

Poland Street Zone – Jersey Wharf
Environmental Standards and Energy Statement

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1 Executive Summary

This Environmental Standards and Energy Statement has been prepared in support of the Application for Full Planning Permission and Demolition, within a conservation area, for Poland Street Zone – Jersey Wharf.

It should be noted that the site is 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.

This Statement seeks to demonstrate how Manchester City Council's (MCC) sustainability policies within the Core Strategy (2012) and Manchester Guide to Development (2007) have informed the Proposed Development. This Statement should be read in conjunction with a separate Sustainability Statement, which aims to address how the Proposed Development is responding to the Zero Carbon and sustainability related policies including Manchester and Greater Manchester Combined Authority.

In summary, the development is actively targeting and achieving the following environmental standards in line with the planning policy and aiming to align with the carbon reductions of new building regulation.

- The Proposed Development can meet the EN6 planning requirement of 15% improvement on Part L 2010, which is approximately 9% over above Part L1 2013 for dwellings, and 6% over above Part L2 2013 for non-dwellings.
- The development adopts "fabric first" approach to developing an efficient, low carbon, comfortable and healthy homes, with heat loss due to building fabric and air leakage being reduced to a minimum.
- The development proposes a large amount of roof mounted PV arrays, further reducing the carbon emissions of the building.
- Based upon the SAP calculations carried out at this stage the dwellings of the development aim to achieve an overall 23% improvement over Part L 2013 based upon the carbon factors used within SAP 2012.

The Ministry of Housing, Communities & Local Government released in January 2022 an updated version of Building Regulation Part L, which is due to come into force in June 2022. The update to Part L is designed to provide a stepping-stone to more stringent requirements to meet the Future Homes Standard in 2025 and focuses on a combined approach of improving fabric thermal performance and mitigating the carbon emissions from using fossil-fuel. Due to the decarbonisation of national grid, the new Part L will lead to heat electrification solutions in the UK.

Whilst the Proposed Development has been designed under the current version of Part L (2013), due to the decarbonisation of the national grid the carbon factors in SAP10 have improved from 0.519kgCO₂/kWh to 0.136kgCO₂/kWh. This together with the "fabric first" approach and the use of roof PV arrays enables the development to align with the carbon reductions in the new Part L updates.

1.1 Scope of the Document

This Environmental Standards and Energy Statement has been prepared in support of the Application for Full Planning Permission and Demolition, within a conservation area, for Ancoats Phase 3 – Jersey Wharf.

This Statement seeks to demonstrate how Manchester City Council's (MCC) environmental sustainability policies have informed the Proposed Development.

The Statement comprises the following sections:

- **Planning Policy Review** to set the context for the development and identify key present and potential future planning related environmental sustainability targets;
- **Energy Statement** to summarise how the development responds to the carbon reductions, and
- **Environmental Standards Review** to outline how the development will respond to the Environmental Standards 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.

It is recognised that sustainable development cuts across a number of issues and disciplines, reference should be made to the accompanying planning documents for further technical details. Of particular note are the following documents:

- Water Management and Weather Resilience (Curtins Engineers)
- Waste Management (PRP Architects)
- Construction Management (Manchester Life Development Company)
- Ecological Survey (Tyler Grange)
- Framework Travel Plan (Hydrock)

1.2 Description of Development

The Proposed Development involves the erection of 2 No 8 storey buildings to provide 190 residential units, approx. 636m² of ground floor commercial floorspace, and ancillary amenity space, cycle parking provision, hard and soft landscaping, access and servicing and other associated works.

1.3 Site Description

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

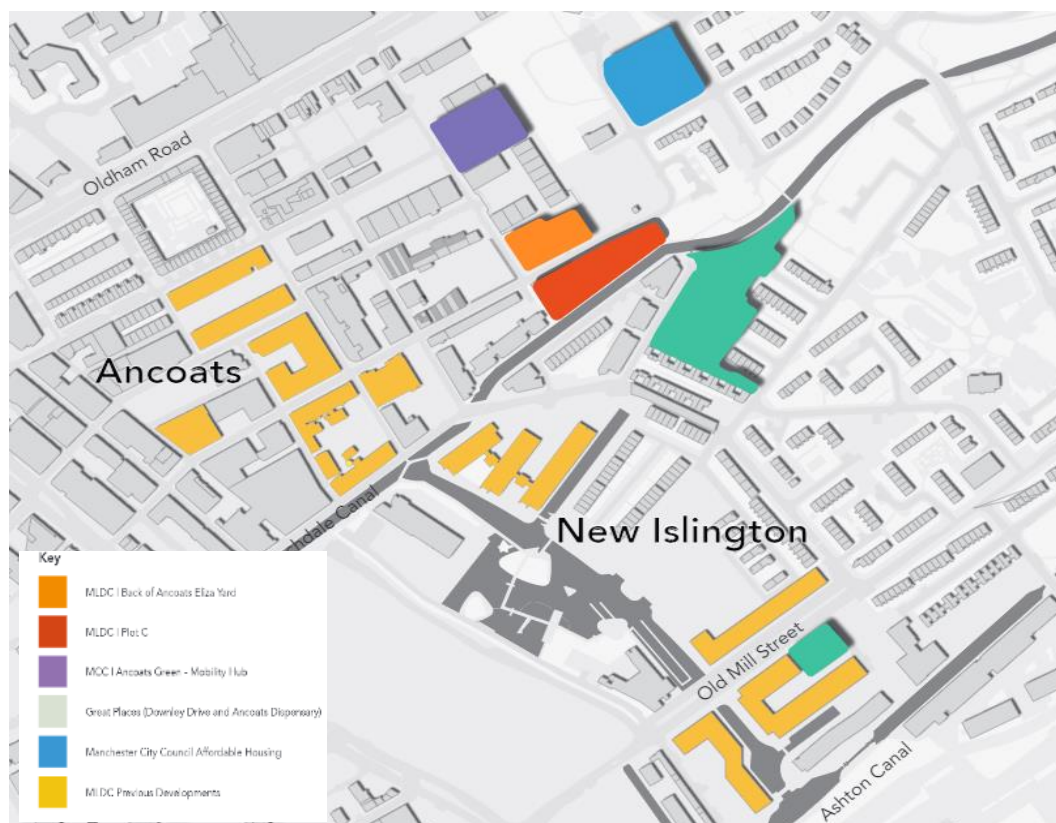


Figure 1-1 Location plan

2 Planning Policy Context

2.1 Scope of the Policy Review

To better understand the sustainability drivers for this development and set the policy context, a summary of key sustainable development policies at a national and local level has been provided. These reviews are in addition to that of the Sustainability Statement that will be included in support of the planning application, which sets out the overarching strategy and vision of Manchester Life for the Proposed Development.

