

Back of Ancoats – Eliza Yard

Post Construction Review Statement - Environmental Standards and Energy Statement

9033-BH-XX-XX-RP-N-(00) Post Construction Review

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date **15.02.26**

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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 – Eliza Yard.

The Proposed Development is bounded by Poland Street to the west and Jersey Street to the south to deliver 126 residential units, ground floor commercial floorspace, and ancillary amenity space within an 8 storey building, cycle parking provision, hard and soft landscaping, access and servicing and other associated works.

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 (139288/JO/2024)**

The development hereby approved shall be carried out in accordance with the Environmental Standards and Energy Statement document prepared by Buro Happold (dated May 2022); and overheating and Performance Review Design Note prepared by Buro Happold (dated May 2022) received by the City Council, as Local Planning Authority, on the 29 September 2022 and the Environmental Standards and Energy Statement prepared by Buro Happold and Eliza Yard Ventilation Compliance Statement prepared by Ameen, received by the City Council as Local Planning Authority 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.

Reason - In order to minimise the environmental impact of the development pursuant to policies SP1, T1-T3, EN4-EN7 and DM1 of the Core Strategy and the principles contained within The Guide to Development in Manchester SPD (2007) and the National Planning Policy Framework.

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 9033-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 can achieve the required 15% improvement on Part L 2010 without reducing the building's ability to significantly improve its energy efficiency via the future installation of PV's.
- 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 ESES submitted for planning application.

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 – Eliza Yard. Subsequently an ESES Addendum to 9033-BHE-XX-XX-RP-N-(00)2001, dated 13 February 2024 was submitted.

An Overheating and Performance Review Design Note was also prepared by Buro Happold (dated July 2022) and was submitted for planning.

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 (139288/JO/2024):

Planning conditions: **S73 (139288/JO/2024)**

The development hereby approved shall be carried out in accordance with the Environmental Standards and Energy Statement document prepared by Buro Happold (dated May 2022); and overheating and Performance Review Design Note prepared by Buro Happold (dated May 2022) received by the City Council, as Local Planning Authority, on the 29 September 2022 and the Environmental Standards and Energy Statement prepared by Buro Happold and Eliza Yard Ventilation Compliance Statement prepared by Ameen, received by the City Council as Local Planning Authority 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.

Reason - In order to minimise the environmental impact of the development pursuant to policies SP1, T1-T3, EN4-EN7 and DM1 of the Core Strategy and the principles contained within The Guide to Development in Manchester SPD (2007) and the National Planning Policy Framework.

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 9033-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 (Buttress 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 an 8 storey building to provide 126 residential units, 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 bounded by Poland Street to the west and Jersey Street to the south, located 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 9033-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-BC-XX-TR-500004 for SAP results)
- Appendix A.2 - Part L2A – Non-Dwelling Compliance Report by Ameen (EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Landlord Areas BRUKL Report and EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Commercial Unit 3 BRUKL Reports)

3.2 Baseline Information

Development Summary

The Proposed Development involves the erection of an 8-storey building to provide 126 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	1.33 W/m ² K
Glazing G-Value	0.53	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

4No. 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-BC-ZZ-TQ-X-000019 – for Window performance
- EYJW-BRI-BC-ZZ-DR-A-060301-C04 Fabric Types – External Walls 01
- EYJW-PRP-BC-ZZ-DR-A-060320 Fabric Types – Floors 01
- EYJW-PRP-BC-ZZ-DR-A-060330 Fabric Types – Roofs 01
- EYJW-PRP-BC-RF-DR-A-043381-C02-Block C Detailed GA Plan Roof RHS
- EYJW-AME-ZZ-XX-TA-M-570004 – for MVHR design calculations
- EYJW-AME-ZZ-XX-TQ-M-000014-P05 - for MVHR design technical submission
- EYJW-AME-BC-XX-TR-Z-500004 for SAP results (Appendix A.1)
- EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Landlord Areas BRUKL Report (Appendix A.2)
- EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Commercial Unit 3 BRUKL Reports (Appendix A.2)
- EYJW-AME-BC-XX-TR-Z-500007_P02 Eliza Yard Block Overheating Report (Appendix A.3)
- EYJW-AME-BC-XX-TA-M-570004 - Apt MVHR Ventilation Calculations A5

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.

Typology	TER (kgCO ₂ /m ² /year)	DER (kgCO ₂ /m ² /year)	% improvement	Meeting EN6
Dwelling Part L 2010	24.3	20.29	16.5%	Y

Table 3-2 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 results show TER at 21.45 (kgCO₂/m²/year) and DER 20.83 (kgCO₂/m²/year), representing a 2.89% improvement over the regulation requirement.

The table below shows the TER and BER (Building Emission Rate) for Non-Dwelling portions of the development. A typical Commercial unit (Commercial Unit 3) is 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)	24.8	21.08	15%	Y
Non-Dwelling – a typical commercial unit (Commercial 3) (Part L 2013)	38.1	29.7	22%	Y

Table 3-3 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. Coupled with a highly efficient MVHR unit for mechanical ventilation and efficient LED lighting the design performance, the Constructed Development has demonstrated that the energy standard meets the requirement set out by the Core Strategy, which is 15% over above Part L 2010 standard for both the dwelling and non-dwelling.

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 no PV is required to meet the EN6 planning requirement of 15% improvement on building regulations Part L 2010. 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.

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 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.

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 Eliza Yard 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-BC-XX-TR-Z-500004 for SAP results (Appendix A.1)

- EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Landlord Areas BRUKL Report (Appendix A.2)
- EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Commercial Unit 3 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 (Buttress 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 no on-site parking provision for residents and 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-ZZ-XX-TA-M-570004 – for MVHR design calculations
- EYJW-AME-ZZ-XX-TQ-M-000014-P05 - for MVHR design technical submission
- EYJW-AME-BC-XX-TR-Z-500004 for SAP results (Appendix A.1)
- EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Landlord Areas BRUKL Report (Appendix A.2)
- EYJW-AME-BC-XX-TR-500012_P04_Eliza Yard Commercial Unit 3 BRUKL Reports (Appendix A.2)
- EYJW-AME-BC-XX-TR-Z-500007_P02_Eliza Yard Block Overheating Report_S3 (Appendix A.3)
- EYJW-AME-BC-XX-TR-M-570002 - 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.
- The Constructed Building has provided 126 secure & covered cycle parking spaces in total, with 113 spaces in bike store & 13 spaces in the garage cage (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.

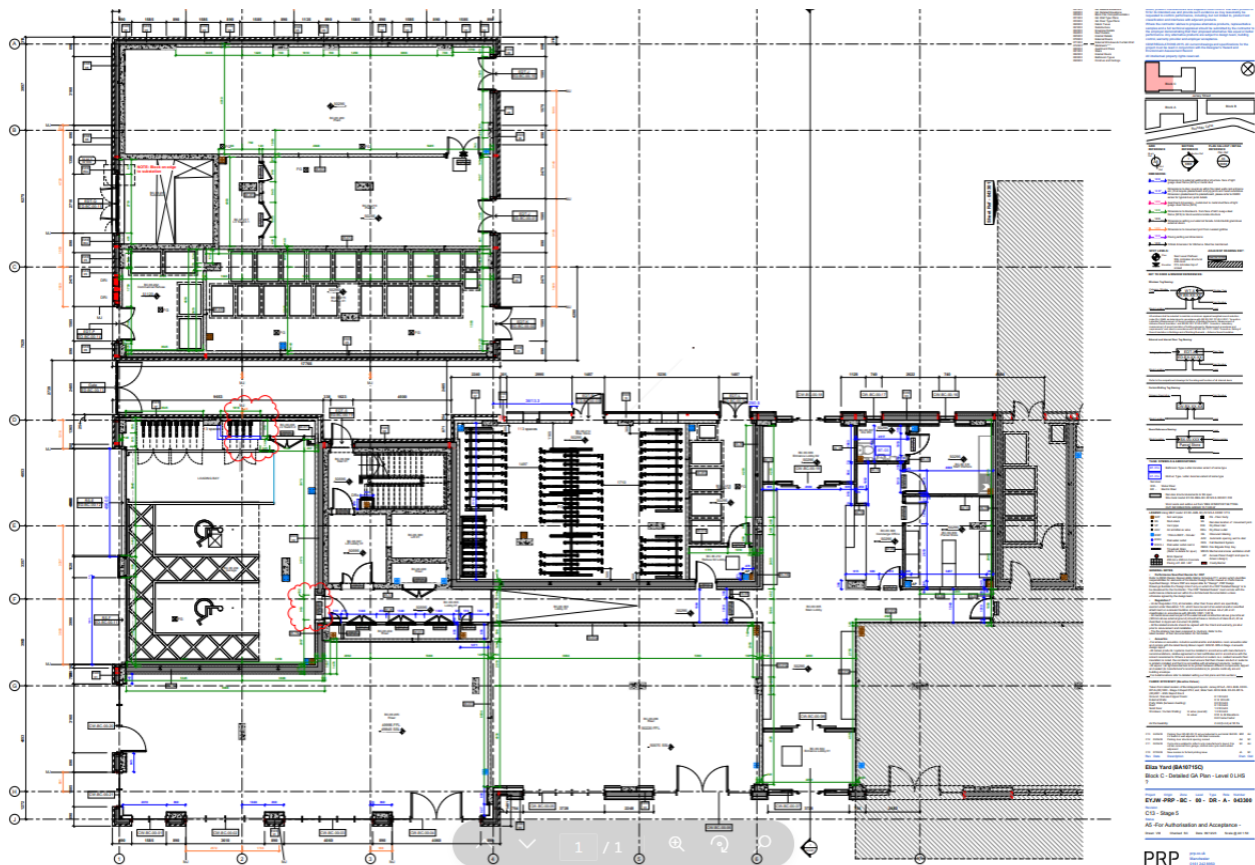


Figure 4-3 General Layout, PRP, provided by Sisk

- 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 2no parking bays are to be provided with 7kW 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>

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.

