71.6	21.50	23.08	6.84 %
JW-177-001	1	51.8	20.07	22.44	10.54 %
JW-178-001	1	71.5	21.52	23.10	6.83 %
JW-179-001	1	71.8	19.24	20.54	6.31 %
JW-180-001	1	51.5	21.74	24.47	11.17 %
JW-181-001	1	71.4	19.31	20.60	6.26 %
JW-182-001	1	71.6	27.15	26.41	-2.81 %
JW-183-001	1	71.6	24.97	24.38	-2.42 %
JW-184-001	1	72.1	31.03	29.66	-4.62 %
JW-185-001	1	71.7	25.02	24.73	-1.16 %
JW-186-001	1	98.9	27.44	26.73	-2.67 %
JW-187-001	1	71.5	25.07	24.77	-1.21 %
JW-188-001	1	71.5	31.51	30.31	-3.95 %
JW-189-001	1	71.5	25.07	24.77	-1.21 %
JW-190-001	1	51.9	31.59	31.78	0.61 %
Totals:	73	4893.9	1,557.86	1,644.94	
Average DER = 21.46 kgCO ₂ /m ²		% DER/TER	PASS		
Average TER = 22.54 kgCO ₂ /m ²		4.79 %			

Block Compliance Report - DFEE

Block Reference: Block B		Block Name: Jersey Wharf			
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)	% DFEE/TFEE
JW-118-001	1	71.5	36.16	43.77	17.40 %
JW-119-001	1	51.9	27.60	36.13	23.62 %
JW-120-001	1	74.6	37.88	50.70	25.29 %

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

zero3

JW-121-001	1	51.8	28.76	36.16	20.49 %
JW-122-001	1	71.6	35.56	46.13	22.92 %
JW-123-001	1	71.8	30.97	37.26	16.88 %
JW-124-001	1	71.5	35.37	46.16	23.38 %
JW-125-001	1	71.4	28.55	37.34	23.54 %
JW-126-001	1	51.5	34.68	43.90	21.01 %
JW-127-001	1	71.6	38.62	47.79	19.19 %
JW-128-001	1	71.6	43.03	54.55	21.12 %
JW-129-001	1	71.5	30.07	30.12	0.18 %
JW-130-001	1	74.6	31.26	35.96	13.09 %
JW-131-001	1	51.9	20.55	18.87	-8.89 %
JW-132-001	1	71.6	26.67	31.13	14.35 %
JW-133-001	1	51.8	20.57	18.89	-8.91 %
JW-134-001	1	71.5	26.69	31.16	14.35 %
JW-135-001	1	71.8	21.98	22.09	0.49 %
JW-136-001	1	51.5	24.53	28.28	13.23 %
JW-137-001	1	71.4	22.04	22.14	0.43 %
JW-138-001	1	71.6	36.57	39.80	8.10 %
JW-139-001	1	71.6	32.36	33.61	3.72 %
JW-140-001	1	71.5	30.07	30.12	0.18 %
JW-141-001	1	51.9	20.55	18.87	-8.89 %
JW-142-001	1	74.6	31.26	35.96	13.09 %
JW-143-001	1	51.8	20.57	18.89	-8.91 %
JW-144-001	1	71.6	26.67	31.13	14.35 %
JW-145-001	1	71.8	21.98	22.09	0.49 %
JW-146-001	1	71.5	26.69	31.16	14.35 %
JW-147-001	1	71.4	22.04	22.14	0.43 %
JW-148-001	1	51.5	24.53	28.28	13.23 %
JW-149-001	1	71.6	32.36	33.61	3.72 %
JW-150-001	1	71.6	36.57	39.80	8.10 %
JW-151-001	1	71.5	30.07	30.12	0.18 %
JW-152-001	1	74.6	31.26	35.96	13.09 %
JW-153-001	1	51.9	20.55	18.87	-8.89 %
JW-154-001	1	71.6	26.67	31.13	14.35 %
JW-155-001	1	51.8	20.57	18.89	-8.91 %
JW-156-001	1	71.5	26.69	31.16	14.35 %
JW-157-001	1	71.8	21.98	22.09	0.49 %
JW-158-001	1	51.5	24.53	28.28	13.23 %
JW-159-001	1	71.4	22.04	22.14	0.43 %
JW-160-001	1	71.6	36.57	39.80	8.10 %
JW-161-001	1	71.6	32.36	33.61	3.72 %
JW-162-001	1	74.6	31.26	35.96	13.09 %
JW-163-001	1	71.5	30.07	30.12	0.18 %
JW-164-001	1	51.9	20.55	18.87	-8.89 %
JW-165-001	1	51.8	20.57	18.89	-8.91 %
JW-166-001	1	71.6	26.67	31.13	14.35 %
JW-167-001	1	71.8	21.98	22.09	0.49 %

BLOCK COMPLIANCE**Calculation Type: New Build (As Designed)****zero3**

JW-168-001	1	71.5	26.69	31.16	14.35 %
JW-169-001	1	71.4	22.04	22.14	0.43 %
JW-170-001	1	51.5	24.53	28.28	13.23 %
JW-171-001	1	71.6	32.36	33.61	3.72 %
JW-172-001	1	71.6	36.57	39.80	8.10 %
JW-173-001	1	71.5	36.67	39.88	8.04 %
JW-174-001	1	74.6	38.33	46.40	17.40 %
JW-175-001	1	51.9	25.09	27.81	9.79 %
JW-176-001	1	71.6	31.72	38.38	17.35 %
JW-177-001	1	51.8	25.12	27.84	9.78 %
JW-178-001	1	71.5	31.74	38.41	17.35 %
JW-179-001	1	71.8	26.54	29.87	11.17 %
JW-180-001	1	51.5	29.30	34.88	15.98 %
JW-181-001	1	71.4	26.62	29.96	11.15 %
JW-182-001	1	71.6	43.50	50.29	13.51 %
JW-183-001	1	71.6	39.08	43.66	10.49 %
JW-184-001	1	72.1	51.01	61.15	16.58 %
JW-185-001	1	71.7	38.59	44.45	13.18 %
JW-186-001	1	98.9	46.70	57.83	19.25 %
JW-187-001	1	71.5	38.65	44.51	13.16 %
JW-188-001	1	71.5	51.76	63.00	17.84 %
JW-189-001	1	71.5	38.65	44.51	13.16 %
JW-190-001	1	51.9	48.91	60.16	18.71 %
Totals:	73	4893.9	2,218.27	2,511.06	
Average DFEE = 30.88 kWh/m ² /yr		% DFEE/TFEE	PASS		
Average TFEE = 35.05 kWh/m ² /yr		11.90 %			

Appendix C

Block A – Block Compliance (SAP 2009)



CARBONCONSULTANTS



Block Compliance

Page 1 of 2

Property Reference: JW-118

Issued on Date: 13.Feb.2024

Survey Reference: 001

Prop Type Ref: 2B4P

Property:

SAP Rating: 144 A CO2 Emissions (t/year): -3.62 DER: -48.62 Pass Reduction: 266.6% FEE: 37.6 ZC8: -29.23
 Environmental: 142 A General Requirements Compliance: Fail TER: 29.18 HLP: 0.91 Energy cost: £ -2300

CfSH Results Version: ENE1 Credits: N/A ENE2 Credits: N/A ENE7 Credits: N/A CfSH Level: N/A

Surveyor: admin admin, Tel: unknown

Surveyor ID: admin

Address:

Client:

Software Version: Elmhurst Energy Systems SAP2009 Calculator (Design System) version 4.04r04

SAP version: SAP 2009, Regs Region: England and Wales (Part L1A 2010), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Block Compliance Report

Property-Survey Reference	Multiplier (M)	Floor Area (F)	DER (D)	TER (T)	F x M	D x F x M	T x F x M
JW-118-001	1	71.5	-48.62	29.18	71.50	-3,476.33	2,086.37
JW-119-001	1	51.9	-2.61	30.52	51.90	-135.46	1,583.99
JW-120-001	1	74.6	26.56	28.91	74.60	1,981.38	2,156.69
JW-121-001	1	51.8	23.91	30.55	51.80	1,238.54	1,582.49
JW-122-001	1	71.6	24.49	27.71	71.60	1,753.48	1,984.04
JW-123-001	1	71.8	22.09	27.55	71.80	1,586.06	1,978.09
JW-124-001	1	71.5	24.50	27.72	71.50	1,751.75	1,981.98
JW-125-001	1	71.4	22.15	27.62	71.40	1,581.51	1,972.07
JW-126-001	1	51.5	25.88	30.63	51.50	1,332.82	1,577.45
JW-127-001	1	71.6	26.57	29.16	71.60	1,902.41	2,087.86
JW-128-001	1	71.6	28.74	29.16	71.60	2,057.78	2,087.86
JW-129-001	4	71.5	21.33	23.71	286.00	6,100.38	6,781.06
JW-131-001	4	51.9	19.85	25.06	207.60	4,120.86	5,202.46
JW-130-001	4	74.6	21.13	23.39	298.40	6,305.19	6,979.58
JW-132-001	4	71.6	19.81	22.24	286.40	5,673.58	6,369.54
JW-133-001	4	51.8	19.88	25.09	207.20	4,119.14	5,198.65
JW-134-001	4	71.5	19.83	22.26	286.00	5,671.38	6,366.36
JW-135-001	4	71.8	18.12	22.08	287.20	5,204.06	6,341.38
JW-136-001	4	51.5	21.14	25.17	206.00	4,354.84	5,185.02
JW-137-001	4	71.4	18.18	22.14	285.60	5,192.21	6,323.18
JW-138-001	4	71.5	24.28	23.71	286.00	6,944.08	6,781.06
JW-139-001	4	71.5	22.36	23.71	286.00	6,394.96	6,781.06
JW-173-001	1	71.5	24.48	25.02	71.50	1,750.32	1,788.93
JW-174-001	1	74.6	25.55	24.66	74.60	1,906.03	1,839.64
JW-175-001	1	51.9	21.67	25.91	51.90	1,124.67	1,344.73
JW-176-001	1	71.6	22.22	23.15	71.60	1,590.95	1,657.54
JW-177-001	1	51.8	21.70	25.94	51.80	1,124.06	1,343.69
JW-178-001	1	71.6	22.22	23.15	71.60	1,590.95	1,657.54
JW-179-001	1	71.8	20.02	22.95	71.80	1,437.44	1,647.81
JW-180-001	1	51.5	23.34	25.95	51.50	1,202.01	1,336.43
JW-181-001	1	71.4	20.10	23.04	71.40	1,435.14	1,645.06
JW-182-001	1	71.6	27.76	24.95	71.60	1,987.62	1,786.42
JW-183-001	1	71.6	25.63	24.95	71.60	1,835.11	1,786.42
JW-184-001	1	72.1	31.57	29.41	72.10	2,276.20	2,120.46
JW-185-001	1	71.7	25.69	27.02	71.70	1,841.97	1,937.33
JW-186-001	1	98.9	27.68	25.57	98.90	2,737.55	2,528.87

PASS

Manchester Life Development Company 3 Ltd Jersey Wharf Blocks A & B

Landlord (Communal Areas) BRUKL Report

EYJW-AME-ZZ-XX-TR-Z-500011

PROJECT	MLDC Jersey Wharf - Blocks A & B
DATE	17 th April 2025
REVISION	P03
AUTHOR	D Connor



CARBONCONSULTANTS



Revisions

P01	- 04.02.25	- Preliminary Issue
P02	- 05.02.25	- Correct BRUKL reports appended
P03	- 17.04.25	- Block A BRUKL updated to include correct SFPs and to add blinds to Concierge and Club Room

Contents

1.0 Introduction	4
2.0 Part L Assessment	4
2.1 Carbon Emissions	4
2.2 Solar Gain Limits.....	4
Appendix A.....	5

1.0 Introduction

This report details the BRUKL report produced from the SBEM model for the Landlord (communal) areas in Jersey Wharf Blocks A & B.

2.0 Part L Assessment

2.1 Carbon Emissions

The spaces have been assessed using the services equipment and their associated efficiencies (as per the issued technical submittals), along with confirmed fabric details, to ensure that compliance is achievable under Criterion 1.

The results from the above assessment are detailed within the BRUKL reports appended to the rear of this report.

2.2 Solar Gain Limits

Under Criterion 3, the SBEM model assesses the solar gains of the space, to highlight if the solar gain limit is exceeded when compared to the notional building. This assessment is done by comparing the glazing within the actual building with a 1.0m high full width strip of glazing in the notional model while reviewing if any passive control measures have been applied.