2.2 National Policy

National Planning Policy Framework (Updated Feb 2019)

The National Planning Policy Framework and relevant planning practice guidance sets out the Government's planning policies for England. **The presumption in favour of sustainable development** is at the heart of the framework, cascading through to local plans and the approval process for planning applications.

Key issues addressed are summarised below:

Delivering a sufficient supply of homes	Achieving well-designed places
Building a strong, competitive economy	Protecting Green Belt land
Ensuring the vitality of town centres	Meeting the challenge of climate change, flooding and coastal change
Promoting healthy and safe communities	Conserving and enhancing the natural environment
Promoting sustainable transport	Conserving and enhancing the historic environment
Supporting high quality communications	Facilitating the sustainable use of minerals
Making effective use of land	

25 Year Environmental Plan (2018)

This plan sets out the Government's ambition to '*...champion sustainable development, lead in environmental science, innovate to achieve clean growth and increase resource efficiency to provide benefits to both our environment and economy*'.

The plan provides fresh impetus for the principles of sustainable development to be at the heart of decision-making, setting out clear objectives and common language for policy and decision makers to adopt

Policies and actions are structured around six key areas:

Chapter 1: Using and managing land sustainability
Chapter 2: recovering nature and enhancing the beauty of landscapes
Chapter 3: Connecting people with the environment to improve health & wellbeing
Chapter 4: Increasing resource efficiency and reducing pollution and waste
Chapter 5: Securing clean, healthy, productive and biologically diverse seas and oceans
Chapter 6: Protecting and improving our global environment

Climate Change Act 2008

The Climate Change Act sets out the UK Government's pathway to reduce greenhouse gas emissions by at least 80% (relative to 1990 levels) by 2050. This includes the requirements to set legally binding carbon budgets over five-year periods to act as intermediate milestones.

On 27th June 2019, a more ambitious target of net zero carbon by 2050 was adopted by the UK Government in response to public sentiment and the release of the Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C (October 2018).

Part L 2021 Building Regulation and Future Homes Policy (January 2022)

The Ministry of Housing, Communities & Local Government published Part L 2021 in January 2022. A series of energy and carbon targets have been set for the upcoming progressive energy improvement policies towards achieving net zero carbon standard in the future:

- A 31% reduction in carbon emissions over the current standard, achieved through a more minor increase to fabric standards, alongside low carbon heating and/or renewables e.g. PV.
- The intention for an average home built to Future Homes Standard 2025 will have 75-80% fewer carbon emissions than one built to Part L 2013.

The approved document takes effect on 15 June 2022. It does not apply to work subject to a building notice, full plans application or initial notice submitted before that date, provided the work for each building is started before 15 June 2023.

2.3 Local Policy

Core Strategy Development Plan Document (Adopted 11th July 2012):

The Manchester Local Plan guides development within Manchester. The Core Strategy is the key document in Manchester's Local Plan, covering a period of 15 years from 2012 to 2027. It sets out the long-term strategic policies for Manchester's future development, forming the framework for planning applications.

Sustainability cuts across the objectives set out within the Core Strategy. A summary of key policies relevant to the Environmental Standards and Energy Statement are summarised below:

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 that assist in creating a city which people choose to live, learn, work and relax. It does not create new planning policy but rather complements existing policies by providing additional guidance on compliance. Where policies from the former Unitary Development Plan (UDP) are referenced, these are superseded by the Core Strategy as outlined within Appendix C – Superseded UDP Policies of Manchester Core Strategy 2012-2027. Otherwise, the principles and guidance on the Environmental Standards Statement remain current and complimentary to the Local Plan.

‘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:

- 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 Government published in January 2022 an updated version of Part L (Part L 2021), which sets out the progressive energy targets for Part L 2021 representing an approximately 31% improvement over above Part L 2013 standard. The development's carbon targets with respect to the dwellings aim to work towards Part L 2021 to demonstrate the client's commitment to low carbon design.

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.

Further Information

Note that further details and information pertaining to the design processes and assumptions outlined within this section are detailed in:

- Appendix A.1 - Part L1A - SAP Calculation Compliance Summary
- Appendix A.2 - Part L2A - Non-Dwelling Compliance Report

3.2 Baseline Information

Development Summary

The Proposed Development involves the erection of 2No 8-storey buildings to provide 190 residential units, with the 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:

Typology	Quantity	Typical Modelled Area (m ²)
1 Bed, 2 Person Apartment	32	50.6
2 Bed, 4 Person Apartment	128	73.1
3 Bed, 6 Person Apartment	30	71.8
Amenity Spaces	2	71

Table 3-1 Development Modelling Allowances

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:

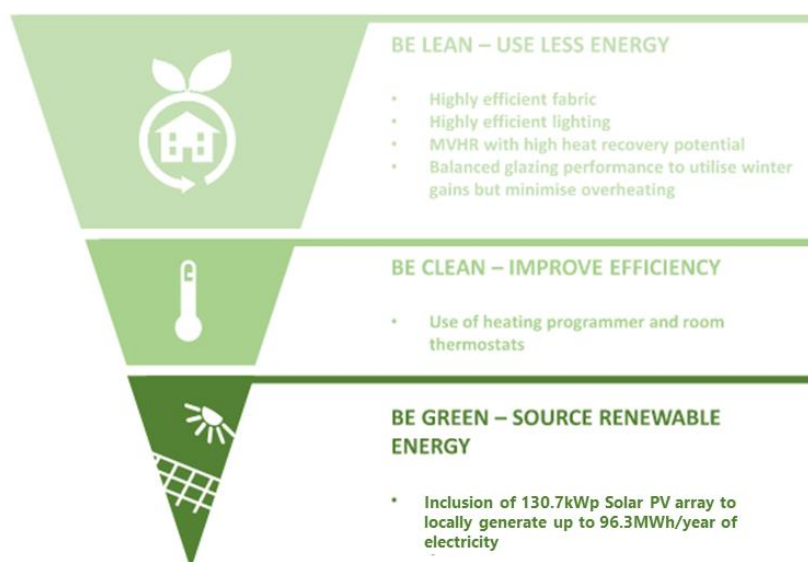


Figure 3-1 Energy Hierarchy Summary

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)	1.3 W/m ² K	1.3 W/m ² K*
Glazing G-Value	0.53 (0.8 Frame Factor)	0.53 (0.8 Frame Factor)
Air Permeability	2m ³ /(h.m ²) @ 50Pa	3m ³ /(h.m ²) @ 50Pa
Ventilation	MVHR, Low SFP, HR 81%	MVHR, Low SFP, HR 81%
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 3-2 Proposed Specification Summary

*Note: non-dwelling values are liable to change subject to design development. It will be ensured that the compliance margin required by EN6 will be maintained following any amendment to the design.