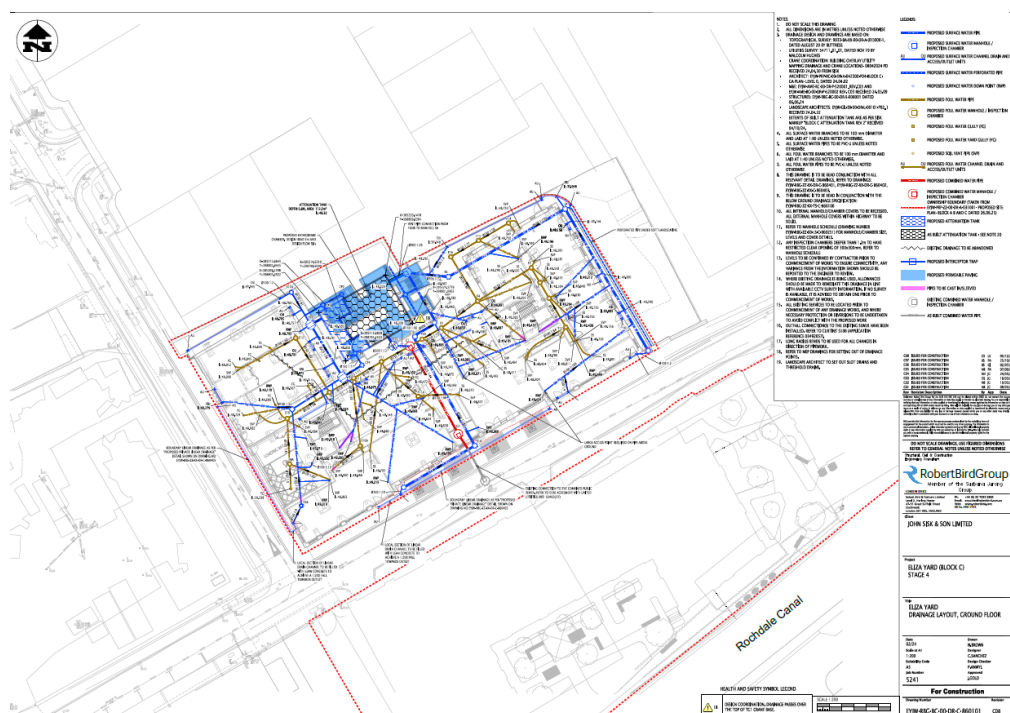


Figure 4-3 Drainage layout RIBA Stage 4, Robert Bird Group, provided by Sisk

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)
- 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 Buttress 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 92m² of refuse storage using a combination of 26x1100l Eurobin plus 4no. 240L bins for food waste, located in a dedicated waste storage area. Two small refuse stores are provided within the two building cores, allowing residents to travel downstairs and dispose of waste without leaving the building. A larger refuse store, accessed by management, will act as a holding area for empty/full bins. When bins become full within the residential refuse stores management will replace them with an empty one from the holding area.
- A separate refuse store for commercial bins is included. A combination of 4x1100l will be provided for the commercial refuse use based on the 543 sqm of commercial space of Eliza Yard.
- 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.

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 (Buttress)
- Site Waste Management Plan (Sisk)

4.6 Construction Management

Sisk's construction management for the Eliza Yard 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.

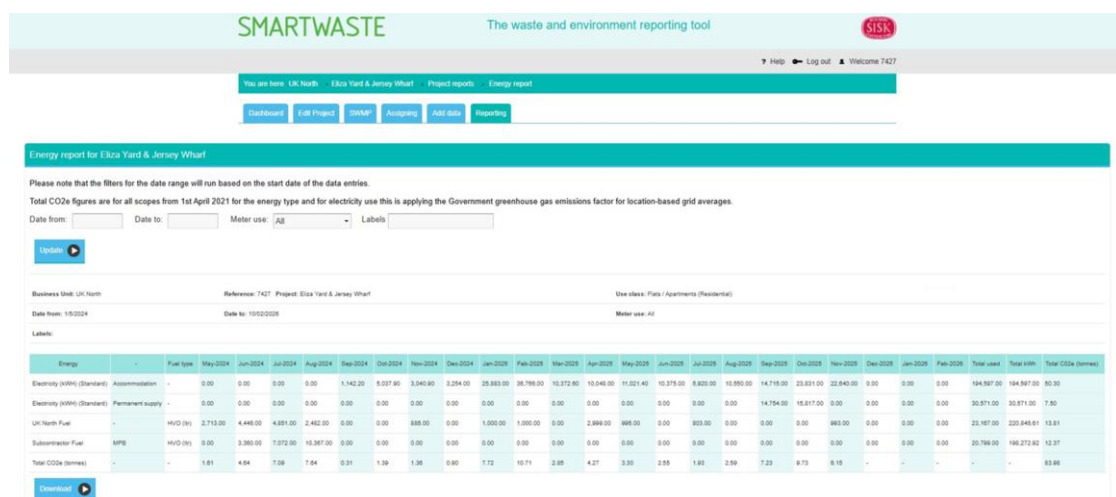


Figure 4-3 Sisk Energy monitoring data, provided by Sisk

- 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 4-3 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 was appointed as the Ecologists for the Proposed Development. An extended Phase 1 habitat survey, preliminary roost assessment (PRA) and subsequent nocturnal bat survey of an area of land and associated buildings of the site were undertaken in August 2020 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 has negligible ecological value or importance. The development proposals would not result in any net loss in biodiversity.
- The extended habitat survey including nocturnal surveys confirmed the absence of protected and priority species. No further ecological surveys are recommended to accompany the planning application.
- Habitat loss due to potential for birds to nest within the tree present on the site would be compensated through the provision of new nest box features and sensitive landscaping scheme all site clearance works preceded.
- There is opportunity to enhance the site by aiming to implement 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)
- Drainage Layout Ground Floor, RIBA Stage 4 (Robert Bird Group)
- Ventilation Statement (BuroHappold Engineering)
- EYJW-AME-BC-XX-TR-M-570002 - 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 Eliza Yard 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-BC-XX-TR-Z-500007 P02 - Overheating Report 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-BC-XX-TR-Z-500007 P02 - Overheating Report by Ameon**

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Manchester Life Development Company 3

Eliza Yard – Block C

SAP Calculation Report

EYJW-AME-BC-XX-TR-Z-500004

PROJECT	Eliza Yard Block C
DATE	31/10/2024
REVISION	C01
STATUS	A5
AUTHOR	J Bailey



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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	31/10/2024	D Connor	Wall u-value amended to 0.14 W/m ² K

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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: 9033-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

No renewable technology has been included within this assessment.

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 C - Block Compliance (SAP2012)' where a DER/TER improvement of **2.89%** 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 C - Block Compliance (SAP2009)' where a DER/TER improvement of **16.5%** is confirmed.