In order to demonstrate that the landlord areas will not overheat, a TM52 assessment has been carried out in line with CIBSE guidance to verify temperatures remain within acceptable limits. This route to compliance has been agreed with the Local Authority. Where required, blinds have been included within the BRUKL/TM52 assessments

Please refer to document EYJW-AME-ZZ-XX-TR-Z-500010 for the TM52 report.

Appendix A

Project name

Block A- Communal Areas

As designed

Date: Thu Apr 17 11:59:25 2025

Administrative information

Building Details

Address: Jersey Wharf, Ancoats, Manchester, M1

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.27

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO₂ emission rate for the building must not exceed the target

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	24.3
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	24.3
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	18.8
Are emissions from the building less than or equal to the target?	BER ≤ TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.14	0.14	"0000SPC3_W-1_A0"
Floor	0.25	0.08	1.05	"00SPC825_F_A4"
Roof	0.25	0.14	0.18	"0000SPC6_C"
Windows***, roof windows, and rooflights	2.2	1.3	1.3	"000SPC12_W2_O0"
Personnel doors	2.2	1.3	1.3	"000SPC13_W0_O0"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"
U _a -Limit = Limiting area-weighted average U-values [W/(m ² K)] U _a -Calc = Calculated area-weighted average U-values [W/(m ² K)] U _i -Calc = Calculated maximum individual element U-values [W/(m ² K)] * There might be more than one surface where the maximum U-value occurs. ** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows. *** Display windows and similar glazing are excluded from the U-value check. N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

Air Permeability	Worst acceptable standard	This building
m ³ /(h.m ²) at 50 Pa	10	2

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	0.9 to 0.95

1- Elec Panel Heater

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	1	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- Split Multi Split

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.01	5.73	-	-	-
Standard value	2.5*	2.6	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

1- SYST0004-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	N/A	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
	Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1		
Generator room		0.6	-	-	-	-	-	-	-	-	-	N/A
staff office		-	-	-	1.7	-	-	-	-	-	0.75	0.5
Concierge		-	-	-	1.7	-	-	-	-	-	0.75	0.5
LV switch		0.6	-	-	-	-	-	-	-	-	-	N/A
visitors wc		0.6	-	-	-	-	-	-	-	-	-	N/A
staff wc		0.6	-	-	-	-	-	-	-	-	-	N/A
Club room		-	-	-	1.7	-	-	-	-	-	0.75	0.5
tank room		0.6	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Acc_Parking	-	110	-	157
Comms	110	-	-	64
Cycle store	-	110	-	93
residential refuse	-	110	-	135
refuse	-	110	-	40
Generator room	110	-	-	123
Cleaners cupboard	110	-	-	20
corridor 1	-	110	-	22
Block A_assumed store	-	110	-	34
corridor 2	-	110	-	77
Corridor 3	-	110	-	252
corridor 5	-	110	-	48
Staircase	-	110	-	49
staircase_corridro	-	110	-	98
Parcel store	-	110	-	28
staff office	110	-	-	169
corridor 4	-	110	-	98
Corridor	-	110	-	37
corridor 1	-	110	-	72
CORRIDOR 3	-	110	-	33
corridor	-	110	-	53
STAIRCASE 1	-	110	-	37
STAIRCASE	-	110	-	38
4rth_Corridor 1	-	110	-	99
4rth_Staircase 1	-	110	-	39
4rth_staircase	-	110	-	39
4rth_corridor 2	-	110	-	70
4rth_corridor	-	110	-	124
4rth_Corridor 1	-	110	-	99
4rth_Staircase 1	-	110	-	39
4rth_staircase	-	110	-	39
4rth_corridor 2	-	110	-	70
4rth_corridor	-	110	-	124
4rth_Corridor 1	-	110	-	99
4rth_Staircase 1	-	110	-	39
4rth_staircase	-	110	-	39
4rth_corridor 2	-	110	-	70
4rth_corridor	-	110	-	124
4rth_Corridor 1	-	110	-	99
4rth_Staircase 1	-	110	-	39
4rth_staircase	-	110	-	39
4rth_corridor 2	-	110	-	70

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
4rth_corridor		-	110	-	124
4rth_Corridor 1		-	110	-	99
4rth_Staircase 1		-	110	-	39
4rth_staircase		-	110	-	39
4rth_corridor 2		-	110	-	70
4rth_corridor		-	110	-	125
4rth_Corridor 1		-	110	-	99
4rth_Staircase 1		-	110	-	39
4rth_staircase		-	110	-	39
4rth_corridor 2		-	110	-	70
Concierge		-	110	50	163
LV switch		110	-	-	72
Substation		110	-	-	80
visitors wc		-	110	-	35
staff wc		-	110	-	41
Club room		110	-	-	483
tank room		110	-	-	424

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
staff office	NO (-3.1%)	NO
Concierge	NO (-39.3%)	YES
LV switch	N/A	N/A
Substation	N/A	N/A
visitors wc	N/A	N/A
staff wc	N/A	N/A
Club room	NO (-19.2%)	YES
tank room	N/A	N/A

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m ²]	2065.5	2065.5
External area [m ²]	2239.3	2239.3
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	2	3
Average conductance [W/K]	517.52	895.12
Average U-value [W/m ² K]	0.23	0.4
Alpha value* [%]	20.9	9.45

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
23	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger terminals
	Others: Emergency services
77	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	21.33	33.82
Cooling	0.28	0.53
Auxiliary	0.55	0.25
Lighting	14.37	25.75
Hot water	0.14	0.17
Equipment*	38.38	38.38
TOTAL **	36.68	60.51

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	161.54	241.43
Primary energy* [kWh/m ²]	111.48	117.53
Total emissions [kg/m ²]	18.8	24.3

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance										
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] No Heating or Cooling										
	Actual	105.6	24.2	0	0	0.1	0	0	0	0
	Notional	173.6	41.2	0	0	0.1	0	0	----	----
[ST] Unflued radiant heater, [HS] Unflued radiant heater, [HFT] Electricity, [CFT] Electricity										
	Actual	100.3	91.2	29.9	0	0.1	0.93	0	1	0
	Notional	140.1	145.4	47.5	0	0	0.82	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	28.2	26.3	2.1	1.8	3.1	3.74	4.07	4.01	5.73
	Notional	22.4	43.7	2.6	3.4	1.4	2.43	3.6	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.14	"0000SPC3_W-1_A0"
Floor	0.2	0.04	"000SPC44_F"
Roof	0.15	0.14	"000SPC83_C"
Windows, roof windows, and rooflights	1.5	1.3	"000SPC12_W2_O0"
Personnel doors	1.5	1.3	"000SPC13_W0_O0"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U _{i-Typ} = Typical individual element U-values [W/(m²K)]		U _{i-Min} = Minimum individual element U-values [W/(m²K)]	
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	2

Project name

Block B- Communal Areas**As designed****Date:** Tue Feb 04 15:31:39 2025**Administrative information****Building Details****Address:** Block B, Jersey Street, Ancoats, ,**Certification tool****Calculation engine:** SBEM**Calculation engine version:** v5.6.b.0**Interface to calculation engine:** DesignBuilder SBEM**Interface to calculation engine version:** v6.1.8**BRUKL compliance check version:** v5.6.b.0**Certifier details****Name:** Andrew Keeling**Telephone number:** 01253 736268**Address:** Jubilee House East Beach Lytham St Annes
FY8 5FT, Lytham St Annes, FY8 5FT**Criterion 1: The calculated CO₂ emission rate for the building must not exceed the target**

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	18
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	18
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	15.1
Are emissions from the building less than or equal to the target?	BER ≤ TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.14	0.14	"Block 3 - corridor 1_W_9"
Floor	0.25	0.11	1.05	"Block 4 - corridor_F_3"
Roof	0.25	0.12	0.12	"Block 2 - CORRIDOR_R_4"
Windows***, roof windows, and rooflights	2.2	1.3	1.3	"Ground Floor - block b entrance_G_7"
Personnel doors	2.2	1.3	1.3	"Ground Floor - staircase_D_7"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"
U _a -Limit = Limiting area-weighted average U-values [W/(m ² K)] U _a -Calc = Calculated area-weighted average U-values [W/(m ² K)] U _i -Calc = Calculated maximum individual element U-values [W/(m ² K)] * There might be more than one surface where the maximum U-value occurs. ** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows. *** Display windows and similar glazing are excluded from the U-value check. N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

Air Permeability	Worst acceptable standard	This building
m ³ /(h.m ²) at 50 Pa	10	2

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	0.9 to 0.95

1- Split/ Multi Split System

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.01	5.73	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.					

2- Elec Panel Heaters

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

1- DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1			
Ground Floor - block b entrance	-	-	-	1.6	-	-	-	-	-		0.81	0.5
Ground Floor - wc 1	-	-	-	1.6	-	-	-	-	-		0.81	0.5
Ground Floor - wc	-	-	-	1.6	-	-	-	-	-		0.81	0.5

General lighting and display lighting

Zone name	Luminous efficacy [lm/W]			General lighting [W]
	Luminaire	Lamp	Display lamp	
Standard value	60	60	22	
Ground Floor - resi refuse	100	-	-	69
Ground Floor - acc parking	100	-	-	64

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Ground Floor - comm refuse	100	-	-	29
Ground Floor - shared resi_commercial loading bay	100	-	-	39
Ground Floor - block b entrance	-	100	50	437
Ground Floor - gym	-	100	-	139
Ground Floor - staircase	-	100	-	49
Ground Floor - corridor 1	-	100	-	185
Ground Floor - wc 1	-	100	-	31
Ground Floor - cleaners	100	-	-	6
Ground Floor - corridor	-	100	-	25
Ground Floor - wc	-	100	-	36
Ground Floor - block b entrance lobby	-	100	-	24
Ground Floor - bike store	100	-	-	87
Ground Floor - riser	-	100	-	7
Block 2 - CORRIDOR	-	100	-	133
Block 3 - corridor 1	-	100	-	59
Block 3 - corridor	-	100	-	135
Block 4 - corridor 1	-	100	-	59
Block 4 - corridor	-	100	-	135
Block 5 - corridor	-	100	-	135

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Ground Floor - block b entrance	YES (+61.6%)	NO
Ground Floor - gym	YES (+51.6%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m ²]	1092.1	1092.1
External area [m ²]	1742.3	1742.3
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	2	3
Average conductance [W/K]	588.18	569.71
Average U-value [W/m ² K]	0.34	0.33
Alpha value* [%]	8.87	6.49

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
30	B1 Offices and Workshop businesses B2 to B7 General Industrial and Special Industrial Groups B8 Storage or Distribution C1 Hotels C2 Residential Institutions: Hospitals and Care Homes C2 Residential Institutions: Residential schools C2 Residential Institutions: Universities and colleges C2A Secure Residential Institutions
52	Residential spaces D1 Non-residential Institutions: Community/Day Centre D1 Non-residential Institutions: Libraries, Museums, and Galleries D1 Non-residential Institutions: Education D1 Non-residential Institutions: Primary Health Care Building D1 Non-residential Institutions: Crown and County Courts
5	D2 General Assembly and Leisure, Night Clubs, and Theatres Others: Passenger terminals Others: Emergency services
13	Others: Miscellaneous 24hr activities Others: Car Parks 24 hrs Others: Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	11.19	16.33
Cooling	3.94	3.66
Auxiliary	1.03	0.6
Lighting	13.23	20.06
Hot water	0.08	0.09
Equipment*	18.43	18.43
TOTAL **	29.46	40.74

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	258.4	218.87
Primary energy* [kWh/m ²]	89.54	94.99
Total emissions [kg/m ²]	15.1	18

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance									
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] No Heating or Cooling									
	Actual	546.5	0	0	0	0	0	0	0
	Notional	343.6	0	0	0	0	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
	Actual	155.4	622.3	11.6	42.5	9.9	3.74	4.07	5.73
	Notional	205.9	512.1	23.5	39.5	5.7	2.43	3.6	----
[ST] Other local room heater - unfanned, [HS] Room heater, [HFT] Electricity, [CFT] Natural Gas									
	Actual	41.4	65.5	14.4	0	0.2	0.8	0	1
	Notional	59.2	57.9	20.1	0	0.1	0.82	0	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.14	"Ground Floor - block b entrance_W_6"
Floor	0.2	0.1	"Ground Floor - bike store_S_3"
Roof	0.15	0.12	"Block 2 - CORRIDOR_R_4"
Windows, roof windows, and rooflights	1.5	1.3	"Ground Floor - block b entrance_G_7"
Personnel doors	1.5	1.3	"Ground Floor - staircase_D_7"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U _{i-Typ} = Typical individual element U-values [W/(m²K)]		U _{i-Min} = Minimum individual element U-values [W/(m²K)]	
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	2

Manchester Life Development Company 3 Ltd Jersey Wharf Block A

Commercial Unit A BRUKL Report

EYJW-AME-ZZ-XX-TR-Z-500013

PROJECT	MLDC Jersey Wharf - Block A
DATE	10 th April 2025
REVISION	P03
STATUS	S3
AUTHOR	D Connor



CARBONCONSULTANTS



Revisions

P01	- 04/04/25	- Preliminary Issue
P02	- 07/04/25	- Reference to gas removed
P03	- 10/04/25	- Revised to correct status

Contents

1.0 Introduction	4
2.0 Part L Assessment	4
2.1 Carbon Emissions	4
2.2 Solar Gain Limits.....	4
3.0 Mechanical and Electrical Plant	5
3.1 Heating and Cooling.....	5
3.2 Ventilation.....	5
3.3 Domestic Hot Water	6
3.4 Lighting.....	7
Appendix A.....	8

1.0 Introduction

Commercial Unit A at Jersey Wharf Block A is provided as a shell and core property. Therefore, the unit has been supplied with provisions for water and electric (as well as base build sprinklers & fire alarm interfaces). However no other mechanical and electrical systems are to be installed as part of the main works. The fit-out of the unit is to be by the prospective tenants.