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

3.3 Emissions Calculations

Baseline: 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 (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. The table below outlines the averaged TER for the Dwelling and Non-Dwelling portions of the development:

Typology	TER (kgCO ₂ /m ² /year)
Dwelling	23.1
Non-Dwelling	20.2

Table 3-3 Baseline TER

Note that, as stipulated within Section 3.2, Shell and Core areas have not been included within compliance calculations as servicing strategies and fit-out will be further developed in the future.

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. Further adding highly efficient MVHR unit for mechanical ventilation and efficient LED lighting the design performance, with respect to emissions, exceeds the requirements of Part L 2013.

Assessment has been undertaken to demonstrate that the use of PV, coupled with a high-performance fabric and an all-electric heating solution has proven to be the most economically effective design for this project from a capital perspective whilst ensuring energy performance targets are met.

The use of renewable technologies on-site as indicated in Figure 3-2 below has reduced the carbon emissions significantly, enabling the development to achieve a 23% improvement over above Part L 2013.

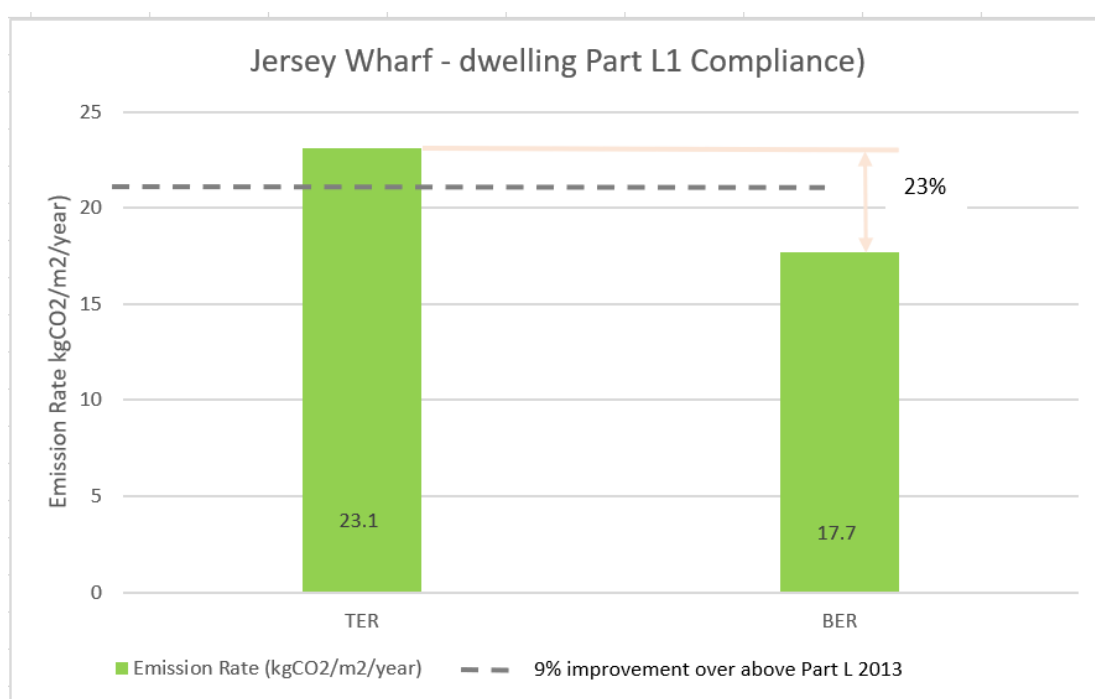


Figure 3-2 Dwelling Part L1 Compliance



Figure 3-3 Non-Dwelling Part L2 Compliance

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, using SAP 2012 carbon factors (Part L 2013) the following targets have been achieved, with an overall 23% improvement over above Part L 2013 for dwellings.

	- 15% over above Part L (2010)	- 9% (dwellings) / 6% (non-dwellings) over above Part L (2013)
Relevant Document	MCC Core Strategy 2012-2027 (The two carbon standards are equivalent in practice)	
Without Onsite PV	Yes	Yes
With Onsite PV	Yes	Yes

Table 3-4 Summary of Carbon Performance Standards

The table below summarises the Dwellings and Non-Dwellings carbon emissions respectively, as per requirements outlined within Appendix A of the Manchester Core Strategy 2012 to 2027 which supersedes UDP policy E1.5 referenced within the SPD:

Typology	Carbon Emissions (kgCO ₂ /m ² /year)	Regulated Energy Consumption (kWh/m ² /year)
Dwellings	17.7	34.1
Non-Dwellings	16.3	31.4

Table 3-5 Regulated Energy Consumption and Emissions Summary

4 Environmental Standards Review

4.1 Overview

This section summarises how the Proposed 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 current Building Regulations Part L (2013), the Core Strategy (superseding E1.5 from the UDP) and the future Part L 2020 standard. 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
- Roof mounted PV to generate electricity for use in the building

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, note that EN6 from the Manchester Core Strategy supersedes E1.5 as outlined within the UDP and referenced within the SPD:

Domestic

Target 1 (Network Development Area): CHP/district heating anchor or connection or where not feasible, a 15% increase on Part L 2010

Target 2 (Electricity Intense Buildings): 15% improvement on Part L 2010

Target 3 (Micro Generation Area): 15% improvement on Part L 2010

Through adopting the 'fabric first' approach summarised above, using SAP 2012, the Proposed Development has the potential to deliver up to 23% carbon reductions against Part L 2013, driven by the client aspiration for a future proof building, well above 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 as well as the documents outlined below which outline both the Part L1A and Part L2A performance:

- Appendix A.1 - Part L1A - SAP Block Compliance Summary
- Appendix A.2 - Part L2A – Non-Dwelling Compliance Report

4.3 Environmental Design

This section aims to summarise key headlines on how the Proposed Development has addressed Core Policy DM 1 Development Management which supersedes those outlined within the UDP.

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 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 outline specification.

As the project progresses, the proposal will continually be reviewed to identify any areas vulnerable to damage both internally and externally and where possible the risk will be removed. During the concept design and spatial coordination stages of the project, the external envelope was developed to utilise robust, long lasting, and sustainable materials through the incorporation of brick and terracotta. Aluminium windows have been proposed with long warranties and lifespans to support the energy model with good air tightness and thermal qualities.

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 will be considered at detailed design and during construction.