4.0 Appendices

Appendix A

Fabric Details Checklist

Appendix B

Block C - Block Compliance (SAP2012)

Appendix C

Block C - Block Compliance (SAP2009)

Appendix A

Fabric Details Checklist



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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 C – Block Compliance (SAP 2012)



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BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

zero3

Block Reference	Block C	Issued on Date	27/03/2024
Block Name	Eliza Yard		
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 C		Block Name: Eliza Yard			
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)	% DER/TER
EY-001-001	1	72.5	24.84	24.15	-2.87 %
EY-002-001	1	71.4	26.86	26.33	-2.02 %
EY-003-001	1	51	25.69	26.23	2.06 %
EY-004-001	1	50.9	25.69	26.23	2.04 %
EY-005-001	1	72.5	25.05	24.96	-0.38 %
EY-006-001	1	72.4	26.10	26.10	0.02 %
EY-007-001	1	53	23.75	24.75	4.05 %
EY-008-001	1	58.6	24.30	25.75	5.64 %
EY-009-001	1	53.2	23.70	24.71	4.07 %
EY-010-001	1	52.5	23.29	25.38	8.24 %
EY-011-001	1	72.3	23.64	24.28	2.64 %
EY-012-001	1	77.1	22.20	23.75	6.51 %
EY-013-001	1	71.7	20.47	22.63	9.55 %
EY-014-001	1	71.5	19.79	21.37	7.37 %
EY-015-001	1	71.4	19.39	20.88	7.15 %
EY-016-001	1	77	19.82	21.29	6.90 %
EY-017-001	1	71.7	20.47	22.63	9.55 %
EY-018-001	1	71.1	22.81	23.27	1.96 %
EY-019-001	1	52.5	23.29	25.38	8.24 %
EY-020-001	1	51	20.31	22.03	7.83 %
EY-021-001	1	73.9	19.91	19.91	0.00 %
EY-022-001	1	71.4	22.25	22.43	0.81 %
EY-023-001	1	72.4	20.59	20.55	-0.19 %
EY-024-001	1	72.4	22.07	22.27	0.91 %
EY-025-001	1	53	19.57	20.46	4.35 %
EY-026-001	1	58.6	19.48	21.01	7.26 %
EY-027-001	1	53.1	19.55	20.44	4.35 %
EY-028-001	1	52.5	20.07	20.92	4.05 %
EY-029-001	1	72.3	20.12	19.97	-0.77 %
EY-030-001	1	77.1	17.59	19.13	8.07 %
EY-031-001	1	71.7	17.71	18.44	3.97 %
EY-032-001	1	71.5	18.93	20.16	6.08 %
EY-033-001	1	71.4	17.91	18.62	3.83 %
EY-034-001	1	77	17.60	19.15	8.07 %
EY-035-001	1	71.7	17.50	18.48	5.30 %
EY-036-001	1	71.1	21.68	21.76	0.39 %
EY-037-001	1	52.5	20.07	20.92	4.05 %

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)



EY-038-001	1	51	20.31	22.03	7.83 %
EY-039-001	1	73.9	19.91	19.91	0.00 %
EY-040-001	1	71.4	22.25	22.43	0.81 %
EY-041-001	1	72.4	20.59	20.55	-0.19 %
EY-042-001	1	72.4	22.07	22.27	0.91 %
EY-043-001	1	53	19.57	20.46	4.35 %
EY-044-001	1	58.6	19.48	21.01	7.26 %
EY-045-001	1	53.1	19.55	20.44	4.35 %
EY-046-001	1	52.5	20.07	20.92	4.05 %
EY-047-001	1	72.3	20.12	19.97	-0.77 %
EY-048-001	1	77.1	17.59	19.13	8.07 %
EY-049-001	1	71.7	17.71	18.44	3.97 %
EY-050-001	1	71.5	18.93	20.16	6.08 %
EY-051-001	1	71.4	17.91	18.62	3.83 %
EY-052-001	1	77	17.60	19.15	8.07 %
EY-053-001	1	71.7	17.50	18.48	5.30 %
EY-054-001	1	71.1	21.68	21.76	0.39 %
EY-055-001	1	52.5	20.07	20.92	4.05 %
EY-056-001	1	51	20.31	22.03	7.83 %
EY-057-001	1	73.9	19.91	19.91	0.00 %
EY-058-001	1	71.4	22.25	22.43	0.81 %
EY-059-001	1	72.4	20.59	20.55	-0.19 %
EY-060-001	1	72.4	22.07	22.27	0.91 %
EY-061-001	1	53	19.57	20.46	4.35 %
EY-062-001	1	58.6	19.48	21.01	7.26 %
EY-063-001	1	53.1	19.55	20.44	4.35 %
EY-064-001	1	52.5	20.07	20.92	4.05 %
EY-065-001	1	72.3	20.12	19.97	-0.77 %
EY-066-001	1	77.1	17.59	19.13	8.07 %
EY-067-001	1	71.7	17.71	18.44	3.97 %
EY-068-001	1	71.5	18.93	20.16	6.08 %
EY-069-001	1	71.4	17.91	18.62	3.83 %
EY-070-001	1	77	17.60	19.15	8.07 %
EY-071-001	1	71.7	17.50	18.48	5.30 %
EY-072-001	1	71.1	21.68	21.76	0.39 %
EY-073-001	1	52.5	20.07	20.92	4.05 %
EY-074-001	1	51	20.31	22.03	7.83 %
EY-075-001	1	73.9	19.91	19.91	0.00 %
EY-076-001	1	71.4	22.25	22.43	0.81 %
EY-077-001	1	72.4	20.59	20.55	-0.19 %
EY-078-001	1	72.4	22.07	22.27	0.91 %
EY-079-001	1	53	19.57	20.46	4.35 %
EY-080-001	1	58.6	19.48	21.01	7.26 %
EY-081-001	1	53.1	19.55	20.44	4.35 %
EY-082-001	1	52.5	20.07	20.92	4.05 %
EY-083-001	1	72.3	20.12	19.97	-0.77 %
EY-084-001	1	77.1	17.59	19.13	8.07 %

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)



EY-085-001	1	71.7	17.71	18.44	3.97 %
EY-086-001	1	71.5	18.93	20.16	6.08 %
EY-087-001	1	71.4	17.91	18.62	3.83 %
EY-088-001	1	77	17.60	19.15	8.07 %
EY-089-001	1	71.7	17.50	18.48	5.30 %
EY-090-001	1	71.1	21.68	21.76	0.39 %
EY-091-001	1	52.5	20.07	20.92	4.05 %
EY-092-001	1	51	20.31	22.03	7.83 %
EY-093-001	1	73.9	19.91	19.91	0.00 %
EY-094-001	1	71.4	22.25	22.43	0.81 %
EY-095-001	1	99.3	18.13	18.11	-0.09 %
EY-096-001	1	72.5	22.05	22.26	0.93 %
EY-097-001	1	81.9	17.09	17.60	2.87 %
EY-098-001	1	58.6	19.48	21.01	7.26 %
EY-099-001	1	72.3	20.12	19.97	-0.77 %
EY-100-001	1	52.5	20.07	20.92	4.05 %
EY-101-001	1	71.5	19.00	19.81	4.07 %
EY-102-001	1	77.1	19.02	20.58	7.56 %
EY-103-001	1	71.4	19.02	19.82	4.04 %
EY-104-001	1	71.5	19.00	19.81	4.07 %
EY-105-001	1	71.5	18.80	19.89	5.47 %
EY-106-001	1	77.1	19.02	20.58	7.56 %
EY-107-001	1	52.5	20.07	20.92	4.05 %
EY-108-001	1	71.1	21.68	21.76	0.39 %
EY-109-001	1	51	20.31	22.03	7.83 %
EY-110-001	1	71.4	22.25	22.43	0.81 %
EY-111-001	1	73.9	19.91	19.91	0.00 %
EY-112-001	1	72.4	28.87	27.87	-3.60 %
EY-113-001	1	99.3	24.19	23.26	-4.02 %
EY-114-001	1	58.6	26.03	26.02	-0.05 %
EY-115-001	1	81.8	20.60	22.13	6.93 %
EY-116-001	1	53.1	26.64	26.07	-2.20 %
EY-117-001	1	72.3	24.95	25.21	1.04 %
EY-118-001	1	98.4	23.39	23.34	-0.19 %
EY-119-001	1	96.5	21.95	21.59	-1.67 %
EY-120-001	1	98.4	23.08	23.25	0.73 %
EY-121-001	1	96.6	21.75	21.87	0.54 %
EY-122-001	1	71.1	28.42	27.33	-3.99 %
EY-123-001	1	53.1	26.64	26.07	-2.20 %
EY-124-001	1	51	27.05	27.20	0.57 %
EY-125-001	1	73.9	26.18	25.09	-4.34 %
EY-126-001	1	71.6	29.03	28.00	-3.67 %
Totals:	126	8564.2	2,629.05	2,712.73	
Average DER = 20.83 kgCO ₂ /m ²		% DER/TER	PASS		
Average TER = 21.45 kgCO ₂ /m ²		2.89 %			

Block Compliance Report - DFEE

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)