This document has been developed to demonstrate how the commercial unit could reasonably meet the energy efficiency requirements of Building Regulations Part L after fit-out.

2.0 Part L Assessment

The commercial unit has been assessed as a shell & core space under Building Regulations Part L2a (paragraphs 2.21 to 2.25) using accredited SBEM software, in order to provide guidance on the minimum requirements.

2.1 Carbon Emissions

The space has been assessed using assumed services and their associated efficiencies (in accordance with the as-installed fabric details), to ensure that compliance is achievable under Criterion 1.

The results from the above assessment are detailed within the BRUKL report (appended to the rear of this report). The BRUKL report details all the assumed efficiencies for the mechanical and electrical plant and should be considered the minimum by the fit-out contractors in order to comply with the regulations. These efficiencies form the 'specification' that have been inputted in the calculations as described in ADL2a paragraph 2.14.

N.B. All fit-out works will need to be re-assessed through SBEM with the actual installed data using accredited software.

2.2 Solar Gain Limits

Under Criterion 3, the SBEM model assesses the solar gains of the space, to highlight if the solar gain limit is exceeded when compared to the notional building. This assessment is done by comparing the glazing within the actual building with a 1.0m high full width strip of glazing in the notional model while reviewing if any passive control measures have been applied.

It is worth noting that this is not an overheating analysis; that can only be carried out through a dynamic simulation model (which SBEM does not have the capability for) and is not a mandatory requirement for building regulations compliance.

What this Criterion 3 assessment does highlight is where risks of overheating occur when passive control measures (such as external shading/blinds) or non-passive measures (such as air conditioning) are not implemented.

As identified in the BRUKL report, blinds have been included within the assessment and the space complies with Criterion 3.

3.0 Mechanical and Electrical Plant

In compliance with sections 2.14 and 2.34 of Approved Document L2a, the below lists the mechanical and electrical services (and associated efficiencies) that have been used in the calculations for each unit. These systems have been assessed and the attached results (appendix A) confirm that they ensure the CO2 emissions are within the limits of Criterion 1.

The systems that have been selected are suitable for the application (taking into consideration the available utilities services) and the efficiencies that have been assumed are reasonable and easily achieved using mainstream manufacturers. These efficiencies are the minimum that need to be installed during the fit-out in order to achieve the Building Emissions Rate (BER) and EPC rating stated within appendix A

3.1 Heating

An electric heating system has been allowed for in the commercial unit to provide the heating to the space. This is assumed to be in the form of localised electric panel heaters.

Please see below extract from the BRUKL report which states the efficiencies used:

1- Elec Panel

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

N.B. Efficiencies listed above are applicable to all commercial units

3.2 Ventilation

Where mechanical ventilation is to be provided as part of the fit out works; the minimum SFPs as detailed in Non-Domestic Building Compliance Guide (table 35) must be adhered to (see below extract):-

Table 35 Maximum specific fan power in air distribution systems in new and existing buildings

System type	SFP (W/(l·s))	
	New buildings	Existing buildings
Central balanced mechanical ventilation system with heating and cooling	1.6	2.2
Central balanced mechanical ventilation system with heating only	1.5	1.8
All other central balanced mechanical ventilation systems	1.1	1.6
Zonal supply system where fan is remote from zone, such as ceiling void or roof-mounted units	1.1	1.4
Zonal extract system where fan is remote from zone	0.5	0.5
Zonal supply and extract ventilation units, such as ceiling void or roof units serving single room or zone with heating and heat recovery	1.9	1.9
Local balanced supply and extract ventilation system such as wall/roof units serving single area with heat recovery	1.6	1.6
Local supply or extract ventilation units such as window/wall/roof units serving single area (e.g. toilet extract)	0.3	0.4
Other local ventilation supply or extract units	0.5	0.5
Fan assisted terminal VAV unit	1.1	1.1
Fan coil unit (rating weighted average*)	0.5	0.5
Kitchen extract, fan remote from zone with grease filter	1.0	1.0

The assessment allows for ventilation systems to be installed within the demise of the commercial unit, with fresh air and exhaust ducts terminating at the façade louvres above the curtain walling.

3.3 Domestic Hot Water

It has been assumed that the domestic hot water generation is to be provided by localised electric water heaters.

Please see below extract from the BRUKL report:-

1- DHWS

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

N.B. Efficiencies listed above are applicable to all commercial units

3.4 Lighting

No specific lighting scheme has been developed for the space, however the BRUKL report does detail the minimum lighting outputs & efficacies required to achieve compliance.

Please see below extract from the BRUKL report:-

Block A Commercial Unit A

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
Commercial Unit A		-	110	50	971

N.B. The items listed above only include the services that are pertinent to the energy consumption assessment. Services such as fire alarm, emergency lighting and drainage have not been listed but will be required to be installed as part of the fit out works.

Appendix A

Project name

Block A Jersey Wharf Unit A

As designed

Date: Tue Mar 18 08:43:08 2025

Administrative information

Building Details

Address: 66 Jersey Street, Ancoats, Manchester, M4 6JW

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.27

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO₂ emission rate for the building must not exceed the target

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	41.5
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	41.5
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	31.7
Are emissions from the building less than or equal to the target?	BER ≤ TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.14	0.14	"SH000001_W3"
Floor	0.25	0.11	0.11	"SH000001_F"
Roof	0.25	-	-	"No heat loss roofs"
Windows***, roof windows, and rooflights	2.2	1.4	1.4	"SH000001_W3_O0"
Personnel doors	2.2	-	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]

* There might be more than one surface where the maximum U-value occurs.

** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

*** Display windows and similar glazing are excluded from the U-value check.

N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
m ³ /(h.m ²) at 50 Pa	10	2

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Elec Panel

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

1- SYST0004-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
Commercial Unit A		-	110	50	971

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Commercial Unit A	NO (-36.9%)	YES

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m ²]	111.5	111.5
External area [m ²]	176.5	176.5
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	2	5
Average conductance [W/K]	61.47	41.43
Average U-value [W/m ² K]	0.35	0.23
Alpha value* [%]	29.5	9.59

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
100	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	36.07	15.41
Cooling	0	0
Auxiliary	0	0
Lighting	23.24	71.13
Hot water	1.7	1.96
Equipment*	20.26	20.26
TOTAL **	61.01	88.5

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	191.76	241.33
Primary energy* [kWh/m ²]	187.31	232.03
Total emissions [kg/m ²]	31.7	41.5

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	103.9	87.9	36.1	0	0	0.8	0	1	0
Notional	45.4	195.9	15.4	0	0	0.82	0	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.14	"SH000001_W3"
Floor	0.2	0.11	"SH000001_F"
Roof	0.15	-	"No heat loss roofs"
Windows, roof windows, and rooflights	1.5	1.4	"SH000001_W3_O0"
Personnel doors	1.5	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U _{i-Typ} = Typical individual element U-values [W/(m²K)] U _{i-Min} = Minimum individual element U-values [W/(m²K)]			
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	2

Manchester Life Development Company 3 Ltd Jersey Wharf Block B

Commercial Unit E BRUKL Report

EYJW-AME-ZZ-XX-TR-Z-500017

PROJECT	MLDC Jersey Wharf - Block B
DATE	10 th April 2025
REVISION	P03
STATUS	S3
AUTHOR	D Connor



CARBONCONSULTANTS



Revisions

P01	- 04/04/25	- Preliminary Issue
P02	- 07/04/25	- Reference to gas removed
P03	- 10/04/25	- Revised to correct status

Contents

1.0 Introduction	4
2.0 Part L Assessment	4
2.1 Carbon Emissions	4
2.2 Solar Gain Limits.....	4
3.0 Mechanical and Electrical Plant	5
3.1 Heating and Cooling.....	5
3.2 Ventilation.....	5
3.3 Domestic Hot Water	6
3.4 Lighting.....	7
Appendix A.....	8

1.0 Introduction

Commercial Unit E at Jersey Wharf Block B is provided as a shell and core property. Therefore, the unit has been supplied with provisions for water and electric (as well as base build sprinklers & fire alarm interfaces). However no other mechanical and electrical systems are to be installed as part of the main works. The fit-out of the unit is to be by the prospective tenants.

This document has been developed to demonstrate how the commercial unit could reasonably meet the energy efficiency requirements of Building Regulations Part L after fit-out.

2.0 Part L Assessment

The commercial unit has been assessed as a shell & core space under Building Regulations Part L2a (paragraphs 2.21 to 2.25) using accredited SBEM software, in order to provide guidance on the minimum requirements.

2.1 Carbon Emissions

The space has been assessed using assumed services and their associated efficiencies (in accordance with the as-installed fabric details), to ensure that compliance is achievable under Criterion 1.

The results from the above assessment are detailed within the BRUKL report (appended to the rear of this report). The BRUKL report details all the assumed efficiencies for the mechanical and electrical plant and should be considered the minimum by the fit-out contractors in order to comply with the regulations. These efficiencies form the 'specification' that have been inputted in the calculations as described in ADL2a paragraph 2.14.

N.B. All fit-out works will need to be re-assessed through SBEM with the actual installed data using accredited software.

2.2 Solar Gain Limits

Under Criterion 3, the SBEM model assesses the solar gains of the space, to highlight if the solar gain limit is exceeded when compared to the notional building. This assessment is done by comparing the glazing within the actual building with a 1.0m high full width strip of glazing in the notional model while reviewing if any passive control measures have been applied.

It is worth noting that this is not an overheating analysis; that can only be carried out through a dynamic simulation model (which SBEM does not have the capability for) and is not a mandatory requirement for building regulations compliance.

What this Criterion 3 assessment does highlight is where risks of overheating occur when passive control measures (such as external shading/blinds) or non-passive measures (such as air conditioning) are not implemented.

As identified in the BRUKL report, blinds have been included within the assessment and the space complies with Criterion 3.

3.0 Mechanical and Electrical Plant

In compliance with sections 2.14 and 2.34 of Approved Document L2a, the below lists the mechanical and electrical services (and associated efficiencies) that have been used in the calculations for each unit. These systems have been assessed and the attached results (appendix A) confirm that they ensure the CO2 emissions are within the limits of Criterion 1.

The systems that have been selected are suitable for the application (taking into consideration the available utilities services) and the efficiencies that have been assumed are reasonable and easily achieved using mainstream manufacturers. These efficiencies are the minimum that need to be installed during the fit-out in order to achieve the Building Emissions Rate (BER) and EPC rating stated within appendix A

3.1 Heating

An electric heating system has been allowed for in the commercial unit to provide the heating to the space. This is assumed to be in the form of localised electric panel heaters.