Reference should be made to the following documents for further details:

- Design and Access Statement (PRP Architects)

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.

The Proposed Development will take measures to minimise the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself.

- **Traffic** – There will be a shared residential/commercial vehicle loading bay at the west of the site. In addition, there shall be 3 No disabled parking bays at ground level. Given the limited vehicle access it is envisaged that the Proposed 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 proposed energy strategy is for an all-electric approach with no frequent use combustion systems on-site. It should be highlighted that there will be a diesel 'back-up' generator at ground level in Block A, which shall operate only during emergency conditions and when being tested (once monthly for 2 hours).

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

For further information please refer to:

- Air Quality Assessment (Hoare Lea)
- Framework Travel Plan (Hydrock)
- Ventilation Statement (Buro Happold).

Policy T1 Sustainable Transport

Policy T1 from the Core Strategy supersedes a series of sustainability related guidance from the UDP policy as referenced within the SPD.

The Proposed Development benefits from excellent existing sustainable transport options and local amenities, notably:

- 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 Proposed Development to the surrounding area and beyond to key pedestrian routes.
- 190 cycle parking spaces have been provided on site. These spaces are provided across both blocks in secure and covered cycle storage areas on the building's ground floor accessed off Jersey Street in Block A, and from the rear communal garden in Block B. In addition, cycle storage areas will also be accessible from the building's internal circulation. 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.
- 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 Proposed 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 along with 25% of spaces provided with Electric Vehicle chargers, rising to 100% of spaces in the future. 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 Hub development will include a mix of commercial space, 408 car parking spaces, car club facilities, parking spaces and a deliveries hub. Residents of the proposed development will be encouraged to use the sustainable facilities implemented by The Hub development.
- Three disabled bays will be provided within the proposed development in addition to two drop-off loading bays. Additional car parking provision of 60 spaces will be facilitated within the recently consented Ancoats Mobility Hub. The Hub will be located on Poland Street and is a short walk for the Jersey Wharf site.
- The Mobility Hub is being brought forward with a dedicated digital platform which allows services to be accessible to residents from their smart phones.

- From the outset, sustainable travel will be promoted to residents of the development. The Travel Plan will be launched as soon as possible following 40% occupation and will be continually marketed through the provision and updating of travel information, leaflets and communication sessions.
- All residents will also be issued with travel 'Welcome Packs' promoting the alternative transport available from the hub and local area, including details of the public transport, walking and cycling routes between their homes, workplace and surrounding amenities. Details of the Mobility Hubs digital platform will also be included in the welcome pack.
- The 3No disabled 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'.

For further information please refer to:

- Framework Travel Plan (Hydrock)

4.4 Water Management and Weather Resilience

Policy EN14 Flood Risk

A Flood Risk Assessment (FRA) has been 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 including rain gardens. Areas of hardstanding have been minimized with the introduction of soft landscaped areas to the south of the building. 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-based 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.

For further information please refer to:

- Flood Risk Assessment and Drainage Strategy Report (Curtins)

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 3 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 will be managed for the Contractor to provide copies of their pollution prevention policies and demonstrate how these are implemented on site, for example through site specific procedures, tool box talks and site noticeboards. This will be managed through a conditioned Construction Management Plan.

4.5 Waste Management

Policy EN 19 Waste

A Waste Management Strategy has been prepared by PRP Architects for the development, demonstrating compliance with local and national policy. All new developments must meet the requirements of Part H6 of the Building Regulations 2000 (solid waste storage) which states:

- Adequate means of storing solid waste shall be provided; and
- Adequate means of access should be provided for people in the building to the place of storage, and, from the place of storage to a collection point agreed by the waste collection authority.

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 waste

The Manchester Residential Quality Guidance Document advises that for high density developments, each property is entitled to 110 litres of refuse capacity per week. This is split into 50% general waste, 25% pulpable (paper / card) recycling and 25% co-mingled recycling (plastic / metal / glass). The calculation assumes a fortnightly refuse collection, so the requirement has been doubled to 220 litres per apartment.

A total volume storage requirement of 41,800 litres will be met with 38x1100L Eurobins.

Commercial Waste

Manchester City Council Waste Storage and Collection Guidance for New Developments states that: 2.6 litres per metre squared of gross floor space of refuse is required for offices and 5 litres per metre squared for retail; and restaurants/fast food outlets require 1500 litres per 20no. dining spaces.

The use class for the commercial units is class E and this allows for units to be either office, retail or restaurant outlet. Unit D is the only unit designated as a restaurant. It was assumed all other units as retail for the purposes of the refuse calculation as this is the most onerous calculation.

A total volume storage requirement of 8,515 litres will be met with 8x1100L Eurobins. This will be located in a separate refuse area.

Waste Management

A refuse store has been provided within each block, located adjacent to the entrance core, allowing residents to travel downstairs and dispose of waste without leaving the building. One commercial refuse store has also been provided in each building. This will be shared between the commercial units.

All refuse will be collected kerb side on Jersey Street.

The MCC document, GD 04 Waste Storage and Collection Guidance for New Developments Version 6 states that the development needs to provide 0.43m² of refuse space per apartment. Therefore, the minimum space requirements for the refuse storage will be 82 sqm. Jersey Wharf provides a total of 130 sqm of refuse store, so exceeds this guideline. Refuse stores will be ventilated to meet Part H of building regulations.

4.6 Construction Management

Construction impacts will be minimised through Contractor's Construction Management Plan. Such a Construction Management Plan will be prepared prior to the commencement of development that will specify the best practice measures, which will be implemented to minimise potential impacts.

This is likely to include:

- Adopt responsible construction management practices, including registration with the Considerate Constructor Scheme and implementation of the Code of Considerate Practice, designed to encourage best practice beyond statutory requirements.
- Monitoring of construction site energy and water consumption
- During construction, best practice measures will be 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)

Contractual targets will be set to minimise the generation of construction waste, and a Resource Management Plan required before commencement on site to set out how any waste produced will be diverted from landfill through consideration of re-use and recycling opportunities.

4.7 Biodiversity

Policy EN15 Biodiversity and Geological Conservation

This policy requires the protection and enhancement of sites of biodiversity value in line with Manchester's Biodiversity Strategy.