Block Reference: Block C		Block Name: Eliza Yard			
Property-Assessment Reference	Multiplier	Floor Area (m²)	DFEE (kWh/m²/yr)	TREE (kWh/m²/yr)	% DFEE/TREE
EY-001-001	1	72.5	35.93	42.65	15.77 %
EY-002-001	1	71.4	39.90	49.59	19.55 %
EY-003-001	1	51	33.59	40.27	16.60 %
EY-004-001	1	50.9	33.56	40.22	16.57 %
EY-005-001	1	72.5	36.07	44.93	19.73 %
EY-006-001	1	72.4	38.26	48.69	21.43 %
EY-007-001	1	53	29.57	35.94	17.74 %
EY-008-001	1	58.6	32.47	41.67	22.07 %
EY-009-001	1	53.2	29.52	35.89	17.76 %
EY-010-001	1	52.5	28.46	37.84	24.79 %
EY-011-001	1	72.3	33.13	42.64	22.31 %
EY-012-001	1	77.1	30.68	40.32	23.90 %
EY-013-001	1	71.7	26.06	35.67	26.95 %
EY-014-001	1	71.5	25.13	31.49	20.21 %
EY-015-001	1	71.4	23.58	29.71	20.61 %
EY-016-001	1	77	25.87	32.14	19.50 %
EY-017-001	1	71.7	26.06	35.67	26.95 %
EY-018-001	1	71.1	31.57	38.94	18.93 %
EY-019-001	1	52.5	28.46	37.84	24.79 %
EY-020-001	1	51	21.44	24.08	10.97 %
EY-021-001	1	73.9	25.83	28.54	9.49 %
EY-022-001	1	71.4	30.64	36.30	15.58 %
EY-023-001	1	72.4	26.95	30.27	10.97 %
EY-024-001	1	72.4	30.43	36.06	15.61 %
EY-025-001	1	53	19.78	18.56	-6.56 %
EY-026-001	1	58.6	22.22	24.85	10.61 %
EY-027-001	1	53.1	19.76	18.55	-6.54 %
EY-028-001	1	52.5	20.98	21.18	0.93 %
EY-029-001	1	72.3	25.75	28.25	8.83 %
EY-030-001	1	77.1	20.83	24.96	16.54 %
EY-031-001	1	71.7	19.41	20.32	4.49 %
EY-032-001	1	71.5	23.19	27.44	15.48 %
EY-033-001	1	71.4	19.89	20.87	4.69 %
EY-034-001	1	77	20.84	24.97	16.53 %
EY-035-001	1	71.7	18.54	19.93	6.99 %
EY-036-001	1	71.1	29.27	33.98	13.84 %
EY-037-001	1	52.5	20.98	21.18	0.93 %
EY-038-001	1	51	21.44	24.08	10.97 %
EY-039-001	1	73.9	25.83	28.54	9.49 %
EY-040-001	1	71.4	30.64	36.30	15.58 %
EY-041-001	1	72.4	26.95	30.27	10.97 %
EY-042-001	1	72.4	30.43	36.06	15.61 %
EY-043-001	1	53	19.78	18.56	-6.56 %
EY-044-001	1	58.6	22.22	24.85	10.61 %

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)



EY-045-001	1	53.1	19.76	18.55	-6.54 %
EY-046-001	1	52.5	20.98	21.18	0.93 %
EY-047-001	1	72.3	25.75	28.25	8.83 %
EY-048-001	1	77.1	20.83	24.96	16.54 %
EY-049-001	1	71.7	19.41	20.32	4.49 %
EY-050-001	1	71.5	23.19	27.44	15.48 %
EY-051-001	1	71.4	19.89	20.87	4.69 %
EY-052-001	1	77	20.84	24.97	16.53 %
EY-053-001	1	71.7	18.54	19.93	6.99 %
EY-054-001	1	71.1	29.27	33.98	13.84 %
EY-055-001	1	52.5	20.98	21.18	0.93 %
EY-056-001	1	51	21.44	24.08	10.97 %
EY-057-001	1	73.9	25.83	28.54	9.49 %
EY-058-001	1	71.4	30.64	36.30	15.58 %
EY-059-001	1	72.4	26.95	30.27	10.97 %
EY-060-001	1	72.4	30.43	36.06	15.61 %
EY-061-001	1	53	19.78	18.56	-6.56 %
EY-062-001	1	58.6	22.22	24.85	10.61 %
EY-063-001	1	53.1	19.76	18.55	-6.54 %
EY-064-001	1	52.5	20.98	21.18	0.93 %
EY-065-001	1	72.3	25.75	28.25	8.83 %
EY-066-001	1	77.1	20.83	24.96	16.54 %
EY-067-001	1	71.7	19.41	20.32	4.49 %
EY-068-001	1	71.5	23.19	27.44	15.48 %
EY-069-001	1	71.4	19.89	20.87	4.69 %
EY-070-001	1	77	20.84	24.97	16.53 %
EY-071-001	1	71.7	18.54	19.93	6.99 %
EY-072-001	1	71.1	29.27	33.98	13.84 %
EY-073-001	1	52.5	20.98	21.18	0.93 %
EY-074-001	1	51	21.44	24.08	10.97 %
EY-075-001	1	73.9	25.83	28.54	9.49 %
EY-076-001	1	71.4	30.64	36.30	15.58 %
EY-077-001	1	72.4	26.95	30.27	10.97 %
EY-078-001	1	72.4	30.43	36.06	15.61 %
EY-079-001	1	53	19.78	18.56	-6.56 %
EY-080-001	1	58.6	22.22	24.85	10.61 %
EY-081-001	1	53.1	19.76	18.55	-6.54 %
EY-082-001	1	52.5	20.98	21.18	0.93 %
EY-083-001	1	72.3	25.75	28.25	8.83 %
EY-084-001	1	77.1	20.83	24.96	16.54 %
EY-085-001	1	71.7	19.41	20.32	4.49 %
EY-086-001	1	71.5	23.19	27.44	15.48 %
EY-087-001	1	71.4	19.89	20.87	4.69 %
EY-088-001	1	77	20.84	24.97	16.53 %
EY-089-001	1	71.7	18.54	19.93	6.99 %
EY-090-001	1	71.1	29.27	33.98	13.84 %
EY-091-001	1	52.5	20.98	21.18	0.93 %

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

EY-092-001	1	51	21.44	24.08	10.97 %
EY-093-001	1	73.9	25.83	28.54	9.49 %
EY-094-001	1	71.4	30.64	36.30	15.58 %
EY-095-001	1	99.3	25.80	29.03	11.15 %
EY-096-001	1	72.5	30.41	36.03	15.61 %
EY-097-001	1	81.9	20.39	21.17	3.67 %
EY-098-001	1	58.6	22.22	24.85	10.61 %
EY-099-001	1	72.3	25.75	28.25	8.83 %
EY-100-001	1	52.5	20.98	21.18	0.93 %
EY-101-001	1	71.5	22.69	26.09	13.03 %
EY-102-001	1	77.1	24.15	29.79	18.92 %
EY-103-001	1	71.4	22.71	26.10	13.02 %
EY-104-001	1	71.5	22.69	26.09	13.03 %
EY-105-001	1	71.5	21.94	25.70	14.63 %
EY-106-001	1	77.1	24.15	29.79	18.92 %
EY-107-001	1	52.5	20.98	21.18	0.93 %
EY-108-001	1	71.1	29.27	33.98	13.84 %
EY-109-001	1	51	21.44	24.08	10.97 %
EY-110-001	1	71.4	30.64	36.30	15.58 %
EY-111-001	1	73.9	25.83	28.54	9.49 %
EY-112-001	1	72.4	43.70	54.51	19.83 %
EY-113-001	1	99.3	38.03	45.97	17.27 %
EY-114-001	1	58.6	35.81	42.54	15.81 %
EY-115-001	1	81.8	28.32	37.55	24.60 %
EY-116-001	1	53.1	35.43	40.43	12.38 %
EY-117-001	1	72.3	35.74	45.73	21.86 %
EY-118-001	1	98.4	36.11	44.61	19.04 %
EY-119-001	1	96.5	32.96	38.81	15.07 %
EY-120-001	1	98.4	35.29	43.85	19.52 %
EY-121-001	1	96.6	32.21	38.85	17.10 %
EY-122-001	1	71.1	42.57	52.37	18.71 %
EY-123-001	1	53.1	35.43	40.43	12.38 %
EY-124-001	1	51	35.70	42.51	16.02 %
EY-125-001	1	73.9	38.59	45.77	15.69 %
EY-126-001	1	71.6	43.89	54.73	19.80 %
Totals:	126	8564.2	3,294.59	3,808.97	
Average DFEE = 26.43 kWh/m ² /yr		% DFEE/TFEE	PASS		
Average TFEE = 30.72 kWh/m ² /yr		13.96 %			

Appendix C

Block C – Block Compliance (SAP 2009)



Block Compliance

Page 1 of 2

Property Reference: EY-001

Issued on Date: 13.Feb.2024

Survey Reference: 001

Prop Type Ref: 2B4P

Property:

SAP Rating: 80 C CO2 Emissions (t/year): 1.59 DER: 24.26 Pass Reduction: 17.1% FEE: 35.5 ZC8: 0.00
 Environmental: 82 B General Requirements Compliance: Fail TER: 29.27 HLP: 0.76 Energy cost: £ 1004