Please see below extract from the BRUKL report which states the efficiencies used:

1- Elec Panel

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

N.B. Efficiencies listed above are applicable to all commercial units

3.2 Ventilation

Where mechanical ventilation is to be provided as part of the fit out works; the minimum SFPs as detailed in Non-Domestic Building Compliance Guide (table 35) must be adhered to (see below extract):-

Table 35 Maximum specific fan power in air distribution systems in new and existing buildings

System type	SFP (W/(l·s))	
	New buildings	Existing buildings
Central balanced mechanical ventilation system with heating and cooling	1.6	2.2
Central balanced mechanical ventilation system with heating only	1.5	1.8
All other central balanced mechanical ventilation systems	1.1	1.6
Zonal supply system where fan is remote from zone, such as ceiling void or roof-mounted units	1.1	1.4
Zonal extract system where fan is remote from zone	0.5	0.5
Zonal supply and extract ventilation units, such as ceiling void or roof units serving single room or zone with heating and heat recovery	1.9	1.9
Local balanced supply and extract ventilation system such as wall/roof units serving single area with heat recovery	1.6	1.6
Local supply or extract ventilation units such as window/wall/roof units serving single area (e.g. toilet extract)	0.3	0.4
Other local ventilation supply or extract units	0.5	0.5
Fan assisted terminal VAV unit	1.1	1.1
Fan coil unit (rating weighted average*)	0.5	0.5
Kitchen extract, fan remote from zone with grease filter	1.0	1.0

The assessment allows for ventilation systems to be installed within the demise of the commercial unit, with fresh air and exhaust ducts terminating at the façade louvres above the curtain walling.

3.3 Domestic Hot Water

It has been assumed that the domestic hot water generation is to be provided by localised electric water heaters.

Please see below extract from the BRUKL report:-

1- DHWS

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

N.B. Efficiencies listed above are applicable to all commercial units

3.4 Lighting

No specific lighting scheme has been developed for the space, however the BRUKL report does detail the minimum lighting outputs & efficacies required to achieve compliance.

Please see below extract from the BRUKL report:-

Block B Commercial Unit E

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
BB.00.201 Commercial Unit 76		-	110	50	862

N.B. The items listed above only include the services that are pertinent to the energy consumption assessment. Services such as fire alarm, emergency lighting and drainage have not been listed but will be required to be installed as part of the fit out works.

Appendix A

Project name

Shell and Core

Jersey Wharf Block B Unit E

As designed

Date: Tue Mar 18 08:50:14 2025

Administrative information

Building Details

Address: 66 Jersey Street, Ancoats, Manchester, M4 6JW

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.27

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO₂ emission rate for the building must not exceed the target

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	40.3
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	40.3
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	32.8
Are emissions from the building less than or equal to the target?	BER ≤ TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.14	0.14	"SH00000A_W1"
Floor	0.25	0.1	0.1	"SH00000A_F"
Roof	0.25	-	-	"No heat loss roofs"
Windows***, roof windows, and rooflights	2.2	1.4	1.4	"SH00000A_W1_O0"
Personnel doors	2.2	-	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]

* There might be more than one surface where the maximum U-value occurs.

** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

*** Display windows and similar glazing are excluded from the U-value check.

N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
m ³ /(h.m ²) at 50 Pa	10	2

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Elec Panel

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

1- SYST0003-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

Shell and core configuration

Zone	Assumed shell?
BB.00.201 Commercial Unit 76	NO

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
BB.00.201 Commercial Unit 76		-	110	50	862

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
BB.00.201 Commercial Unit 76	NO (-49.5%)	YES

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m ²]	97.5	97.5
External area [m ²]	179.1	179.1
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	2	5
Average conductance [W/K]	60.9	81.1
Average U-value [W/m ² K]	0.34	0.45
Alpha value* [%]	26.28	14.05

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area Building Type

100	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	38.62	32.84
Cooling	0	0
Auxiliary	0	0
Lighting	22.96	57.64
Hot water	1.7	1.96
Equipment*	20.26	20.26
TOTAL **	63.27	92.44

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	201.55	300.96
Primary energy* [kWh/m ²]	194.25	210.8
Total emissions [kg/m ²]	32.8	40.3

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	111.2	90.3	38.6	0	0	0.8	0	1	0
Notional	96.8	204.1	32.8	0	0	0.82	0	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.14	"SH00000A_W1"
Floor	0.2	0.1	"SH00000A_F"
Roof	0.15	-	"No heat loss roofs"
Windows, roof windows, and rooflights	1.5	1.4	"SH00000A_W1_O0"
Personnel doors	1.5	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U _{i-Typ} = Typical individual element U-values [W/(m²K)] U _{i-Min} = Minimum individual element U-values [W/(m²K)]			
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	2

Manchester Life Development Company 3 Jersey Wharf - Block A

EYJW-AME-BA-XX-TR-Z-500005

Overheating Report

Rev. P02

Ref	Date	Description	By
P01	22.02.2024	Preliminary Issue	J.B.
P02	24.02.2026	Part O reference added and GF apartments added	D.C.

PART O - OVERHEATING STUDY

zero3

Project: Jersey Wharf,
Ancoats,
Block A

Reference: 23-194

Client: Ameon

Issue: 002

Date: 23.02.2026

Submitted and prepared by: Adam Lindley

Contents

1.0 Introcutdion - DSM Model.....3

2.0 Classification of Overheating.....4

3.0 Methodology.....4

4.0 Specification for Model.....5

5.0 Results.....9

6.0 Conclusion.....10

1.0 Introduction - DSM Model

Zero 3 have been appointed to provide a Part O overheating analysis for the residential development at Block A, Jersey Wharf, Ancoats.

The overheating report uses room and occupancy profiles detailed within the CIBSE TM59:2017 design methodology technical memorandum.

The simulated model assesses the internal temperatures within the residential units at the Jersey Wharf development against the requirements of the CIBSE technical memorandum TM59; Design methodology for the assessment of overheating risk in homes, 2017.

Block A, Jersey Wharf has been modelled using IES Virtual Environment Dynamic Simulation Modelling Software.

The purpose of the thermal analysis carried out is to verify that the internal temperatures in the occupied spaces of the building fall inside the performance standards.

2.0 Classification of Overheating

Criteria for homes predominantly naturally ventilated;

For living rooms, kitchens and bedrooms:

- CIBSE TM59 Criterion a: Hours of exceedance ($dT \geq 1K$ shall not be more than 3% of occupied periods during the period May to September) must be passed

For bedrooms only;

- Criterion b: Operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26 °C for more than 1% of annual hours. (Note: 1% of the annual hours between 22:00 and 07:00 for bedrooms is 32 hours, so 33 or more hours above 26 °C will be recorded as a fail)

Criteria for homes predominantly mechanically ventilated;

TM59 provides a single criterion for assessing comfort and overheating in mechanically ventilated buildings:

For homes with restricted window openings, the CIBSE fixed temperature test must be followed, i.e., all occupied rooms should not exceed an operative temperature of 26 °C for more than 3% of the annual occupied annual hours (CIBSE Guide A (2015a)).

The TM59 calculations contained within this report are based on Design Summer Year, DSY1 for 2020s, high emissions, 50% percentile scenario appropriate for Manchester. The selection of DSY1 for 2020s is mandatory requirement for TM59.

3.0 Methodology

The thermal analysis completed followed the standardised approach provided by TM59 to predict overheating risk for the residential areas of the building using a dynamic thermal modelling tool. The dynamic modelling tool adopted for this project was IESVE Version 2025.1.0.0.

IESVE utilises a set of predefined profiles based on the occupancy and internal gains profiles provided within TM59, representing reasonable usage patterns for homes.

The use of these profiles is mandatory for TM59 analysis.

The basis for the comfort criteria in the TM59 assessment for overheating in homes are taken from;

- CIBSE TM59: Limits of thermal comfort - Provides the principles of thermal comfort
- CIBSE Guide A: Environmental design guide – Provides advice regarding sleep quality and recommends that peak bedroom temperatures should not exceed an absolute threshold of 26°C.

4.0 Specification for Model

The following information has been used to produce the building model:

Drawings

Drawing pack:

GA Ground Floor Plan – EYJW-PRP-BA-00-DR-A-004001 – Po1

GA First Floor Plan – EYJW-PRP-BA-00-DR-A-004002 – Po1

GA Second Floor Plan – EYJW-PRP-BA-00-DR-A-004003 – Po1

GA Third Floor Plan – EYJW-PRP-BA-00-DR-A-004004 – Po1

GA Fourth Floor Plan – EYJW-PRP-BA-00-DR-A-004005 – Po1

GA Fifth Floor Plan – EYJW-PRP-BA-00-DR-A-004006 – Po1

GA Sixth Floor Plan – EYJW-PRP-BA-00-DR-A-004007 – Po1

GA Seventh Floor Plan – EYJW-PRP-BA-00-DR-A-004008 – Po2

GA Roof Floor Plan – EYJW-PRP-BA-00-DR-A-004009 – Po1

500001-0-EYJW Block A Elevation A ,B, & E

500002-0-EYJW Block B Elevation C, D & F

SAP

Jersey Wharf and Eliza Yard - Design Sap Report (001)

Weather Data

Data File CIBSE Weather Data – Manchester_DSY1_2020High50_epw

Building Services

HVAC MVHR, Electric Panel Heaters, Electric Hot Water Cylinders

Lighting TM59 Lighting

Construction Properties

Item	Specification
Ground Floor	U=0.10 W/m ² K
External Wall	U=0.14 W/m ² K
Roof	U=0.10 W/m ² K
Doors	U=1.30 W/m ² K
Glazed Doors & Windows	U=1.3 W/m ² K G-value = 0.53 G-value = 0.35 (South elevation)
Infiltration Rate	0.10ach

Blinds have been excluded in the assessment over all glazing panels.

A constant infiltration rate of 0.10ACH/hr has been applied to the entire building.

Ventilation Strategy

The ventilation strategy adopted for the TM59 analysis is in line with the M&E design strategy for the residential units. The apartments have been analysed under TM59 section 4.2: Criteria for homes predominantly naturally ventilated.

Mechanical Ventilation Heat Recovery Units (MVHR) are installed within the apartments, providing whole house ventilation to comply with minimum fresh air requirements under Building Regulations Approved Document F, but also to overcome potential overheating issues within the apartments.

Air infiltration through other openings, vents and cracks in the building structure is simulated and included in the natural ventilation rate.

The mechanical ventilation flow rates utilised within the model comply with the minimum flow rates stated with the Building regulations Approved document Part F

For the avoidance of doubt, Part F purge vent is not assessed in this thermal comfort analysis. Any requirement identified by the architect for additional mechanical ventilation to meet Part F purge vent will be passed on from the Architect to the M&E designer for consideration

Blinds

Blinds have been excluded in the model to all windows

Internal Conditions

Defined by dynamic simulation model as per TM59:2017, Section 6, Table 2:

Bedrooms – 18degC

Hall – 18degC

Shower Room – 22degC

Living Areas – 22degC

The occupancy and gain profiles have been modelled as per TM59 guidelines.

All the internal doors within the dwellings are modelled as fully open during daytime from 8am till 10pm.

Security

As defined by TM59 and Approved Document O paragraph 3.6 & 3.7 windows/doors located in a position that pose a security risk must be assessed as closed during nighttime hours.

As the bedrooms of the dwelling are located on the ground floor this poses a security risk so windows in these rooms are assessed to be closed at nighttime.

5.0 Results

The below results show compliance for each of the apartments with window restrictions of 25° and improved g-values to the south elevation.