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

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

- No direct impacts are expected to the Rochdale Canal directly adjacent to the Proposed Development. This canal is a Special Area of Conservation (SAC) to the northeast of the site but not where it passes the site. It is expected that a Construction and Environmental Management Plan (CEMP) will be put in place to prevent dust pollution or other incidental spills which may lead to hydrological impacts to the canal and other Sites of Biological Importance (SBI).
- Though the site falls within the Site of Special Scientific Interest (SSSI) risk zone for Rochdale Canal SSSI (Hollinwood Branch Canal and Huddersfield Narrow Canal), the proposed development does not trigger the need for further action for any of these sites.
- The site is generally of negligible ecological importance, comprising built form and a small area of amenity grassland. More valuable habitats are present in the form of scattered trees and bramble scrub/ruderal vegetation, but their area is minor. With appropriate soft landscaping detail and other ecological enhancements, it is considered that the development proposals would not result in any net loss in biodiversity.
- The results of the surveys confirmed the presence of two small common pipistrelle roosts within the building and one tree present within the site. All other trees were considered to provide negligible roost potential for bats. Sufficient opportunity exists in the proposals to mitigate for the loss of these roosts through the installation of replacement, integrated roost features in the re-developed building within the site. The canal corridor was only recorded to support common pipistrelle bats, so is not considered to be adversely affected as a significant commuting corridor for bats using the locality.
- Habitat loss due to vegetation clearance can be mitigated for through the provision of new nest box features targeting species of conservation concern and those locally rare (i.e. black redstart) and through sensitive landscaping.
- There is opportunity to enhance the site by aiming to implement replacement tree planting in the landscape proposals.
- Biodiversity Net Gain assessment has been carried out. With the implementation of appropriate mitigation and compensation, 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.

4.8 Adaptation to Climate Change

Policy EN 8 Adaptation to Climate Change

The design team acknowledge that climate change presents one of the biggest global challenges of our time and welcome the leadership demonstrated by the Council by encouraging local solutions through 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 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.

For further information please refer to:

- Drainage Strategy (Curtins)
- Ventilation Statement (Buro Happold Engineering)

Appendix A Part L Pre-assessment

A.1 Part L1A - SAP Block Compliance Summary

Dwelling Type Name	Quantity	Total Floor Area per Apartment (m ²)	DER	TER
00-01 (2B4P Corner)	1	75.17	19.4	26.5
00-02 (1B2P Inline)	1	50.31	20.3	27.0
00-03 (2B4P Inline EF)	2	70.5	18.4	23.7
00-04 (1B2P Inline)	1	50.14	19.8	25.9
01-05 (3B6P Corner EF)	1	106.3	17.8	23.0
01-05 (3B6P Corner)	4	106.3	14.9	19.3
01-05 (3B6P Corner ER)	1	106.3	15.7	20.2
01-06 (2B4P Corner)	5	75.53	18.9	23.6
01-06 (2B4P Corner ER)	1	75.53	19.7	24.4
01-07 (2B4P Inline EF)	1	77.94	17.9	23.4
01-07 (2B4P Inline)	4	77.94	14.8	19.8
01-07 (2B4P Inline ER)	1	77.94	15.3	20.3
01-08 (1B2P Inline)	5	50.31	17.0	23.3
01-08 (1B2P Inline ER)	1	50.31	17.8	24.1
01-09 (2B4P Corner EF)	1	72.17	21.9	27.9
01-09 (2B4P Corner)	4	72.17	19.1	24.1
01-09 (2B4P Corner ER)	1	50.19	19.8	25.0
01-10 (1B2P Inline EF)	5	50.19	20.0	27.5
01-10 (1B2P Inline)	20	50.19	17.0	23.6
01-10 (1B2P Inline ER)	5	70.38	17.6	24.4
01-11 (2B4P Inline EF)	2	70.38	19.0	25.6
01-11 (2B4P Inline)	8	70.38	16.0	21.7
01-11 (2B4P Inline ER)	2	71.83	16.7	22.5
01-12 (2B4P Corner EF)	1	71.83	23.3	28.3
01-12 (2B4P Corner)	4	71.83	20.4	24.7
01-12 (2B4P Corner ER)	1	70.5	21.2	25.6
01-13 (2B4P Inline)	15	70.5	15.2	20.2
01-13 (2B4P Inline ER)	3	70.86	16.0	20.9
01-14 (2B4P Corner EF)	1	70.86	19.0	24.8
01-14 (2B4P Corner)	4	70.86	16.1	21.2
01-14 (2B4P Corner ER)	1	51.87	16.8	22.1
01-15 (1B2P Inline EF)	1	51.87	20.6	27.4
01-15 (1B2P Inline)	4	51.87	17.5	23.6
01-15 (1B2P Inline ER)	1	70.22	18.2	24.4
01-16 (2B4P Corner EF)	1	70.22	21.8	27.1
01-16 (2B4P Corner)	4	70.22	19.1	23.6

01-16 (2B4P Corner ER)	1	70.22	19.9	24.5
01-17 (2B4P Corner EF)	1	70.55	20.1	25.4
01-17 (2B4P Corner)	4	70.55	17.1	21.9
01-17 (2B4P Corner ER)	1	70.55	17.9	22.7
01-18 (1B2P Inline EF)	2	50.1	19.7	25.9
01-18 (1B2P Inline)	8	50.1	16.5	22.5
01-18 (1B2P Inline ER)	2	50.1	17.3	23.1
01-19 (2B4P Inline EF)	1	81.7	19.3	25.0
01-19 (2B4P Inline)	4	81.7	16.3	21.2
01-19 (2B4P Inline ER)	1	81.7	17.0	21.9
01-20 (2B4P Inline EF)	1	81.5	17.6	22.9
01-20 (2B4P Inline)	4	81.5	14.5	19.3
01-20 (2B4P Inline ER)	1	81.5	15.2	20.0
01-21 (2B4P Inline EF)	1	70.88	18.4	23.7
01-21 (2B4P Inline)	4	70.88	15.2	20.2
01-21 (2B4P Inline ER)	1	70.88	16.0	20.9
01-22 (2B4P Corner EF)	1	71.26	20.5	25.6
01-22 (2B4P Corner)	4	71.26	17.6	22.1
01-22 (2B4P Corner ER)	1	71.26	20.2	25.0
01-23 (2B4P Corner EF)	1	71.26	22.6	28.2
01-23 (2B4P Corner)	4	71.26	19.9	24.6
01-23 (2B4P Corner ER)	1	71.26	20.5	25.4
01-25 (2B4P Corner EF)	1	70.55	22.1	28.1
01-25 (2B4P Corner ER)	1	70.55	20.0	25.3
01-25 (2B4P Corner)	4	70.55	19.4	24.4
07-26 (2B4P Pent)	4	70.44	20.3	27.2
07-27 (2B4P Pent)	2	76.8	18.8	23.9
07-29 (2B4P Pent)	1	71.17	22.6	27.9
07-30 (3B6P Pent)	1	97.28	19.9	25.1
07-31 (2B4P Pent)	1	73	22.6	27.9
07-32 (2B4P Pent)	3	70.9	19.1	24.2
07-33 (3B6P Pent)	1	96.54	18.4	23.1
07-34 (3B6P Pent)	1	96.79	20.3	25.1
07-35 (3B6P Pent)	1	97.52	19.5	23.6
07-36 (3B6P Pent)	1	98.88	21.2	26.0
07-37 (3B6P Pent)	1	101.2	19.3	23.3
Area-weighted average			17.7	23.1
DER/TER improvement				23.27%