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

Surveyor: Ryan Stocks, Tel: 01253 736268

Surveyor ID: W652-0001

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
EY-001-001	1	72.5	24.26	29.27	72.50	1,758.85	2,122.08
EY-002-001	1	71.4	26.25	29.25	71.40	1,874.25	2,088.45
EY-003-001	1	51	25.47	30.87	51.00	1,298.97	1,574.37
EY-004-001	1	50.9	25.47	30.86	50.90	1,296.42	1,570.77
EY-005-001	1	72.5	24.49	29.08	72.50	1,775.53	2,108.30
EY-006-001	1	72.4	25.51	29.09	72.40	1,846.92	2,106.12
EY-007-001	1	53	23.56	30.39	53.00	1,248.68	1,610.67
EY-008-001	1	58.6	24.08	29.38	58.60	1,411.09	1,721.67
EY-009-001	1	53.2	23.52	30.34	53.20	1,251.26	1,614.09
EY-010-001	1	52.2	24.39	30.95	52.20	1,273.16	1,615.59
EY-011-001	1	72.3	23.91	29.11	72.30	1,728.69	2,104.65
EY-012-001	1	77.1	21.68	26.66	77.10	1,671.53	2,055.49
EY-013-001	1	71.7	21.21	27.26	71.70	1,520.76	1,954.54
EY-014-001	1	71.5	19.63	23.34	71.50	1,403.55	1,668.81
EY-015-001	1	71.5	19.54	24.95	71.50	1,397.11	1,783.93
EY-016-001	1	77.1	19.35	22.63	77.10	1,491.89	1,744.77
EY-017-001	1	71.7	21.21	27.26	71.70	1,520.76	1,954.54
EY-018-001	1	71.1	22.62	25.29	71.10	1,608.28	1,798.12
EY-019-001	1	52.2	24.39	30.95	52.20	1,273.16	1,615.59
EY-020-001	1	51	20.22	25.34	51.00	1,031.22	1,292.34
EY-021-001	1	73.9	19.45	23.04	73.90	1,437.36	1,702.66
EY-022-001	1	71.4	21.74	23.74	71.40	1,552.24	1,695.04
EY-023-001	4	72.5	20.11	23.57	290.00	5,831.90	6,835.30
EY-024-001	5	72.4	20.94	23.59	362.00	7,580.28	8,539.58
EY-025-001	4	53	19.49	24.90	212.00	4,131.88	5,278.80
EY-026-001	5	58.6	19.38	23.77	293.00	5,678.34	6,964.61
EY-027-001	4	53.2	18.96	24.85	212.80	4,034.69	5,288.08
EY-028-001	5	52.2	19.42	25.46	261.00	5,068.62	6,645.06
EY-029-001	5	72.3	18.74	23.61	361.50	6,774.51	8,535.02
EY-030-001	5	77.1	16.65	21.15	385.50	6,418.58	8,153.33
EY-031-001	5	71.7	16.83	21.80	358.50	6,033.56	7,815.30
EY-032-001	5	71.5	18.51	22.05	357.50	6,617.33	7,882.88
EY-033-001	5	71.5	17.53	22.05	357.50	6,266.98	7,882.88
EY-034-001	5	77.1	16.65	21.15	385.50	6,418.58	8,153.33
EY-035-001	5	71.7	17.60	21.80	358.50	6,309.60	7,815.30
EY-036-001	5	71.1	21.18	23.82	355.50	7,529.49	8,468.01

PASS

Manchester Life Development Company 3 Ltd Eliza Yard Block C

Commercial Unit 3 BRUKL Reports

EYJW-AME-BC-XX-TR-Z-500020

PROJECT	MLDC Eliza Yard Block C
DATE	10 th April 2025
REVISION	P03
STATUS	S3
AUTHOR	D Connor



Revisions

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

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2.0 Part L Assessment	4
2.1 Carbon Emissions	4
2.2 Solar Gain Limits.....	4
3.0 Mechanical and Electrical Plant	4
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 3 at Eliza Yard Block C is provided as a shell and core properties. 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 C - Commercial Unit 3

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
BC.00.206 Commercial Unit 123		-	110	50	800

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

Eliza Yard Block C Unit 3

As designed

Date: Tue Mar 18 08:34:52 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	38.1
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	38.1
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	29.7
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	"SH00000B_W2"
Floor	0.25	0.1	0.1	"SH00000B_F"
Roof	0.25	-	-	"No heat loss roofs"
Windows***, roof windows, and rooflights	2.2	1.4	1.4	"SH00000B_W2_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"

Shell and core configuration

Zone	Assumed shell?
BC.00.206 Commercial Unit 123	NO

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
BC.00.206 Commercial Unit 123		-	110	50	800

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?
BC.00.206 Commercial Unit 123	NO (-13.6%)	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]	90.5	90.5
External area [m ²]	143.2	143.2
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	2	5
Average conductance [W/K]	53.06	58.38
Average U-value [W/m ² K]	0.37	0.41
Alpha value* [%]	32.52	13.45

* 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	32.61	24.15
Cooling	0	0
Auxiliary	0	0
Lighting	23.01	58.81
Hot water	1.7	1.96
Equipment*	20.26	20.26
TOTAL **	57.31	84.93

* 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]	202.43	293.73
Primary energy* [kWh/m ²]	175.95	204.77
Total emissions [kg/m ²]	29.7	38.1

* 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	93.9	108.5	32.6	0	0	0.8	0	1	0
Notional	71.2	222.5	24.2	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	"SH00000B_W2"
Floor	0.2	0.1	"SH00000B_F"
Roof	0.15	-	"No heat loss roofs"
Windows, roof windows, and rooflights	1.5	1.4	"SH00000B_W2_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 Eliza Yard Block C

Landlord (Communal Areas) BRUKL Report

EYJW-AME-BC-XX-TR-Z-500012

PROJECT	MLDC Eliza Yard Block C
DATE	1 ST April 2025
REVISION	P04
AUTHOR	D Connor



CARBONCONSULTANTS



Revisions

P01	- 04.02.25	- Preliminary Issue
P02	- 05.02.25	- Correct BRUKL reports appended
P03	- 01.04.25	- Revised to QA rejection
P04	- 24.04.25	- Section 2.2 updated

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1.0 Introduction

This report details the BRUKL report produced from the SBEM model for the Landlord (communal) areas in Eliza Yard Block C.

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 this assessment, all occupied zones, comply with Criterion 3. Only the draft lobbies '*Entrance Lobby 01*' & '*Entrance Lobby 02*' show exceedances, however as these are unoccupied draft lobbies with doors that frequently open, this is deemed acceptable to Building Control.

Appendix A

Project name

Block C - Communal Areas

As designed

Date: Tue Feb 04 16:35:01 2025

Administrative information

Building Details

Address: Jersey Street, Ancoats, Block C, Communal Areas, ,

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 5FTCriterion 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	10.8
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	10.8
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	8.9
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	0.29	0.3	"Grd Floor 2 - Main Lobby_W_10"
Floor	0.25	0.13	1.05	"Block 9 - Common corridor 2_F_5"
Roof	0.25	0.11	0.11	"Block 4 - Common corridor 4_R_4"
Windows***, roof windows, and rooflights	2.2	1.3	1.3	"Grd Floor 2 - Main Lobby_G_11"
Personnel doors	2.2	1.3	1.3	"Grd Floor 2 - Stairs-Circulation_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 Heater

	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			
Grd Floor 2 - Concierge Office	-	-	-	1.7	-	-	-	-	-		0.75	0.5
Grd Floor 2 - Office	-	-	-	1.7	-	-	-	-	-		0.75	0.5
Grd Floor 2 - Staff Welfare	-	-	-	1.7	-	-	-	-	-		0.75	0.5
Grd Floor 2 - WC	0.6	-	-	-	-	-	-	-	-		-	N/A

General lighting and display lighting

		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
Standard value		60	60	22	
Grd Floor 2 - Bike Store		100	-	-	83

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
Grd Floor 2 - Refuse 03		100	-	-	27
Grd Floor 2 - Garage		100	-	-	82
Grd Floor 2 - Main Lobby		-	100	-	283
Grd Floor 2 - Entrance Lobby 01		-	100	15	165
Grd Floor 2 - Concierge Office		-	100	15	197
Grd Floor 2 - Office		100	-	-	140
Grd Floor 2 - Entrance Lobby 02		-	100	15	171
Grd Floor 2 - Staff Welfare		100	-	-	124
Grd Floor 1 - Plant Areas		100	-	-	742
Grd Floor 2 - Corridor		-	100	-	101
Grd Floor 2 - Comms		100	-	-	105
Grd Floor 2 - Stairs		-	100	-	62
Grd Floor 2 - WC		-	100	-	36
Grd Floor 2 - Stairs-Circulation		-	100	-	67
Block 3 - Common corridor		-	100	-	56
Block 3 - Common corridor 2		-	100	-	354
Block 3 - Common corridor 1		-	100	-	56
Block 4 - Common corridor 4		-	100	-	344
Block 4 - Common corridor		-	100	-	56
Block 4 - Common corridor 1		-	100	-	56
Block 6 - Common corridor 2		-	100	-	354
Block 9 - Common corridor 2		-	100	-	354

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?
Grd Floor 2 - Main Lobby	NO (-9.6%)	NO
Grd Floor 2 - Entrance Lobby 01	YES (+117.8%)	NO
Grd Floor 2 - Concierge Office	N/A	N/A
Grd Floor 2 - Office	N/A	N/A
Grd Floor 2 - Entrance Lobby 02	YES (+15.9%)	NO
Grd Floor 2 - Staff Welfare	NO (-61%)	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]	2567.9	2567.9
External area [m ²]	2352.2	2352.2
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	2	3
Average conductance [W/K]	754.4	672.44
Average U-value [W/m ² K]	0.32	0.29
Alpha value* [%]	11.48	9.61