Ground Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
Gnd	003_2bed living_kitchen	0	N/A	Pass
Gnd	002_2bed Livign_kitchen	0	N/A	Pass
Gnd	001_1bed living_kitchen	0	N/A	Pass
Gnd	003_2bed bedroom 1	0	29	Pass
Gnd	003_2bed bedroom	0	25	Pass
Gnd	002_2bed bedroom 1	0	29	Pass
Gnd	002_2bed bedroom	0	30	Pass
Gnd	001_1bed bedroom	0	15	Pass
Gnd	004_1bed_bedroom	0	0	Pass
Gnd	004_1bed living_kitchen	0	N/A	Pass
Gnd	005_2bed _bedroom 1	0	3	Pass
Gnd	005_2bed living_kitchen	0	N/A	Pass
Gnd	005_2bed _bedroom	0	4	Pass

1st Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
1st	1STX023X2BDLVNGKTCHN	1.28	N/A	Pass
1st	1STX023X2BEDBEDROOM	1.23	12	Pass
1st	1STX024X3BDLVNGKTCHN	0.35	N/A	Pass
1st	1STX024X3BEDBEDROOM	0.17	14.5	Pass
1st	1STX024X3BEDBEDROOM1	0.32	16.17	Pass
1st	1STX024X3BEDBEDROOM2	0.33	14	Pass
1st	1STX025X2BEDBEDROOM1	2.46	28.67	Pass
1st	1STX025X2BEDBEDROOM3	0.4	19.5	Pass
1st	1STX026X1X2BDBDRM	1.8	21.5	Pass
1st	1STX026X1X2BDBDRM2	1.87	23	Pass
1st	1STX026X2BDLVNGKTCHN	1.47	N/A	Pass
1st	1STX027X2BDLVNGKTCHN	2.01	N/A	Pass
1st	1STX027X2BEDBEDROOM	2.16	23	Pass
1st	1STX027X2BEDBEDROOM1	2.58	25.33	Pass
1st	1STX028X1BDLVNGKTCHN	2.8	N/A	Pass
1st	1STX028X1BEDBEDROOM	2.24	25.5	Pass
1st	1STX029X2BDLVNGKTCHN	0.85	N/A	Pass
1st	1STX029X2BEDBEDROOM1	0.16	18.5	Pass
1st	1STX030X2BDLVNGKTCHN	2.46	N/A	Pass
1st	1STX030X2BEDBEDROOM	2.83	27	Pass
1st	1STX030X2BEDBEDROOM1	2.68	28.17	Pass
1st	1STX031X1BDLVNGKTCHN	0.14	N/A	Pass
1st	1STX032X1BDLVNGKTCHN	2.92	N/A	Pass
1st	1STX032X1BEDBEDROOM	2.42	29.83	Pass
1st	1STX033X2BDLVNGKTCHN	0.5	N/A	Pass
1st	1STX033X2BDXBDRM1	0.16	11.83	Pass
1st	1STX033X2BEDXBEDROOM	0.16	11.5	Pass
1st	1STX034X2BDLVNGKTCHN	2.64	N/A	Pass
1st	1STX034X2BEDBEDROOM	2.84	27.67	Pass
1st	1STX034X2BEDBEDROOM1	2.71	27.33	Pass
1st	1STX035X1BDXBDRM1	0.58	31.33	Pass
1st	1STX035X1BDXLVNGKTCH	0	N/A	Pass
1st	1STX036X1BEDBED	2.25	27.83	Pass
1st	1STX036X1BEDXLIVING	2.9	N/A	Pass
1st	1STX037X1BDLVNGKTCHN	2.76	N/A	Pass
1st	1STX037X1BDXBDRM1	2.59	31.67	Pass
1st	1STX038X2BDXLIVINGKI	1.69	N/A	Pass
1st	1STX038X2BEDXBED	0.95	16.83	Pass
1st	1STX038X2BEDXBED1	1.03	18.33	Pass
1st	1STX039X2BDXBDRM1	2.61	21.17	Pass
1st	1STX039X2BDXLVNGKTCH	2.04	N/A	Pass
1st	1STX039X2BEDXBEDROOM	2.81	22.67	Pass
1st	1STX23X2BEDBEDROOM1	0.69	11.33	Pass
1st	1STXX025X2BDLVNGKTCH	1.06	N/A	Pass
1st	1STXX029X2BEDBEDROOM	2.36	30.83	Pass
1st	1STXX031X1BDXBDRM	0.03	17.67	Pass

2nd Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
2nd	2NDX023X2BDLVNGKTCHN	1.22	N/A	Pass
2nd	2NDX023X2BEDBEDROOM	1.25	10	Pass
2nd	2NDX024X3BDLVNGKTCHN	0.31	N/A	Pass
2nd	2NDX024X3BEDBEDROOM	0.16	12.83	Pass
2nd	2NDX024X3BEDBEDROOM1	0.26	14.17	Pass
2nd	2NDX024X3BEDBEDROOM2	0.29	13	Pass
2nd	2NDX025X2BEDBEDROOM1	2.44	28.67	Pass
2nd	2NDX025X2BEDBEDROOM3	0.37	19.33	Pass
2nd	2NDX026X1X2BDBDRM	1.63	19.83	Pass
2nd	2NDX026X1X2BDBDRM2	1.73	21.83	Pass
2nd	2NDX026X2BDLVNGKTCHN	1.06	N/A	Pass
2nd	2NDX027X2BDLVNGKTCHN	2.01	N/A	Pass
2nd	2NDX027X2BEDBEDROOM	2.14	23	Pass
2nd	2NDX027X2BEDBEDROOM1	2.65	25.67	Pass
2nd	2NDX028X1BDLVNGKTCHN	2.76	N/A	Pass
2nd	2NDX028X1BEDBEDROOM	2.23	25.17	Pass
2nd	2NDX029X2BDLVNGKTCHN	0.9	N/A	Pass
2nd	2NDX029X2BEDBEDROOM1	0.17	18.33	Pass
2nd	2NDX030X2BDLVNGKTCHN	2.85	N/A	Pass
2nd	2NDX030X2BEDBEDROOM	2.86	27.5	Pass
2nd	2NDX030X2BEDBEDROOM1	2.7	28.33	Pass
2nd	2NDX031X1BDLVNGKTCHN	0.14	N/A	Pass
2nd	2NDX032X1BDLVNGKTCHN	2.88	N/A	Pass
2nd	2NDX032X1BEDBEDROOM	2.38	29.5	Pass
2nd	2NDX033X2BDLVNGKTCHN	0.47	N/A	Pass
2nd	2NDX033X2BDBDRM1	0.15	10.67	Pass
2nd	2NDX033X2BEDBEDROOM	0.15	10.5	Pass
2nd	2NDX034X2BDLVNGKTCHN	2.61	N/A	Pass
2nd	2NDX034X2BEDBEDROOM	2.84	27.5	Pass
2nd	2NDX034X2BEDBEDROOM1	2.69	27.17	Pass
2nd	2NDX035X1BDBDRM1	0.58	31.17	Pass
2nd	2NDX035X1BDXLVNGKTCH	0	N/A	Pass
2nd	2NDX036X1BEDBED	2.22	27.5	Pass
2nd	2NDX036X1BEDXLIVING	2.83	N/A	Pass
2nd	2NDX037X1BDLVNGKTCHN	2.68	N/A	Pass
2nd	2NDX037X1BDBDRM1	2.54	31.33	Pass
2nd	2NDX038X2BDBLIVINGKI	1.57	N/A	Pass
2nd	2NDX038X2BEDXBED	0.85	15.5	Pass
2nd	2NDX038X2BEDXBED1	0.94	17	Pass
2nd	2NDX039X2BDBDRM1	2.59	20.83	Pass
2nd	2NDX039X2BDXLVNGKTCH	2.01	N/A	Pass
2nd	2NDX039X2BEDXBEDROOM	2.8	22.5	Pass
2nd	2NDX23X2BEDBEDROOM1	0.66	9.67	Pass
2nd	2NDXX025X2BDLVNGKTCH	1.06	N/A	Pass
2nd	2NDXX029X2BEDBEDROOM	2.57	31.17	Pass
2nd	2NDXX031X1BDBDRM	0.03	17.83	Pass

3rd Floor

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
3rd	3RDX023X2BDLVNGKTCHN	1.29	N/A	Pass
3rd	3RDX023X2BEDBEDROOM	1.36	10	Pass
3rd	3RDX024X3BDLVNGKTCHN	0.26	N/A	Pass
3rd	3RDX024X3BEDBEDROOM	0.15	12.17	Pass
3rd	3RDX024X3BEDBEDROOM1	0.2	13.17	Pass
3rd	3RDX024X3BEDBEDROOM2	0.24	12	Pass
3rd	3RDX025X2BEDBEDROOM1	2.42	28.67	Pass
3rd	3RDX025X2BEDBEDROOM3	0.36	18.5	Pass
3rd	3RDX026X1X2BDBDRM	1.54	18.83	Pass
3rd	3RDX026X1X2BDBDRM2	1.63	20.67	Pass
3rd	3RDX026X2BDLVNGKTCHN	0.98	N/A	Pass
3rd	3RDX027X2BDLVNGKTCHN	2.09	N/A	Pass
3rd	3RDX027X2BEDBEDROOM	2.91	32	Pass
3rd	3RDX027X2BEDBEDROOM1	2.69	25.5	Pass
3rd	3RDX028X1BDLVNGKTCHN	2.72	N/A	Pass
3rd	3RDX028X1BEDBEDROOM	2.22	25.17	Pass
3rd	3RDX029X2BDLVNGKTCHN	1.06	N/A	Pass
3rd	3RDX029X2BEDBEDROOM1	0.18	18.5	Pass
3rd	3RDX030X2BDLVNGKTCHN	2.95	N/A	Pass
3rd	3RDX030X2BEDBEDROOM	2.88	27.5	Pass
3rd	3RDX030X2BEDBEDROOM1	2.71	28.5	Pass
3rd	3RDX031X1BDLVNGKTCHN	0.14	N/A	Pass
3rd	3RDX032X1BDLVNGKTCHN	2.84	N/A	Pass
3rd	3RDX032X1BEDBEDROOM	2.37	29	Pass
3rd	3RDX033X2BDLVNGKTCHN	0.45	N/A	Pass
3rd	3RDX033X2BDXBDRM1	0.15	10.5	Pass
3rd	3RDX033X2BEDXBEDROOM	0.15	9.83	Pass
3rd	3RDX034X2BDLVNGKTCHN	2.55	N/A	Pass
3rd	3RDX034X2BEDBEDROOM	2.83	27.17	Pass
3rd	3RDX034X2BEDBEDROOM1	2.67	26.5	Pass
3rd	3RDX035X1BDXBDRM1	0.57	30.5	Pass
3rd	3RDX035X1BDXLVNGKTCH	0	N/A	Pass
3rd	3RDX036X1BEDBED	2.19	27.5	Pass
3rd	3RDX036X1BEDXLIVING	2.79	N/A	Pass
3rd	3RDX037X1BDLVNGKTCHN	2.64	N/A	Pass
3rd	3RDX037X1BDXBDRM1	2.52	30.83	Pass
3rd	3RDX038X2BDXLIVINGKI	1.49	N/A	Pass
3rd	3RDX038X2BEDXBED	0.79	14.33	Pass
3rd	3RDX038X2BEDXBED1	0.87	16.17	Pass
3rd	3RDX039X2BDXBDRM1	2.58	20.83	Pass
3rd	3RDX039X2BDXLVNGKTCH	2.01	N/A	Pass
3rd	3RDX039X2BEDXBEDROOM	2.79	22.33	Pass
3rd	3RDX23X2BEDBEDROOM1	0.67	9.33	Pass
3rd	3RDX025X2BDLVNGKTCH	0.99	N/A	Pass
3rd	3RDX029X2BEDBEDROOM	2.83	32	Pass
3rd	3RDX031X1BDXBDRM	0.04	18	Pass