A.2 Part L2A – Non-Dwelling Compliance Report

Design Note

Project Poland Street Zone – Plot C (Jersey Wharf)
Subject Non-Residential Part L Preliminary Assessment
Project no 0048355
Date 28 April 2022

Revision	Description	Issued by	Date	Approved (signature)
00	Part L Preliminary Assessment	LJ	12/11/21	JW
01	Updated Part L Assessment	JW	28/04/22	MR

1 Introduction

This report details the compliance of the Poland Street Zone – Plot C (Jersey Wharf) non-dwelling areas with the 2013 edition of the Building Regulations Part L. Compliance with Part L has been assessed using the Approved Document L2A.

1.1 Objective

The aim of this assessment is to assess design compliance with the Building Regulations Part L (2013) based on the stage 3 design proposals. The following targets have been set for the building:

- 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 (6% improvement on Part L 2013).

This preliminary assessment should be used to ensure best practice design across later design stages and identify key areas for improvement or where performance should be maintained.

1.2 Responsibilities

The design team should ensure that going forward their design and specifications aim to meet or exceed the standards set out in this compliance report, so that their designs do not compromise the overall compliance with Part L:

- Building fabric design and specification – Architect
- Mechanical services design and specification – Mechanical Services Designer
- Lighting and power design and specification – Electrical Services Designer

Compliance with the Building Regulations Part L is only achieved upon completion of the building. It is therefore necessary to address the following items during further detailed design stages, construction, and commissioning of the building:

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- Achieve the minimum mechanical and electrical systems standards set out in the Non-Domestic Building Services Compliance Guide (2013). **It will be the responsibility of the mechanical and electrical services designers to specify that equipment meets these minimum standards and the mechanical and electrical services contractors to ensure that the equipment supplied and installed meets these standards.**
- Achieve the set building fabric insulation standards and ensure continuity of insulation in the constructed building. **It will ultimately be the responsibility of the contractor to achieve this and provide calculations of the constructed fabric U-values of each element.**
- Commission the building services in accordance with the design intent. **The mechanical and electrical services contractor will be responsible for achieving this and providing enough information for the calculation of ventilation systems specific fan power.**
- Limit building air permeability by maintaining construction quality and reducing unwanted air leakage. **Achievement of this will be the responsibility of the contractor and will be influenced by the architectural detailing.**
- Completion of the building logbook that describes in simple terms how the user can operate the building in an energy efficient manner. This includes the predicted building energy consumption and how the user can measure the building energy consumption. **Achievement of this will be the responsibility of the contractor, with significant input from the design team.**

It is the design and build contractor's responsibility to employ a registered Low Carbon Energy Assessor to complete final design and construction BRUKL and EPC calculations and documentation.

This report has been produced in order to demonstrate Building Regulation Part L compliance for the proposed ground floor residential amenity spaces as part of the RIBA Stage 3 deliverables. Figure 1-1 shows the 3D representation of the Part L model. Following the assessment methodology, any spaces that are open to the outside, or not heated or mechanically ventilated are not considered within the calculation.

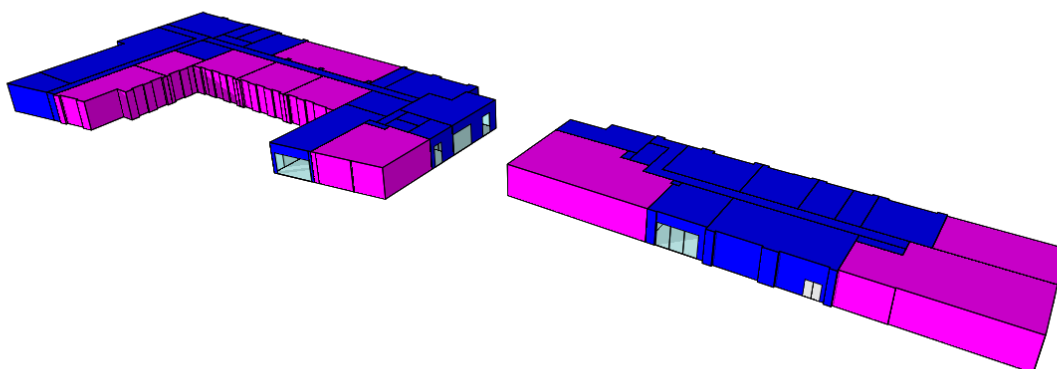


Figure 1-1 - Model Geometry

1.3 Summary

To comply with the Building Regulations Part L, the new building must achieve a BER that is less than the TER. An improvement of 19.3% has been identified at Stage 3 based on a simplified model with the assumptions detailed within this report. Further geometric, system efficiency and thermal line clarifications will be made at later stages which may result in a reduction (or improvement) in output.

The current design shows a reduction in CO₂ emissions from the notional building Part L Assumptions in accordance with MCC requirement of 15% improvement over Part L 2010 (6% Improvement over Part L 2013).

Building Geometry

Table 1-1 - Building Geometry

Model Origin	Date of submission	Model description
PRP	27/10/21	Updated Revit Model

Building Fabric Standards

The tables below summarise the minimum building fabric standards that has resulted in a building regulations Part L compliant scheme.

Table 1-2 - Building Fabric

Building Fabric	Units	U-Value	Notes
External Wall	W/m ² K	0.14	Including all walls adjacent to untreated, naturally ventilated spaces. Thermal line strategy to be developed further at Stage 4.
Ground Floor and Exposed Floor	W/m ² K	0.1	
Roof	W/m ² K	0.1	
General Glazing/ Curtain Walling	W/m ² K	1.3	Including Frames

Table 1-3 - Daylight Factors

Orientation	Light Transmission	G Value
General	0.7	0.53

Table 1-4 - Permeability Factors

Air Permeability and thermal bridging			Notes
Air Permeability	m ³ /(hr.m ²)@50Pa	2	
Thermal Bridging		10% of the overall building fabric U-value	Default value as not specifically calculated

Room Activity Definition

Room activities have been set based on the planning class, each with an equivalent NCM building area type. These are set as:

- Other: Miscellaneous 24 hour activities for circulation areas, amenity spaces (including cinema and club rooms) and entrance lobbies
- B1 Office or Workshop (Office) for staff areas including staff office, staff shower and parcel store
- B8 Warehouse/storage (Warehouse) for plant rooms, refuse areas and cycle stores

Please note that the residential corridors above GF are not intended to be heated and are therefore exempt from inclusion with Part L2A modelling.