* 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
20	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
70	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
10	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	5.32	6.3
Cooling	1.26	1.49
Auxiliary	0.19	0.1
Lighting	10.53	15.38
Hot water	0.05	0.05
Equipment*	34.83	34.83
TOTAL **	17.34	23.33

* 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]	124.15	107.58
Primary energy* [kWh/m ²]	52.72	60.07
Total emissions [kg/m ²]	8.9	10.8

* 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	460.2	0	0	0	0	0	0	0	0
	Notional	217.1	0	0	0	0	0	----	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	116.4	276.9	8.7	18.9	2.6	3.74	4.07	4.01	5.73
	Notional	157.3	291	18	22.5	1.3	2.43	3.6	----	----
[ST] Other local room heater - unfanned, [HS] Room heater, [HFT] Electricity, [CFT] Natural Gas										
	Actual	16.2	51.1	5.6	0	0	0.8	0	1	0
	Notional	17.8	51.3	6	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	"Block 3 - Common corridor 2_W_6"
Floor	0.2	0.08	"Grd Floor 2 - Main Lobby_S_3"
Roof	0.15	0.11	"Block 4 - Common corridor 4_R_4"
Windows, roof windows, and rooflights	1.5	1.3	"Grd Floor 2 - Main Lobby_G_11"
Personnel doors	1.5	1.3	"Grd Floor 2 - Stairs-Circulation_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

Eliza Yard - Block C

EYJW-AME-BC-XX-TR-Z-500007

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.



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PART O - OVERHEATING STUDY

zero3

Project: Eliza Yard,
Ancoats,
Block C

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 C, Eliza Yard, 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 Eliza Yard development against the requirements of the CIBSE technical memorandum TM59; Design methodology for the assessment of overheating risk in homes, 2017.

Block C, Eliza Yard 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-BC-00-DR-A-042300 – Po1

GA First Floor Plan – EYJW-PRP-BC-01-DR-A-042310 – Po1

GA Second Floor Plan – EYJW-PRP-BC-02-DR-A-042320 – Po1

GA Third Floor Plan – EYJW-PRP-BC-03-DR-A-042330 – Po1

GA Fourth Floor Plan – EYJW-PRP-BC-04-DR-A-042340 – Po1

GA Fifth Floor Plan – EYJW-PRP-BC-05-DR-A-042350 – Po1

GA Sixth Floor Plan – EYJW-PRP-BC-06-DR-A-042360 – Po1

GA Seventh Floor Plan – EYJW-PRP-BC-07-DR-A-042370 – Po1

GA Roof Floor Plan – EYJW-PRP-BC-RF-DR-A-042380 – Po1

50005-0-JSA Block C Elevation A, B and C

50006-0-JSA Block C Elevation D, E and 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
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

Natural Ventilation - Aperture Openings

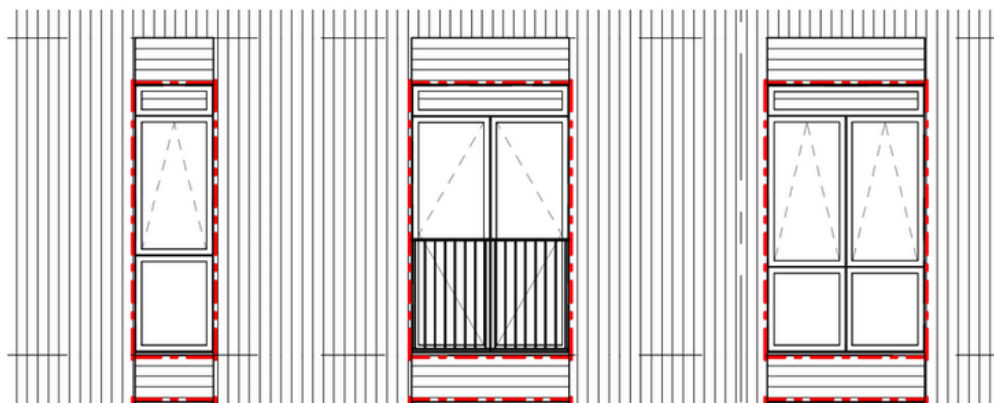
Natural ventilation is provided by openable louvres/windows to each elevation.

The openable louvre/window are simulated to be opened when a room is occupied and the operative temperature in the room is above 22°C.

All openable louvre/window within the residential apartments are modelled, such that during the summer the louvre/window will start to open when the room temperature exceeds 22°C and are fully open once the room temperature reaches 23°C. The louvre/window openings have been modelled with restriction in line with the Buro Happold design note 9033-BHE-XX-XX-RP-N-(00)6000 – Overheating Analysis Report rev 3.

This report states a maximum angle opening of 15° for the below windows, with the balcony doors having a maximum opening angle of 90°. Upon modelling with this restriction many of the apartments failed to meet criterion 'A' and 'B', as such the restriction was increased to 25° which provided a pass.

The strategy adopted regarding the operation of louvre/window is in line with the strategy recommended by the TM59 document which suggests that the louvre/window shall be opened when the temperature reached 22°C and are fully opened once temperature reaches 23°C.



Block 'C' Typical apartment windows

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°.

Ground Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
Gnd	001 2bed 1	0.5	11	Pass
Gnd	002 2bed 1	0	0	Pass
Gnd	002 living kitchen	0	N/A	Pass
Gnd	001 living kitchen	0.2	N/A	Pass
Gnd	002 2bed	0	0	Pass
Gnd	003 living kitchen	0	N/A	Pass
Gnd	003 2bed	0	0	Pass
Gnd	004 living kitchen	0	N/A	Pass
Gnd	004 2bed	0	14	Pass
Gnd	001 2bed	0.1	10	Pass

1st Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
1STFLOOR	005X2BDLVNGKTCHN	0.33	N/A	Pass
1STFLOOR	005X2BEDBED	0.56	21.17	Pass
1STFLOOR	005X2BEDBED1	1.37	16.67	Pass
1STFLOOR	006X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	006X2BEDBED	0.00	2.00	Pass
1STFLOOR	006X2BEDBED1	0.00	5.83	Pass
1STFLOOR	007X1BDLVNGKTCHN	1.00	N/A	Pass
1STFLOOR	007X1BEDBED	1.30	18.67	Pass
1STFLOOR	008X1BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	008X2BEDBED	0.00	2.17	Pass
1STFLOOR	009X1BDLVNGKTCHN	0.71	N/A	Pass
1STFLOOR	009X1BEDBED	1.39	19.17	Pass
1STFLOOR	010X1BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	010X1BEDBED	0.05	12.83	Pass
1STFLOOR	011X2BDLVNGKTCHN	0.24	N/A	Pass
1STFLOOR	011X2BEDBED	0.50	20.33	Pass
1STFLOOR	011X2BEDBED1	1.24	15.83	Pass
1STFLOOR	012X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	012X2BEDBED	0.00	2.33	Pass
1STFLOOR	012X2BEDBED1	0.00	2.67	Pass
1STFLOOR	013X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	013X2BEDBED	0.34	13.33	Pass
1STFLOOR	013X2BEDBED1	0.00	17.33	Pass
1STFLOOR	014X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	014X2BEDBED	0.00	11.00	Pass
1STFLOOR	014X2BEDBED1	0.00	4.17	Pass
1STFLOOR	015X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	015X2BEDBED	0.00	18.83	Pass
1STFLOOR	015X2BEDBED1	0.31	13.67	Pass
1STFLOOR	016X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	016X2BEDBED	0.05	13.50	Pass
1STFLOOR	016X2BEDBED1	0.00	10.67	Pass
1STFLOOR	017X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	017X2BEDBED2	0.00	16.00	Pass
1STFLOOR	017X2BEDBED3	0.00	18.50	Pass
1STFLOOR	018X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	018X2BEDBED	0.00	8.83	Pass
1STFLOOR	018X2BEDBED1	0.00	4.33	Pass
1STFLOOR	019X1BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	019X1BEDBED	0.04	12.83	Pass
1STFLOOR	020X1BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	020X1BEDBED	0.00	9.33	Pass
1STFLOOR	021X2BDLVNGKTCHN	0.34	N/A	Pass
1STFLOOR	021X2BED	0.59	10.00	Pass
1STFLOOR	021X2BEDBED	0.39	17.67	Pass
1STFLOOR	022X2BDLVNGKTCHN	0.00	N/A	Pass
1STFLOOR	022X2BEDBED	0.00	4.33	Pass
1STFLOOR	022X2BEDBED1	0.00	10.17	Pass