4th Floor

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
4th	4RTHX023X2BDLVNGKTCH	1.19	N/A	Pass
4th	4RTHX023X2BEDBEDROOM	1.45	9.83	Pass
4th	4RTHX024X3BDBDRM1	0.17	12.33	Pass
4th	4RTHX024X3BDBDRM2	0.17	10.83	Pass
4th	4RTHX024X3BDLVNGKTCH	0.22	N/A	Pass
4th	4RTHX024X3BEDBEDROOM	0.13	10.33	Pass
4th	4RTHX025X2BDBDRM1	2.2	26.83	Pass
4th	4RTHX025X2BDBDRM3	0.22	12.33	Pass
4th	4RTHX026X1X2BDBDRM	1.45	17.5	Pass
4th	4RTHX026X1X2BDBDRM2	1.46	18.17	Pass
4th	4RTHX026X2BDLVNGKTCH	0.81	N/A	Pass
4th	4RTHX027X2BDBDRM1	2.4	23.83	Pass
4th	4RTHX027X2BDLVNGKTCH	1.81	N/A	Pass
4th	4RTHX027X2BEDBEDROOM	2.49	29.33	Pass
4th	4RTHX028X1BDLVNGKTCH	2.55	N/A	Pass
4th	4RTHX028X1BEDBEDROOM	2.4	31.67	Pass
4th	4RTHX029X2BDBDRM1	0.1	12.67	Pass
4th	4RTHX029X2BDLVNGKTCH	0.94	N/A	Pass
4th	4RTHX030X2BDBDRM1	2.38	26.67	Pass
4th	4RTHX030X2BDLVNGKTCH	2.17	N/A	Pass
4th	4RTHX030X2BEDBEDROOM	2.66	26.33	Pass
4th	4RTHX031X1BDLVNGKTCH	0	N/A	Pass
4th	4RTHX032X1BDLVNGKTCH	2.5	N/A	Pass
4th	4RTHX032X1BEDBEDROOM	2.1	26.67	Pass
4th	4RTHX033X2BDLVNGKTCH	0.38	N/A	Pass
4th	4RTHX033X2BDXBDRM	0.14	8.5	Pass
4th	4RTHX033X2BDXBDRM1	0.13	8.17	Pass
4th	4RTHX034X2BDBDRM1	2.51	25.83	Pass
4th	4RTHX034X2BDLVNGKTCH	2.44	N/A	Pass
4th	4RTHX034X2BEDBEDROOM	2.7	26.5	Pass
4th	4RTHX035X1BDXBDRM1	0.42	27	Pass
4th	4RTHX035X1BDXLVNGKTC	0	N/A	Pass
4th	4RTHX036X1BEDBED	1.99	25.33	Pass
4th	4RTHX036X1BEDXLIVING	2.69	N/A	Pass
4th	4RTHX037X1BDLVNGKTCH	1.57	N/A	Pass
4th	4RTHX037X1BDXBDRM1	1.96	27	Pass
4th	4RTHX038X2BDXLIVINGK	1.22	N/A	Pass
4th	4RTHX038X2BEDXBED	0.74	12.5	Pass
4th	4RTHX038X2BEDXBED1	0.74	13.5	Pass
4th	4RTHX039X2BDXBDRM	2.5	22.17	Pass
4th	4RTHX039X2BDXBDRM1	2.42	20	Pass
4th	4RTHX039X2BDXLVNGKTC	1.46	N/A	Pass
4th	4RTHX23X2BEDBEDROOM1	0.55	7.83	Pass
4th	4RTHXX025X2BDLVNGKTC	0.73	N/A	Pass
4th	4RTHXX029X2BDBDRM	2.57	30.67	Pass
4th	4RTHXX031X1BDXBDRM	0	13.17	Pass

5th Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
5th	5THX023X2BDLVNGKTCHN	1.39	N/A	Pass
5th	5THX023X2BEDBEDROOM	1.69	10.33	Pass
5th	5THX024X3BDLVNGKTCHN	0.24	N/A	Pass
5th	5THX024X3BEDBEDROOM	0.14	10.67	Pass
5th	5THX024X3BEDBEDROOM1	0.17	11.83	Pass
5th	5THX024X3BEDBEDROOM2	0.17	9.83	Pass
5th	5THX025X2BEDBEDROOM1	2.91	30.33	Pass
5th	5THX025X2BEDBEDROOM3	0.46	19.5	Pass
5th	5THX026X1X2BDBDRM	1.45	16.67	Pass
5th	5THX026X1X2BDBDRM2	1.53	19.17	Pass
5th	5THX026X2BDLVNGKTCHN	0.88	N/A	Pass
5th	5THX027X2BDLVNGKTCHN	2.03	N/A	Pass
5th	5THX027X2BEDBEDROOM	2.25	23.5	Pass
5th	5THX027X2BEDBEDROOM1	2.76	25.67	Pass
5th	5THX028X1BDLVNGKTCHN	2.65	N/A	Pass
5th	5THX028X1BEDBEDROOM	2.17	25.17	Pass
5th	5THX029X2BDLVNGKTCHN	1.38	N/A	Pass
5th	5THX029X2BEDBEDROOM1	0.3	19.83	Pass
5th	5THX030X2BDLVNGKTCHN	2.93	N/A	Pass
5th	5THX030X2BEDBEDROOM	2.85	26.83	Pass
5th	5THX030X2BEDBEDROOM1	2.68	27.83	Pass
5th	5THX031X1BDLVNGKTCHN	0.16	N/A	Pass
5th	5THX032X1BDLVNGKTCHN	2.81	N/A	Pass
5th	5THX032X1BEDBEDROOM	2.34	28.67	Pass
5th	5THX033X2BDLVNGKTCHN	0.32	N/A	Pass
5th	5THX033X2BDXBDRM1	0.14	8.17	Pass
5th	5THX033X2BEDXBEDROOM	0.13	7.33	Pass
5th	5THX034X2BDLVNGKTCHN	2.54	N/A	Pass
5th	5THX034X2BEDBEDROOM	2.77	26.67	Pass
5th	5THX034X2BEDBEDROOM1	2.64	26	Pass
5th	5THX035X1BDXBDRM1	0.56	30.33	Pass
5th	5THX035X1BDXLVNGKTCH	0	N/A	Pass
5th	5THX036X1BEDBED	2.14	27.17	Pass
5th	5THX036X1BEDXLIVING	2.76	N/A	Pass
5th	5THX037X1BDLVNGKTCHN	2.55	N/A	Pass
5th	5THX037X1BDXBDRM1	2.47	30.33	Pass
5th	5THX038X2BDXLIVINGKI	1.33	N/A	Pass
5th	5THX038X2BEDXBED	0.73	12.33	Pass
5th	5THX038X2BEDXBED1	0.79	13.83	Pass
5th	5THX039X2BDXBDRM1	2.56	20.5	Pass
5th	5THX039X2BDXLVNGKTCH	1.99	N/A	Pass
5th	5THX039X2BEDXBEDROOM	2.74	21.83	Pass
5th	5THX023X2BEDBEDROOM1	0.73	8.67	Pass
5th	5THXX025X2BDLVNGKTCH	1.3	N/A	Pass
5th	5THXX029X2BEDBEDROOM	2.35	23.5	Pass
5th	5THXX031X1BDXBDRM	0.05	18.33	Pass

6th Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
6th	6THX023X2BDLVNGKTCHN	1.39	N/A	Pass
6th	6THX023X2BEDBEDROOM	1.69	10.33	Pass
6th	6THX024X3BDLVNGKTCHN	0.24	N/A	Pass
6th	6THX024X3BEDBEDROOM	0.14	10.67	Pass
6th	6THX024X3BEDBEDROOM1	0.17	11.83	Pass
6th	6THX024X3BEDBEDROOM2	0.17	9.83	Pass
6th	6THX025X2BEDBEDROOM1	2.91	30.33	Pass
6th	6THX025X2BEDBEDROOM3	0.46	19.5	Pass
6th	6THX026X1X2BDBDRM	1.45	16.67	Pass
6th	6THX026X1X2BDBDRM2	1.53	19.17	Pass
6th	6THX026X2BDLVNGKTCHN	0.88	N/A	Pass
6th	6THX027X2BDLVNGKTCHN	2.03	N/A	Pass
6th	6THX027X2BEDBEDROOM	2.25	23.5	Pass
6th	6THX027X2BEDBEDROOM1	2.76	25.67	Pass
6th	6THX028X1BDLVNGKTCHN	2.65	N/A	Pass
6th	6THX028X1BEDBEDROOM	2.17	25.17	Pass
6th	6THX029X2BDLVNGKTCHN	1.38	N/A	Pass
6th	6THX029X2BEDBEDROOM1	0.3	19.83	Pass
6th	6THX030X2BDLVNGKTCHN	2.93	N/A	Pass
6th	6THX030X2BEDBEDROOM	2.85	26.83	Pass
6th	6THX030X2BEDBEDROOM1	2.68	27.83	Pass
6th	6THX031X1BDLVNGKTCHN	0.16	N/A	Pass
6th	6THX032X1BDLVNGKTCHN	2.81	N/A	Pass
6th	6THX032X1BEDBEDROOM	2.34	28.67	Pass
6th	6THX033X2BDLVNGKTCHN	0.32	N/A	Pass
6th	6THX033X2BDXBDRM1	0.14	8.17	Pass
6th	6THX033X2BEDXBEDROOM	0.13	7.33	Pass
6th	6THX034X2BDLVNGKTCHN	2.54	N/A	Pass
6th	6THX034X2BEDBEDROOM	2.77	26.67	Pass
6th	6THX034X2BEDBEDROOM1	2.64	26	Pass
6th	6THX035X1BDXBDRM1	0.56	30.33	Pass
6th	6THX035X1BDXLVNGKTCH	0	N/A	Pass
6th	6THX036X1BEDBED	2.14	27.17	Pass
6th	6THX036X1BEDXLIVING	2.76	N/A	Pass
6th	6THX037X1BDLVNGKTCHN	2.55	N/A	Pass
6th	6THX037X1BDXBDRM1	2.47	30.33	Pass
6th	6THX038X2BDXLIVINGKI	1.33	N/A	Pass
6th	6THX038X2BEDXBED	0.73	12.33	Pass
6th	6THX038X2BEDXBED1	0.79	13.83	Pass
6th	6THX039X2BDXBDRM1	2.56	20.5	Pass
6th	6THX039X2BDXLVNGKTCH	1.99	N/A	Pass
6th	6THX039X2BEDXBEDROOM	2.74	21.83	Pass
6th	6THX23X2BEDBEDROOM1	0.73	8.67	Pass
6th	6THXX025X2BDLVNGKTCH	1.3	N/A	Pass
6th	6THXX029X2BEDBEDROOM	2.35	23.5	Pass
6th	6THXX031X1BDXBDRM	0.05	18.33	Pass

7th Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
7th	108X3BDLVNGKTCHN	0.66	N/A	Pass
7th	108X3BEDBEDROOM	0.17	7.17	Pass
7th	108X3BEDBEDROOM1	0.25	10	Pass
7th	108X3BEDBEDROOM2	0.29	12	Pass
7th	109X3BDLVNGKTCHN	0.32	N/A	Pass
7th	109X3BEDBEDROOM	1.9	7	Pass
7th	109X3BEDBEDROOM1	1.06	11	Pass
7th	109X3BEDBEDROOM2	1.89	13.83	Pass
7th	110X2BEDBEDROOM	0.85	2.83	Pass
7th	110X2BEDBEDROOM1	0.79	2.5	Pass
7th	110X2BEDLIVINGKITCHEN	0.6	N/A	Pass
7th	111X2BEDBEDROOM	1.85	24.5	Pass
7th	111X2BEDBEDROOM1	2.25	25	Pass
7th	111X2BEDLIVINGKITCHEN	1.63	N/A	Pass
7th	112X2BEDBEDROOM	0.7	2.5	Pass
7th	112X2BEDBEDROOM1	0.79	2.5	Pass
7th	112X2BDLVNGKTCHN	0.69	N/A	Pass
7th	113X2BEDBEDROOM	0.9	11.17	Pass
7th	113X2BEDBEDROOM1	0.84	10	Pass
7th	113X2BEDLIVINGKITCHEN	1.61	N/A	Pass
7th	114X2BEDBEDROOM	0.76	2.67	Pass
7th	114X2BEDBEDROOM1	0.82	2.5	Pass
7th	114X2BDLVNGKTCHN	0.61	N/A	Pass
7th	115X3BEDBEDROOM	0.09	5.83	Pass
7th	115X3BEDBEDROOM1	0.21	6.83	Pass
7th	115X3BEDBEDROOM2	0.24	7.17	Pass
7th	116X3BEDBEDROOM	2.2	22.83	Pass
7th	116X3BEDBEDROOM1	2.54	14.83	Pass
7th	116X3BEDBEDROOM2	2.2	25	Pass
7th	116X3BDLVNGKTCHN	1.8	N/A	Pass
7th	117X2BEDBEDROOM	1.91	15.17	Pass
7th	117X2BEDBEDROOM1	1.82	17.17	Pass
7th	117X2BDLVNGKTCHN	0.06	N/A	Pass

6.0 Conclusion

It can be seen from the results that with the adopted strategy and with the input data modelled within the body of this report. The apartments achieve compliance under Criteria 'A' and 'B'. The report has been developed based on the TM59 analysis methodologies.

The strategy adopted is mechanical ventilation to the apartments with openable windows (with restriction), all openable louvres/windows within the residential apartments are modelled, such that during the summer the louvres will start to open when the room temperature exceeds 22°C and are open once the room temperature reaches 23°C. The louvre/window openings have been modelled with 25° restriction and south elevation apartments have utilised a g-value of 0.35.

The apartments are provided with MVHR (Mechanical Ventilation Heat Recovery) units to provide whole house ventilation not only to comply with building regulation Part F but also to aid the mechanical ventilation process to overcome overheating.