HVAC standards

HVAC standards that have been applied can vary greatly depending on location within the building and adjacent spaces. As such, whilst this section outlines a condensed list of assumptions derived from design team information, further sources of information regarding design strategies adhered to within the compliance model will be referenced within this section:

Table 1-5 - HVAC Systems – Heating and Cooling

	Staff Office	Amenity	Entrance Lobbies
NCM System	Fan coil systems		
System	VRF System with MVHR		
Heating and Cooling			
Heating Seasonal Efficiency	SEER – 3, EER – 3		
Cooling Seasonal Efficiency	SEER – 3, EER – 3		
Emitter	Air Supply Grilles		
Fuel	Electricity		
Generator	Outdoor Condensing Unit		
Emitter	Indoor Unit/Cassette		
Ventilation			
Air supply mechanism	Centralised balanced A/C or mech vent system		
Heat recovery seasonal efficiency	0.81		
Central AHU SFP	1.6 W/(l/s)		
Terminal Unit SFP	0.3 W/(l/s)		
Ductwork leakage	Class A		
AHU CEN Classification	Class L2		

Table 1-6 – HVAC Systems – No Cooling

Heating and Cooling	Other staff areas	Circulation
NCM System	Other local room heater: unfanned	
System	Electricity panel heaters	
Seasonal Eff	1.00	
Emitter	Panel Radiator	

Table 1-7 - DHW System

The table below outlines the DHW systems:

DHW	Units	
Fuel		Electric
Generator		Local Electric Heater
Main System Efficiency		1
Storage Capacity	Litres	0
Storage Loss Factor	kWh/l/day	0
Secondary Circulation Pipe Losses	W/m	0
Secondary Circulation Pipe Length	m	0

Electrical Services

With regards to lighting at Stage 3 an efficacy of 100W/lm with a LOR of 1.00 has been used, this will be developed further at Stage 4.

Metering

Table 1-8 - Sub-Metering Allowances

Sub-meter	Provision	Comments
Sub-Metering	Automatic monitoring and targeting software with alarms for out of range values to include a complete installation that measures, records, transmits, analyses, reports, and communicates meaningful energy management information from all building energy meters and sub-meters to enable the building operator to manage the energy the building uses.	Building Energy Monitoring and Targeting Software must be installed
Heating	Heat meter all heating	
DHW	Meter cold water feed to major DHW supplies	
HVAC	Meter all MCC Panels	
Cooling	Meter electrical supply to refrigerant based cooling units and air-cooled chillers	

Lighting	Metering on a distribution board by distribution board basis	
Small Power	Metering on a distribution board by distribution board basis	
Power Factor Correction	Above 0.90	Power factor monitoring equipment must be installed. Should the stated power factor not be achieved power factor equipment must be installed.

2 Part L Results

2.1 Achieving the energy and emissions targets set for the building

Building Regulations Part L

To comply with the Building Regulations Part L, the new building must achieve a BER that is less than the TER. Current calculations are indicated in Figure 2—1 below. A reduction in emissions rate from 20.2 TER to 16.3 BER kgCO₂/m²/year was achieved, equating to 19.3% decrease over the notional model.

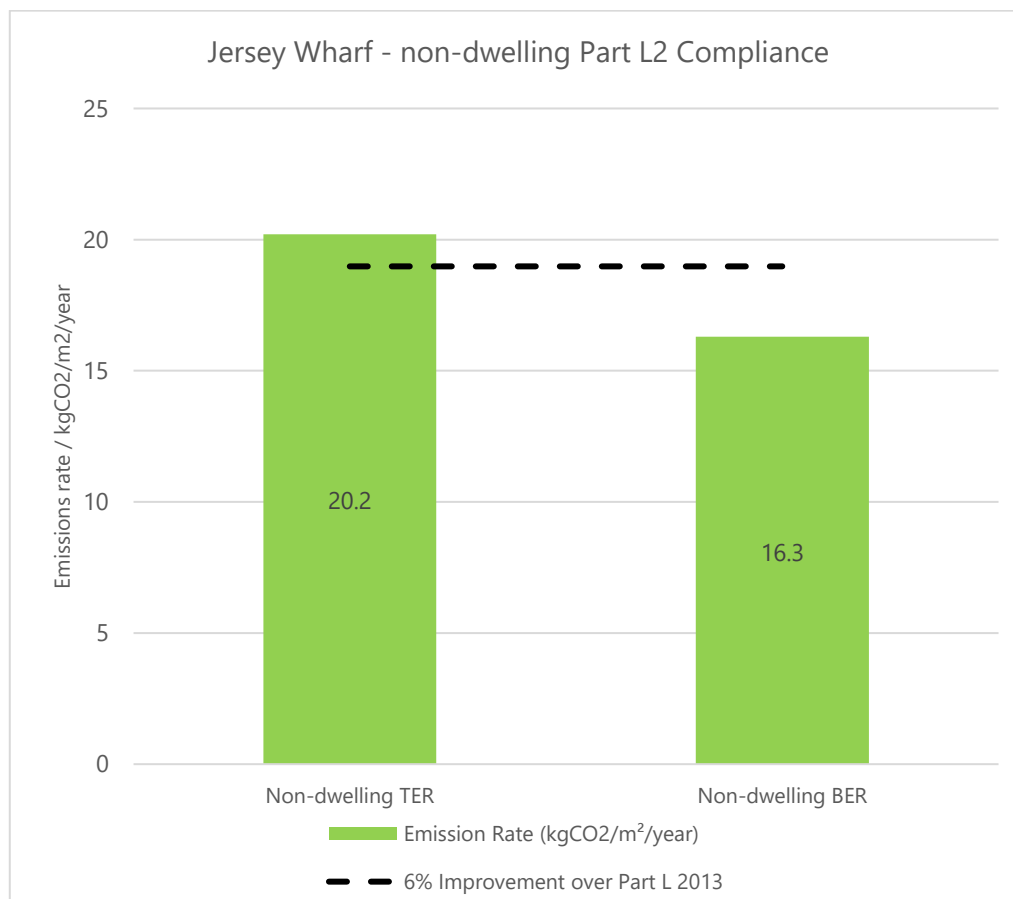


Figure 2—1 Building Emission Rate

Energy contribution from on-site renewables

At this stage, no PV has been allowed for non-dwelling areas at Stage 3. Owing to the more onerous energy requirements for dwellings, the site PV installation will be allocated to them.