2nd Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
2NDFLOOR	023X2BDLVNGKTCHN	0.31	N/A	Pass
2NDFLOOR	023X2BEDBED	0.55	21.00	Pass
2NDFLOOR	023X2BEDBED1	1.34	16.67	Pass
2NDFLOOR	024X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	024X2BEDBED	0.00	2.00	Pass
2NDFLOOR	024X2BEDBED1	0.00	5.17	Pass
2NDFLOOR	025X1BDLVNGKTCHN	0.51	N/A	Pass
2NDFLOOR	025X1BEDBED	1.20	18.17	Pass
2NDFLOOR	026X1BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	026X2BEDBED	0.00	2.00	Pass
2NDFLOOR	027X1BDLVNGKTCHN	0.50	N/A	Pass
2NDFLOOR	027X1BEDBED	1.18	17.67	Pass
2NDFLOOR	028X1BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	028X1BEDBED	0.04	12.50	Pass
2NDFLOOR	029X2BDLVNGKTCHN	0.24	N/A	Pass
2NDFLOOR	029X2BEDBED	0.49	19.00	Pass
2NDFLOOR	029X2BEDBED1	1.18	15.00	Pass
2NDFLOOR	030X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	030X2BEDBED	0.00	2.33	Pass
2NDFLOOR	030X2BEDBED1	0.00	2.17	Pass
2NDFLOOR	031X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	031X2BEDBED	0.34	13.17	Pass
2NDFLOOR	031X2BEDBED1	0.00	17.33	Pass
2NDFLOOR	032X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	032X2BEDBED	0.00	11.17	Pass
2NDFLOOR	032X2BEDBED1	0.00	4.17	Pass
2NDFLOOR	033X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	033X2BEDBED	0.00	18.83	Pass
2NDFLOOR	033X2BEDBED1	0.32	13.67	Pass
2NDFLOOR	034X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	034X2BEDBED	0.07	13.83	Pass
2NDFLOOR	034X2BEDBED1	0.00	10.83	Pass
2NDFLOOR	035X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	035X2BEDBED2	0.00	15.83	Pass
2NDFLOOR	035X2BEDBED3	0.00	18.17	Pass
2NDFLOOR	036X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	036X2BEDBED	0.00	8.50	Pass
2NDFLOOR	036X2BEDBED1	0.00	4.17	Pass
2NDFLOOR	037X1BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	037X1BEDBED	0.04	12.67	Pass
2NDFLOOR	038X1BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	038X1BEDBED	0.00	9.00	Pass
2NDFLOOR	039X2BDLVNGKTCHN	0.34	N/A	Pass
2NDFLOOR	039X2BED	0.60	10.00	Pass
2NDFLOOR	039X2BEDBED	0.40	17.50	Pass
2NDFLOOR	040X2BDLVNGKTCHN	0.00	N/A	Pass
2NDFLOOR	040X2BEDBED	0.00	4.83	Pass
2NDFLOOR	040X2BEDBED1	0.00	10.17	Pass

3rd Floor

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
3RDFLOOR	041X2BDLVNGKTCHN	0.31	N/A	Pass
3RDFLOOR	041X2BEDBED	0.52	20.67	Pass
3RDFLOOR	041X2BEDBED1	1.29	16.00	Pass
3RDFLOOR	042X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	042X2BEDBED	0.00	1.83	Pass
3RDFLOOR	042X2BEDBED1	0.00	5.17	Pass
3RDFLOOR	043X1BDLVNGKTCHN	0.47	N/A	Pass
3RDFLOOR	043X1BEDBED	1.17	17.83	Pass
3RDFLOOR	044X1BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	044X2BEDBED	0.00	2.00	Pass
3RDFLOOR	045X1BDLVNGKTCHN	0.69	N/A	Pass
3RDFLOOR	045X1BEDBED	1.36	18.67	Pass
3RDFLOOR	046X1BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	046X1BEDBED	0.04	12.50	Pass
3RDFLOOR	047X2BDLVNGKTCHN	0.23	N/A	Pass
3RDFLOOR	047X2BEDBED	0.46	18.33	Pass
3RDFLOOR	047X2BEDBED1	1.14	13.83	Pass
3RDFLOOR	048X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	048X2BEDBED	0.00	2.33	Pass
3RDFLOOR	048X2BEDBED1	0.00	2.17	Pass
3RDFLOOR	049X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	049X2BEDBED	0.34	13.00	Pass
3RDFLOOR	049X2BEDBED1	0.00	17.17	Pass
3RDFLOOR	050X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	050X2BEDBED	0.00	11.50	Pass
3RDFLOOR	050X2BEDBED1	0.00	4.00	Pass
3RDFLOOR	051X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	051X2BEDBED	0.00	18.00	Pass
3RDFLOOR	051X2BEDBED1	0.31	13.17	Pass
3RDFLOOR	052X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	052X2BEDBED	0.07	13.67	Pass
3RDFLOOR	052X2BEDBED1	0.00	11.50	Pass
3RDFLOOR	053X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	053X2BEDBED2	0.00	15.50	Pass
3RDFLOOR	053X2BEDBED3	0.00	17.83	Pass
3RDFLOOR	054X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	054X2BEDBED	0.00	7.50	Pass
3RDFLOOR	054X2BEDBED1	0.00	3.83	Pass
3RDFLOOR	055X1BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	055X1BEDBED	0.04	12.67	Pass
3RDFLOOR	056X1BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	056X1BEDBED	0.00	8.67	Pass
3RDFLOOR	057X2BDLVNGKTCHN	0.34	N/A	Pass
3RDFLOOR	057X2BED	0.61	10.17	Pass
3RDFLOOR	057X2BEDBED	0.42	18.00	Pass
3RDFLOOR	058X2BDLVNGKTCHN	0.00	N/A	Pass
3RDFLOOR	058X2BEDBED	0.00	4.00	Pass
3RDFLOOR	058X2BEDBED1	0.00	9.33	Pass

4th Floor

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
4THFLOOR	059X2BDLVNGKTCHN	0.30	N/A	Pass
4THFLOOR	059X2BEDBED	0.49	20.17	Pass
4THFLOOR	059X2BEDBED1	1.25	15.50	Pass
4THFLOOR	060X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	060X2BEDBED	0.00	1.83	Pass
4THFLOOR	060X2BEDBED1	0.00	5.50	Pass
4THFLOOR	061X1BDLVNGKTCHN	0.47	N/A	Pass
4THFLOOR	061X1BEDBED	1.15	17.67	Pass
4THFLOOR	062X1BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	062X2BEDBED	0.00	2.00	Pass
4THFLOOR	063X1BDLVNGKTCHN	0.68	N/A	Pass
4THFLOOR	063X1BEDBED	1.36	18.33	Pass
4THFLOOR	064X1BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	064X1BEDBED	0.04	12.00	Pass
4THFLOOR	065X2BDLVNGKTCHN	0.22	N/A	Pass
4THFLOOR	065X2BEDBED	0.43	17.83	Pass
4THFLOOR	065X2BEDBED1	1.11	13.17	Pass
4THFLOOR	066X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	066X2BEDBED	0.00	2.33	Pass
4THFLOOR	066X2BEDBED1	0.00	2.17	Pass
4THFLOOR	067X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	067X2BEDBED	0.33	12.83	Pass
4THFLOOR	067X2BEDBED1	0.00	17.17	Pass
4THFLOOR	068X2BEDBED	0.00	13.17	Pass
4THFLOOR	068X2BEDBED1	0.00	4.50	Pass
4THFLOOR	069X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	070X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	070X2BEDBED	0.00	17.50	Pass
4THFLOOR	070X2BEDBED1	0.31	12.83	Pass
4THFLOOR	071X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	071X2BDLVNGKTCHNQ1	0.00	N/A	Pass
4THFLOOR	071X2BEDBED	0.00	15.50	Pass
4THFLOOR	071X2BEDBED1	0.00	17.67	Pass
4THFLOOR	071X2BEDBED1Q1	0.01	12.00	Pass
4THFLOOR	071X2BEDBEDQ1	0.08	13.50	Pass
4THFLOOR	072X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	072X2BEDBED	0.00	7.00	Pass
4THFLOOR	072X2BEDBED1	0.00	3.83	Pass
4THFLOOR	073X1BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	073X1BEDBED	0.04	12.50	Pass
4THFLOOR	074X1BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	074X1BEDBED	0.00	8.67	Pass
4THFLOOR	075X2BDLVNGKTCHN	0.34	N/A	Pass
4THFLOOR	075X2BED	0.62	10.17	Pass
4THFLOOR	075X2BEDBED	0.44	18.00	Pass
4THFLOOR	076X2BDLVNGKTCHN	0.00	N/A	Pass
4THFLOOR	076X2BEDBED	0.00	4.33	Pass
4THFLOOR	076X2BEDBED1	0.00	9.33	Pass