For TM59 analysis, the bedroom occupancy, internal gains and lighting loads are predefined by the TM59 Design Methodology.

To achieve compliance the strategies adopted include the following;

- Louvres/windows are assumed to start opening at 22°C and will open to their maximum restriction when room temperatures reach 23°C.
- Internal doors are modelled as opened during daytime hours from 8am to 10pm • MVHR units provide continuous whole house ventilation.
- Building Fabric is constructed as section 4 of this report.
- There is no community pipework through the communal corridors, analysis to check the risk of overheating during summer for the communal corridors is not mandatory. and hence not been included in the results.

Manchester Life Development Company 3 Jersey Wharf - Block B

EYJW-AME-BB-XX-TR-Z-500006

Overheating Report

Rev. P02

Ref	Date	Description	By
P01	22.02.2024	Preliminary Issue	J.B.
P02	24.02.2026	Part O reference added	D.C.

PART O - OVERHEATING STUDY

zero3

Project: Jersey Wharf,
Ancoats,
Block B

Reference: 23-194

Client: Ameon

Issue: 002

Date: 23.02.2026

Submitted and prepared by: Adam Lindley

Contents

- 1.0 Introcutdion - DSM Model.....3
- 2.0 Classification of Overheating.....4
- 3.0 Methodology.....4
- 4.0 Specification for Model.....5
- 5.0 Results.....9
- 6.0 Conclusion.....10

1.0 Introduction - DSM Model

Zero 3 have been appointed to provide a Part O overheating analysis for the residential development at Block B, Jersey Wharf, Ancoats.

The overheating report uses room and occupancy profiles detailed within the CIBSE TM59:2017 design methodology technical memorandum.

The simulated model assesses the internal temperatures within the residential units at the Jersey Wharf development against the requirements of the CIBSE technical memorandum TM59; Design methodology for the assessment of overheating risk in homes, 2017.

Block B, Jersey Wharf has been modelled using IES Virtual Environment Dynamic Simulation Modelling Software.

The purpose of the thermal analysis carried out is to verify that the internal temperatures in the occupied spaces of the building fall inside the performance standards.

2.0 Classification of Overheating

Criteria for homes predominantly naturally ventilated;

For living rooms, kitchens and bedrooms:

- CIBSE TM59 Criterion a: Hours of exceedance ($dT \geq 1K$ shall not be more than 3% of occupied periods during the period May to September) must be passed

For bedrooms only;

- Criterion b: Operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26 °C for more than 1% of annual hours. (Note: 1% of the annual hours between 22:00 and 07:00 for bedrooms is 32 hours, so 33 or more hours above 26 °C will be recorded as a fail)

Criteria for homes predominantly mechanically ventilated;

TM59 provides a single criterion for assessing comfort and overheating in mechanically ventilated buildings:

For homes with restricted window openings, the CIBSE fixed temperature test must be followed, i.e., all occupied rooms should not exceed an operative temperature of 26 °C for more than 3% of the annual occupied annual hours (CIBSE Guide A (2015a)).

The TM59 calculations contained within this report are based on Design Summer Year, DSY1 for 2020s, high emissions, 50% percentile scenario appropriate for Manchester. The selection of DSY1 for 2020s is mandatory requirement for TM59.

3.0 Methodology

The thermal analysis completed followed the standardised approach provided by TM59 to predict overheating risk for the residential areas of the building using a dynamic thermal modelling tool. The dynamic modelling tool adopted for this project was IESVE Version 2025.1.0.0.

IESVE utilises a set of predefined profiles based on the occupancy and internal gains profiles provided within TM59, representing reasonable usage patterns for homes.

The use of these profiles is mandatory for TM59 analysis.

The basis for the comfort criteria in the TM59 assessment for overheating in homes are taken from;

- CIBSE TM59: Limits of thermal comfort - Provides the principles of thermal comfort
- CIBSE Guide A: Environmental design guide – Provides advice regarding sleep quality and recommends that peak bedroom temperatures should not exceed an absolute threshold of 26°C.

4.0 Specification for Model

The following information has been used to produce the building model:

Drawings

Drawing pack:

GA Ground Floor Plan – EYJW-PRP-BB-00-DR-A-004010 – Po1

GA First Floor Plan – EYJW-PRP-BB-01-DR-A-004011 – Po1

GA Second Floor Plan – EYJW-PRP-BB-02-DR-A-004012 – Po1

GA Third Floor Plan – EYJW-PRP-BB-03-DR-A-004013 – Po1

GA Fourth Floor Plan – EYJW-PRP-BB-04-DR-A-004014 – Po1

GA Fifth Floor Plan – EYJW-PRP-BB-05-DR-A-004015 – Po1

GA Sixth Floor Plan – EYJW-PRP-BB-06-DR-A-004016 – Po1

GA Seventh Floor Plan – EYJW-PRP-BB-07-DR-A-004017 – Po2

GA Roof Floor Plan – EYJW-PRP-BB-RF-DR-A-004018 – Po1

500003-0-EYJW Block B Elevation A & B

50004-0-EYJW Block B Elevation C & D

SAP

Jersey Wharf and Eliza Yard - Design Sap Report (001)

Weather Data

Data File CIBSE Weather Data – Manchester_DSY1_2020High50_epw

Building Services

HVAC MVHR, Electric Panel Heaters, Electric Hot Water Cylinders

Lighting TM59 Lighting

Construction Properties

Item	Specification
Ground Floor	U=0.10 W/m ² K
External Wall	U=0.14 W/m ² K
Roof	U=0.10 W/m ² K
Doors	U=1.30 W/m ² K
Glazed Doors & Windows	U=1.3 W/m ² K G-value = 0.53
Infiltration Rate	0.10ach

Blinds have been excluded in the assessment over all glazing panels.

A constant infiltration rate of 0.10ACH/hr has been applied to the entire building.

Ventilation Strategy

The ventilation strategy adopted for the TM59 analysis is in line with the M&E design strategy for the residential units. The apartments have been analysed under TM59 section 4.2: Criteria for homes predominantly naturally ventilated.

Mechanical Ventilation Heat Recovery Units (MVHR) are installed within the apartments, providing whole house ventilation to comply with minimum fresh air requirements under Building Regulations Approved Document F, but also to overcome potential overheating issues within the apartments.

Air infiltration through other openings, vents and cracks in the building structure is simulated and included in the natural ventilation rate.

The mechanical ventilation flow rates utilised within the model comply with the minimum flow rates stated with the Building regulations Approved document Part F

For the avoidance of doubt, Part F purge vent is not assessed in this thermal comfort analysis. Any requirement identified by the architect for additional mechanical ventilation to meet Part F purge vent will be passed on from the Architect to the M&E designer for consideration

Blinds

Blinds have been excluded in the model to all windows

Internal Conditions

Defined by dynamic simulation model as per TM59:2017, Section 6, Table 2:

Bedrooms – 18degC

Hall – 18degC

Shower Room – 22degC

Living Areas – 22degC

The occupancy and gain profiles have been modelled as per TM59 guidelines.

All the internal doors within the dwellings are modelled as fully open during daytime from 8am till 10pm.

Security

As defined by TM59 and Approved Document O paragraph 3.6 & 3.7 windows/doors located in a position that pose a security risk must be assessed as closed during nighttime hours.

As the bedrooms of the dwelling are located on the ground floor this poses a security risk so windows in these rooms are assessed to be closed at nighttime.

5.0 Results

The below results show compliance for each of the apartments with window restrictions of 25° and improved g-values to the south elevation.

1st floor Results

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
1ST	118X2BDXLVNGKTCHN	2.01	N/A	Pass
1ST	118X2BEDXBEDROOM	1.12	24.83	Pass
1ST	118X2BEDXBEDROOM1	1.05	23.83	Pass
1ST	119XX1BDXLVNGKTCHN	0.67	N/A	Pass
1ST	119XX1BEDXBEDROOM	0.62	23.67	Pass
1ST	120X2BDXLVNGKTCHN1	0.90	N/A	Pass
1ST	120X2BEDXBATH	1.53	26.33	Pass
1ST	120X2BEDXBEDROOM2	1.17	24.17	Pass
1ST	121X1BDXLVNGKTCHN	0.67	N/A	Pass
1ST	121X1BEDXBEDROOM	0.65	23.17	Pass
1ST	122X2BDXLVNGKTCHN	0.12	N/A	Pass
1ST	122X2BEDXBEDROOM	1.43	25.17	Pass
1ST	122X2BEDXBEDROOM1	1.46	25.67	Pass
1ST	123X2BDXLVNGKTCHN	0.10	N/A	Pass
1ST	123X2BEDXBEDROOM	1.36	30.17	Pass
1ST	123X2BEDXBEDROOM1	1.19	29.50	Pass
1ST	124X2BDXLVNGKTCHN	0.10	N/A	Pass
1ST	124X2BEDXBED	1.53	25.17	Pass
1ST	124X2BEDXBED1	1.38	25.33	Pass
1ST	125X2BDXLVNGKTCHN	0.00	N/A	Pass
1ST	125X2BEDXBEDROOM	0.94	25.83	Pass
1ST	125X2BEDXBEDROOM1	0.89	26.50	Pass
1ST	126X1BDXLVNGKTCHN	0.64	N/A	Pass
1ST	126X1BEDXBEDROOM	1.30	29.50	Pass
1ST	127X2BDXLVNGKTCHN	0.08	N/A	Pass
1ST	127X2BEDXBEDROOM1	0.87	25.00	Pass
1ST	127X2BEDXBEDROOM2	0.91	24.83	Pass
1ST	128X2BDXLVNGKTCHN	0.10	N/A	Pass
1ST	128XBEDXBEDROOM	1.07	21.00	Pass
1ST	128XBEDXBEDROOM1	1.10	21.83	Pass

2nd floor Results

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
2ND	2NDX129X2BDXBDRM1	1.01	23.17	Pass
2ND	2NDX129X2BDXLVNGKTCH	2.00	N/A	Pass
2ND	2NDX129X2BEDXBEDROOM	1.09	24.67	Pass
2ND	2NDX130X2BEDXBED	1.47	26.00	Pass
2ND	2NDX131X1BDXLVNGKTCH	0.94	N/A	Pass
2ND	2NDX131X1BEDXBEDROOM	0.73	25.17	Pass
2ND	3RDX130X2BDXBDRM2	1.14	24.33	Pass
2ND	3RDX130X2BDXLVNGKTCH	0.78	N/A	Pass
2ND	3RDX133X1BDXLVNGKTCH	0.95	N/A	Pass
2ND	3RDX133X1BEDXBEDROOM	0.80	24.67	Pass
2ND	3RDX134X2BDXBDRM1	1.52	26.17	Pass
2ND	3RDX134X2BDXLVNGKTCH	0.26	N/A	Pass
2ND	3RDX134X2BDXLVNGKTCH...	0.27	N/A	Pass
2ND	3RDX134X2BEDXBED	1.60	25.33	Pass
2ND	3RDX134X2BEDXBED1	1.52	26.83	Pass
2ND	3RDX134X2BEDXBEDROOM	1.57	27.00	Pass
2ND	3RDX135X2BDXBDRM1	1.23	30.33	Pass
2ND	3RDX135X2BDXLVNGKTCH	0.16	N/A	Pass
2ND	3RDX135X2BEDXBEDROOM	1.36	30.33	Pass
2ND	3RDX136X1BDXLVNGKTCH	0.72	N/A	Pass
2ND	3RDX136X1BEDXBEDROOM	1.17	22.17	Pass
2ND	3RDX137X2BDXBDRM1	0.90	27.17	Pass
2ND	3RDX137X2BDXLVNGKTCH	0.00	N/A	Pass
2ND	3RDX137X2BEDXBEDROOM	0.95	26.50	Pass
2ND	3RDX138X2BDXLVNGKTCH	0.24	N/A	Pass
2ND	3RDX138XBEDXBEDROOM	1.10	21.17	Pass
2ND	3RDX138XBEDXBEDROOM1	1.15	22.00	Pass
2ND	3RDX139X2BDXBDRM1	0.88	24.83	Pass
2ND	3RDX139X2BDXBDRM2	0.91	25.00	Pass
2ND	3RDX139X2BDXLVNGKTCH	0.09	N/A	Pass