Key Risks

The following risks to achieving compliance have been identified by this assessment:

- Compromising achieving the efficient lighting design, daylight, and occupancy sensing controls.
- Compromised specific fan power and heat recovery for ventilation systems
- Compromised fabric efficiency and air permeability

Appendix 1 – BRUKL Output Stage 3

BRUKL Output Document



HM Government

Compliance with England Building Regulations Part L 2013

Project name

Plot C Jersey Wharf - Non-Dwellings

As designed

Date: Fri Nov 05 12:39:45 2021

Administrative information

Building Details

Address: , Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.13

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.13

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	20.2
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	20.2
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	16.3
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	BK000142:Surf[0]
Floor	0.25	0.1	0.1	BK000133:Surf[0]
Roof	0.25	0.1	0.1	BK000133:Surf[1]
Windows***, roof windows, and rooflights	2.2	0.8	0.8	RM000014:Surf[1]
Personnel doors	2.2	2.2	2.2	BK000142:Surf[2]
Vehicle access & similar large doors	1.5	-	-	No Vehicle access doors in building
High usage entrance doors	3.5	-	-	No High usage entrance doors in building
U _a -Limit = Limiting area-weighted average U-values [W/(m ² K)] U _a -Calc = Calculated area-weighted average U-values [W/(m ² K)] U _i -Calc = Calculated maximum individual element U-values [W/(m ² K)] * There might be more than one surface where the maximum U-value occurs. ** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows. *** Display windows and similar glazing are excluded from the U-value check. N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

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

Building services

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

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

1- Split System (VRF) w MVHR

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3	3	0	1.6	0.81
Standard value	2.5*	2.55	N/A	1.6^	0.5
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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

2- Electric Radiator (Nat Vent)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	0	-
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

"No HWS in project, or hot water is provided by HVAC system"

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		
BK2 ENTRANCE LOBBY EAST		-	-	-	-	-	-	-	0.3	-	-	N/A
BK1 STAFF OFFICE		-	-	-	-	-	-	-	0.3	-	-	N/A
BK1 CLUB ROOM		-	-	-	-	-	-	-	0.3	-	-	N/A
BK1 ENTRANCE LOBBY WEST		-	-	-	-	-	-	-	0.3	-	-	N/A
BK2 CINEMA ROOM		-	-	-	-	-	-	-	0.3	-	-	N/A

General lighting and display lighting

General lighting and display lighting		Luminous efficacy [lm/W]			
Zone name		Luminaire	Lamp	Display lamp	General lighting [W]
	Standard value	60	60	22	
BK2 CYCLE STORE		100	-	-	90

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
BK2 ENTRANCE LOBBY EAST	-	-	100	-	104
BK1 STAFF OFFICE	100	-	-	-	165
BK1 STAFF SHOWER	-	-	100	-	61
BK1 PARCEL STORE	100	-	-	-	16
BK2 CIRCULATION	-	-	100	-	207
BK2 RESI REFUSE	100	-	-	-	63
BK2 COMMERCIAL REFUSE	100	-	-	-	32
BK2 STAIRCORE	-	-	100	-	53
BK1 TANK ROOM	100	-	-	-	605
BK1 CIRCULATION	-	-	100	-	31
BK1 COMMERCIAL REFUSE	100	-	-	-	107
BK1 RESI REFUSE	100	-	-	-	259
BK1 CYCLE STORE	100	-	-	-	46
BK1 COMMS	100	-	-	-	45
BK1 LV SWITCHROOM	100	-	-	-	89
BK1 SUBSTATION	100	-	-	-	102
BK1 STAIR + RISER	-	-	100	-	77
BK1 STAIR + RISER	-	-	100	-	78
BK1 CLUB ROOM	-	-	100	-	148
BK1 ENTRANCE LOBBY WEST	-	-	100	-	133
BK2 CINEMA ROOM	-	-	100	-	94
BK1 GENERATOR ROOM	100	-	-	-	136
BK1 CIRCULATION 1	-	-	100	-	224
BK1 CIRCULATION 1	-	-	100	-	186

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?
BK2 ENTRANCE LOBBY EAST	YES (+2.2%)	NO
BK1 STAFF OFFICE	NO (-51.8%)	NO
BK1 CLUB ROOM	NO (-18.7%)	YES
BK1 ENTRANCE LOBBY WEST	NO (-6.2%)	NO
BK2 CINEMA ROOM	NO (-4.6%)	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?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters			Building Use	
	Actual	Notional	% Area	Building Type
Area [m ²]	1284.6	1284.6		A1/A2 Retail/Financial and Professional services
External area [m ²]	3431.3	3683.8		A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
Weather	MAN	MAN	3	B1 Offices and Workshop businesses
Infiltration [m ³ /hm ² @ 50Pa]	2	5		B2 to B7 General Industrial and Special Industrial Groups
Average conductance [W/K]	513.75	1006.49	50	B8 Storage or Distribution
Average U-value [W/m ² K]	0.15	0.27		C1 Hotels
Alpha value* [%]	10.06	10		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
			47	Others: Miscellaneous 24hr activities
				Others: Car Parks 24 hrs
				Others: Stand alone utility block

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

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	8.78	22.19
Cooling	3.75	0.97
Auxiliary	10.79	8.8
Lighting	8.04	14.86
Hot water	0.04	0.04
Equipment*	93.86	93.86
TOTAL**	31.4	46.86

* 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]	66.01	102.46
Primary energy* [kWh/m ²]	96.4	104.5
Total emissions [kg/m ²]	16.3	20.2

* 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] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
Actual	26.7	133.4	2.8	16.3	47	2.61	2.27	3	3
Notional	134	57.5	14.6	4.2	38.4	2.56	3.79	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	149.4	0	41.5	0	0	1	0	1	0
Notional	298.7	0	96.3	0	0	0.86	0	----	----
[ST] No Heating or Cooling									
Actual	0	0	0	0	0	0	0	0	0
Notional	0	0	0	0	0	0	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	BK000142:Surf[0]
Floor	0.2	0.1	BK000133:Surf[0]
Roof	0.15	0.1	BK000133:Surf[1]
Windows, roof windows, and rooflights	1.5	0.8	RM000014:Surf[1]
Personnel doors	1.5	2.2	BK000142:Surf[2]
Vehicle access & similar large doors	1.5	-	No Vehicle access doors in building
High usage entrance doors	1.5	-	No High usage entrance doors in building
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

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