5th Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
5THFLOOR	077X2BDLVNGKTCHN	0.28	N/A	Pass
5THFLOOR	077X2BEDBED	0.47	19.83	Pass
5THFLOOR	077X2BEDBED1	1.23	14.67	Pass
5THFLOOR	078X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	078X2BEDBED	0.00	2.17	Pass
5THFLOOR	078X2BEDBED1	0.00	6.33	Pass
5THFLOOR	079X1BDLVNGKTCHN	0.47	N/A	Pass
5THFLOOR	079X1BEDBED	1.14	17.17	Pass
5THFLOOR	080X1BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	080X2BEDBED	0.00	2.17	Pass
5THFLOOR	081X1BDLVNGKTCHN	0.69	N/A	Pass
5THFLOOR	081X1BEDBED	1.34	18.17	Pass
5THFLOOR	082X1BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	082X1BEDBED	0.04	11.83	Pass
5THFLOOR	083X2BDLVNGKTCHN	0.21	N/A	Pass
5THFLOOR	083X2BEDBED	0.42	17.67	Pass
5THFLOOR	083X2BEDBED1	1.08	13.00	Pass
5THFLOOR	084X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	084X2BEDBED	0.00	2.50	Pass
5THFLOOR	084X2BEDBED1	0.00	2.17	Pass
5THFLOOR	085X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	085X2BEDBED	0.33	13.00	Pass
5THFLOOR	085X2BEDBED1	0.00	16.83	Pass
5THFLOOR	086X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	086X2BEDBED	0.07	13.83	Pass
5THFLOOR	086X2BEDBED1	0.05	5.33	Pass
5THFLOOR	087X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	087X2BEDBED	0.00	17.50	Pass
5THFLOOR	087X2BEDBED1	0.31	13.00	Pass
5THFLOOR	088X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	088X2BEDBED	0.08	13.67	Pass
5THFLOOR	088X2BEDBED1	0.01	12.50	Pass
5THFLOOR	089X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	089X2BEDBED	0.00	15.50	Pass
5THFLOOR	089X2BEDBED1	0.00	17.67	Pass
5THFLOOR	090X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	090X2BEDBED	0.00	6.83	Pass
5THFLOOR	090X2BEDBED1	0.00	3.50	Pass
5THFLOOR	091X1BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	091X1BEDBED	0.03	12.17	Pass
5THFLOOR	092X1BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	092X1BEDBED	0.00	8.67	Pass
5THFLOOR	093X2BDLVNGKTCHN	0.34	N/A	Pass
5THFLOOR	093X2BED	0.68	10.50	Pass
5THFLOOR	093X2BEDBED	0.46	18.50	Pass
5THFLOOR	094X2BDLVNGKTCHN	0.00	N/A	Pass
5THFLOOR	094X2BEDBED	0.00	4.33	Pass
5THFLOOR	094X2BEDBED1	0.00	9.17	Pass

6th Floor:

Block	Zone	Criterion A (%)	Criterion B (hr)	Pass/Fail
6THFLOOR	5THX020X1BEDBED	0.00	8.33	Pass
6THFLOOR	6THX010X1BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX010X1BEDBED	0.04	11.83	Pass
6THFLOOR	6THX011X2BDLVNGKTCHN	0.20	N/A	Pass
6THFLOOR	6THX011X2BEDBED	0.39	17.00	Pass
6THFLOOR	6THX011X2BEDBED1	1.05	12.50	Pass
6THFLOOR	6THX012X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX012X2BEDBED	0.00	4.67	Pass
6THFLOOR	6THX012X2BEDBED1	0.00	2.17	Pass
6THFLOOR	6THX013X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX013X2BEDBED	0.39	13.33	Pass
6THFLOOR	6THX013X2BEDBED1	0.00	18.00	Pass
6THFLOOR	6THX014X2BDLVNGKTCHN	0.03	N/A	Pass
6THFLOOR	6THX014X2BEDBED	0.13	16.50	Pass
6THFLOOR	6THX014X2BEDBED1	0.47	9.17	Pass
6THFLOOR	6THX015X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX015X2BEDBED	0.03	19.33	Pass
6THFLOOR	6THX015X2BEDBED1	0.36	13.50	Pass
6THFLOOR	6THX016X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX016X2BEDBED	0.11	14.67	Pass
6THFLOOR	6THX016X2BEDBED1	0.06	13.83	Pass
6THFLOOR	6THX017X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX017X2BEDBED	0.00	15.83	Pass
6THFLOOR	6THX017X2BEDBED1	0.00	19.33	Pass
6THFLOOR	6THX018X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX018X2BEDBED	0.00	6.50	Pass
6THFLOOR	6THX018X2BEDBED1	0.00	3.17	Pass
6THFLOOR	6THX019X1BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX019X1BEDBED	0.03	12.00	Pass
6THFLOOR	6THX020X1BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX021X2BDLVNGKTCHN	0.34	N/A	Pass
6THFLOOR	6THX021X2BED	0.78	11.83	Pass
6THFLOOR	6THX021X2BEDBED	0.50	18.67	Pass
6THFLOOR	6THX022X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX022X2BEDBED	0.00	4.17	Pass
6THFLOOR	6THX022X2BEDBED1	0.00	9.00	Pass
6THFLOOR	6THX095X2BDLVNGKTCHN	0.28	N/A	Pass
6THFLOOR	6THX095X2BEDBED	0.46	19.67	Pass
6THFLOOR	6THX095X2BEDBED1	1.17	14.50	Pass
6THFLOOR	6THX096X2BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX096X2BEDBED	0.00	3.50	Pass
6THFLOOR	6THX096X2BEDBED1	0.00	7.33	Pass
6THFLOOR	6THX097X1BDLVNGKTCHN	0.35	N/A	Pass
6THFLOOR	6THX098X1BDLVNGKTCHN	0.00	N/A	Pass
6THFLOOR	6THX099X1BDLVNGKTCHN	0.67	N/A	Pass
6THFLOOR	6THX099X1BEDBED	1.32	18.00	Pass

7th Floor:

7THFLOOR	7THX005X2BEDBED	1.39	25.50	Pass
7THFLOOR	7THX005X2BEDBED1	2.43	19.50	Pass
7THFLOOR	7THX005X2BEDBED2	2.50	20.67	Pass
7THFLOOR	7THX005X3BDLVNGKTCHN	1.06	N/A	Pass
7THFLOOR	7THX006X2BDLVNGKTCHN	0.18	N/A	Pass
7THFLOOR	7THX006X2BEDBED	0.18	9.83	Pass
7THFLOOR	7THX006X2BEDBED1	0.09	16.50	Pass
7THFLOOR	7THX008X1BDLVNGKTCHN	0.00	N/A	Pass
7THFLOOR	7THX008X2BEDBED	0.15	12.17	Pass
7THFLOOR	7THX009X1BDLVNGKTCHN	1.49	N/A	Pass
7THFLOOR	7THX009X2BDLVNGKTCHN	1.35	5.83	Pass
7THFLOOR	7THX009X2BEDBED	2.47	22.50	Pass
7THFLOOR	7THX010X1BDLVNGKTCHN	0.43	N/A	Pass
7THFLOOR	7THX010X1BEDBED	0.29	9.67	Pass
7THFLOOR	7THX011X2BDLVNGKTCHN	0.79	N/A	Pass
7THFLOOR	7THX011X2BEDBED	1.06	23.83	Pass
7THFLOOR	7THX011X2BEDBED1	2.07	17.33	Pass
7THFLOOR	7THX012X3BDLVNGKTCHN	1.20	N/A	Pass
7THFLOOR	7THX012X3BEDBED	0.49	12.83	Pass
7THFLOOR	7THX012X3BEDBED1	0.19	22.50	Pass
7THFLOOR	7THX012X3BEDBED2	1.48	20.83	Pass
7THFLOOR	7THX015X3BDLVNGKIT	1.53	N/A	Pass
7THFLOOR	7THX015X3BEDBED	1.97	20.67	Pass
7THFLOOR	7THX015X3BEDBED1	0.81	28.67	Pass
7THFLOOR	7THX015X3BEDBED2	1.10	22.00	Pass
7THFLOOR	7THX016X3BDLVNGKTCHN	1.78	N/A	Pass
7THFLOOR	7THX016X3BEDBED	0.85	30.50	Pass
7THFLOOR	7THX016X3BEDBED1	0.80	31.50	Pass
7THFLOOR	7THX016X3BEDBED2	0.80	30.50	Pass
7THFLOOR	7THX017X3BDLVNGKTCHN	0.36	N/A	Pass
7THFLOOR	7THX017X3BEDBED	0.55	17.33	Pass
7THFLOOR	7THX017X3BEDBED1	0.52	23.67	Pass
7THFLOOR	7THX017X3BEDBED2	0.37	27.83	Pass
7THFLOOR	7THX018X2BDLVNGKTCHN	0.09	N/A	Pass
7THFLOOR	7THX018X2BEDBED	0.11	14.67	Pass
7THFLOOR	7THX018X2BEDBED1	0.15	9.00	Pass
7THFLOOR	7THX019X1BDLVNGKTCHN	0.44	N/A	Pass
7THFLOOR	7THX019X1BEDBED	0.51	18.33	Pass
7THFLOOR	7THX020X1BDLVNGKTCHN	0.06	N/A	Pass
7THFLOOR	7THX020X1BEDBED	0.04	20.17	Pass
7THFLOOR	7THX021X2BDLVNGKTCHN	1.29	N/A	Pass
7THFLOOR	7THX021X2BED	2.11	20.33	Pass
7THFLOOR	7THX021X2BEDBED	1.42	25.67	Pass
7THFLOOR	7THX022X2BDLVNGKTCHN	0.29	N/A	Pass
7THFLOOR	7THX022X2BEDBED	0.15	9.17	Pass
7THFLOOR	7THX022X2BEDBED1	0.09	17.00	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.