3rd floor Results

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
3RD	3RDX140X2BDXBDRM1	0.97	22.50	Pass
3RD	3RDX140X2BDXLVNGKTCH	1.83	N/A	Pass
3RD	3RDX140X2BEDXBEDROOM	1.06	23.33	Pass
3RD	3RDX141X1BDXLVNGKTCH	0.91	N/A	Pass
3RD	3RDX141X1BEDXBEDROOM	0.68	25.00	Pass
3RD	3RDX142X2BDXBDRM2	1.10	24.00	Pass
3RD	3RDX142X2BDXLVNGKTCH	0.73	N/A	Pass
3RD	3RDX142X2BEDXBED	1.46	25.33	Pass
3RD	3RDX143X1BDXLVNGKTCH	0.94	N/A	Pass
3RD	3RDX143X1BEDXBEDROOM	0.77	24.33	Pass
3RD	3RDX145X2BDXBDRM1	1.21	30.33	Pass
3RD	3RDX145X2BDXLVNGKTCH	0.10	N/A	Pass
3RD	3RDX145X2BEDXBEDROOM	1.35	30.00	Pass
3RD	3RDX146X2BDXBDRM1	1.52	26.00	Pass
3RD	3RDX146X2BDXLVNGKTCH	0.27	N/A	Pass
3RD	3RDX146X2BDXLVNGKTCHQ1	0.27	N/A	Pass
3RD	3RDX146X2BEDXBED	1.59	25.33	Pass
3RD	3RDX146X2BEDXBED1	1.51	26.67	Pass
3RD	3RDX146X2BEDXBEDROOM	1.55	26.67	Pass
3RD	3RDX147X2BDXBDRM1	0.89	27.00	Pass
3RD	3RDX147X2BDXLVNGKTCH	0.00	N/A	Pass
3RD	3RDX147X2BEDXBEDROOM	0.94	26.50	Pass
3RD	3RDX148X1BDXLVNGKTCH	0.72	N/A	Pass
3RD	3RDX148X1BEDXBEDROOM	1.17	21.83	Pass
3RD	3RDX149X2BDXBDRM1	0.83	24.17	Pass
3RD	3RDX149X2BDXBDRM2	0.87	24.67	Pass
3RD	3RDX149X2BDXLVNGKTCH	0.08	N/A	Pass
3RD	3RDX150X2BDXLVNGKTCH	0.23	N/A	Pass
3RD	3RDX150XBEDXBEDROOM	1.06	20.17	Pass
3RD	3RDX150XBEDXBEDROOM1	1.11	21.50	Pass

4th floor Results

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
4TH	4THX151X2BDXBDRM1	0.90	22.00	Pass
4TH	4THX151X2BDXLVNGKTCH	1.70	N/A	Pass
4TH	4THX151X2BEDXBEDROOM	1.04	22.83	Pass
4TH	4THX152X2BDXBDRM2	1.07	23.33	Pass
4TH	4THX152X2BDXLVNGKTCH	0.72	N/A	Pass
4TH	4THX152X2BEDXBED	1.44	25.00	Pass
4TH	4THX153X1BDXLVNGKTCH	1.05	N/A	Pass
4TH	4THX153X1BEDXBEDROOM	0.72	24.83	Pass
4TH	4THX155X1BDXLVNGKTCH	0.92	N/A	Pass
4TH	4THX155X1BEDXBEDROOM	0.75	24.33	Pass
4TH	4THX156X2BDXBDRM1	1.52	25.83	Pass
4TH	4THX156X2BDXLVNGKTCH	0.27	N/A	Pass
4TH	4THX156X2BDXLVNGKTCHQ1	0.28	N/A	Pass
4TH	4THX156X2BEDXBED	1.59	25.17	Pass
4TH	4THX156X2BEDXBED1	1.51	26.50	Pass
4TH	4THX156X2BEDXBEDROOM	1.55	26.50	Pass
4TH	4THX157X2BDXBDRM1	1.20	30.00	Pass
4TH	4THX157X2BDXLVNGKTCH	0.09	N/A	Pass
4TH	4THX157X2BEDXBEDROOM	1.34	29.83	Pass
4TH	4THX158X1BDXLVNGKTCH	0.72	N/A	Pass
4TH	4THX158X1BEDXBEDROOM	1.13	21.50	Pass
4TH	4THX159X2BDXBDRM1	0.88	27.00	Pass
4TH	4THX159X2BDXLVNGKTCH	0.00	N/A	Pass
4TH	4THX159X2BEDXBEDROOM	0.94	26.33	Pass
4TH	4THX160X2BDXLVNGKTCH	0.21	N/A	Pass
4TH	4THX160XBEDXBEDROOM	1.04	19.67	Pass
4TH	4THX160XBEDXBEDROOM1	1.09	20.83	Pass
4TH	4THX161X2BDXBDRM1	0.78	24.00	Pass
4TH	4THX161X2BDXBDRM2	0.86	23.83	Pass
4TH	4THX161X2BDXLVNGKTCH	0.07	N/A	Pass

5th floor Results

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
5TH	5THX162X2BDXBDRM2	1.03	22.83	Pass
5TH	5THX162X2BDXLVNGKTCH	0.69	N/A	Pass
5TH	5THX162X2BEDXBED	1.41	24.33	Pass
5TH	5THX163X2BDXBDRM1	0.86	21.17	Pass
5TH	5THX163X2BDXLVNGKTCH	1.65	N/A	Pass
5TH	5THX163X2BEDXBEDROOM	0.99	22.17	Pass
5TH	5THX164X1BDXLVNGKTCH	0.85	N/A	Pass
5TH	5THX164X1BEDXBEDROOM	0.67	24.67	Pass
5TH	5THX165X1BDXLVNGKTCH	0.89	N/A	Pass
5TH	5THX165X1BEDXBEDROOM	0.72	24.33	Pass
5TH	5THX166X2BDXBDRM1	1.52	25.83	Pass
5TH	5THX166X2BDXLVNGKTCH	0.26	N/A	Pass
5TH	5THX166X2BEDXBEDROOM	1.54	26.50	Pass
5TH	5THX167X2BDXBDRM1	1.19	29.83	Pass
5TH	5THX167X2BDXLVNGKTCH	0.07	N/A	Pass
5TH	5THX167X2BEDXBEDROOM	1.33	29.67	Pass
5TH	5THX168X2BDXLVNGKTCH	0.28	N/A	Pass
5TH	5THX168X2BEDXBED	1.57	25.17	Pass
5TH	5THX168X2BEDXBED1	1.51	26.33	Pass
5TH	5THX169X2BDXBDRM1	0.87	26.50	Pass
5TH	5THX169X2BDXLVNGKTCH	0.00	N/A	Pass
5TH	5THX169X2BEDXBEDROOM	0.94	25.83	Pass
5TH	5THX170X1BDXLVNGKTCH	0.74	N/A	Pass
5TH	5THX170X1BEDXBEDROOM	1.12	21.50	Pass
5TH	5THX171X2BDXBDRM1	0.72	23.50	Pass
5TH	5THX171X2BDXBDRM2	0.80	23.50	Pass
5TH	5THX171X2BDXLVNGKTCH	0.06	N/A	Pass
5TH	5THX172X2BDXLVNGKTCH	0.19	N/A	Pass
5TH	5THX172XBEDXBEDROOM	1.02	19.17	Pass
5TH	5THX172XBEDXBEDROOM1	1.07	20.17	Pass

6th floor Results

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
6TH	6THX173X2BDXBDRM1	1.28	22.33	Pass
6TH	6THX173X2BDXLVNGKTCH	2.30	N/A	Pass
6TH	6THX173X2BEDXBEDROOM	1.49	22.17	Pass
6TH	6THX174X2BDXBDRM1	1.43	25.67	Pass
6TH	6THX174X2BDXLVNGKTCH	1.12	N/A	Pass
6TH	6THX174X2BEDXBATHQ1	1.81	27.50	Pass
6TH	6THX175X1BDXLVNGKTCH	1.28	N/A	Pass
6TH	6THX175X1BEDXBEDROOM	1.06	26.83	Pass
6TH	6THX176X2BDXBDRM1	1.92	28.83	Pass
6TH	6THX176X2BDXLVNGKTCH	0.51	N/A	Pass
6TH	6THX176X2BEDXBEDROOM	1.93	29.17	Pass
6TH	6THX177X1BDXLVNGKTCH	1.29	N/A	Pass
6TH	6THX177X1BEDXBEDROOM	1.10	26.00	Pass
6TH	6THX178X2BDXLVNGKTCH	0.52	N/A	Pass
6TH	6THX178X2BEDXBED	2.01	27.67	Pass
6TH	6THX178X2BEDXBED1	1.87	29.17	Pass
6TH	6THX179X2BDXBDRM1	1.93	31.17	Pass
6TH	6THX179X2BDXLVNGKTCH	0.47	N/A	Pass
6TH	6THX179X2BEDXBEDROOM	2.22	30.50	Pass
6TH	6THX180X1BDXLVNGKTCH	1.07	N/A	Pass
6TH	6THX180X1BEDXBEDROOM	1.55	23.83	Pass
6TH	6THX181X2BDXBDRM1	1.19	28.67	Pass
6TH	6THX181X2BDXLVNGKTCH	0.24	N/A	Pass
6TH	6THX181X2BEDXBEDROOM	1.38	27.00	Pass
6TH	6THX182X2BDXLVNGKTCH	0.57	N/A	Pass
6TH	6THX182XBEDXBEDROOM	1.37	21.67	Pass
6TH	6THX182XBEDXBEDROOM1	1.36	22.00	Pass
6TH	6THX183X2BDXBDRM1	1.11	24.67	Pass
6TH	6THX183X2BDXBDRM1Q1	1.15	24.33	Pass
6TH	6THX183X2BDXLVNGKTCH	0.25	N/A	Pass

7th floor Results

7TH	184X2BDXLVNGKTCHN	2.67	N/A	Pass
7TH	184X2BEDXBEDROOM	1.37	9.83	Pass
7TH	184X2BEDXBEDROOM1	2.50	4.33	Pass
7TH	185X2BDXLVNGKTCHN	1.76	N/A	Pass
7TH	185X2BEDXBED	1.19	12.33	Pass
7TH	185X2BEDXBED1	1.11	10.33	Pass
7TH	186X3BDXLVNGKTCHN	2.34	N/A	Pass
7TH	186X3BEDXBEDROOM	1.31	12.33	Pass
7TH	186X3BEDXBEDROOM1	0.85	11.33	Pass
7TH	186X3BEDXBEDROOM2	1.66	12.00	Pass
7TH	187X2BDXLVNGKTCHN	1.77	N/A	Pass
7TH	187X2BEDXBED	1.22	12.17	Pass
7TH	187X2BEDXBED1	1.09	13.00	Pass
7TH	188X2BDXLVNGKTCHN	1.53	N/A	Pass
7TH	188X2BEDXBEDROOM	1.09	4.50	Pass
7TH	188X2BEDXBEDROOM1	1.61	11.17	Pass
7TH	189X2BDXLVNGKTCHN	1.69	N/A	Pass
7TH	189X2BEDXBEDROOM	0.94	10.17	Pass
7TH	189X2BEDXBEDROOM1	1.11	13.17	Pass
7TH	190X1BDXLVNGKTCHN	0.74	N/A	Pass
7TH	190X1BEDXBEDROOM	0.36	6.33	Pass

6.0 Conclusion

It can be seen from the results that with the adopted strategy and with the input data modelled within the body of this report. The apartments achieve compliance under Criteria 'A' and 'B'. The report has been developed based on the TM59 analysis methodologies.

The strategy adopted is mechanical ventilation to the apartments with openable windows (with restriction), all openable louvres/windows within the residential apartments are modelled, such that during the summer the louvres will start to open when the room temperature exceeds 22°C and are open once the room temperature reaches 23°C. The louvre/window openings have been modelled with 25° restriction.

The apartments are provided with MVHR (Mechanical Ventilation Heat Recovery) units to provide whole house ventilation not only to comply with building regulation Part F but also to aid the mechanical ventilation process to overcome overheating.

For TM59 analysis, the bedroom occupancy, internal gains and lighting loads are predefined by the TM59 Design Methodology.

To achieve compliance the strategies adopted include the following;

- Louvres/windows are assumed to start opening at 22°C and will open to their maximum restriction when room temperatures reach 23°C.
- Internal doors are modelled as opened during daytime hours from 8am to 10pm
- MVHR units provide continuous whole house ventilation.
- Building Fabric is constructed as section 4 of this report.
- There is no community pipework through the communal corridors, analysis to check the risk of overheating during summer for the communal corridors is not mandatory. and hence not been included in the results.