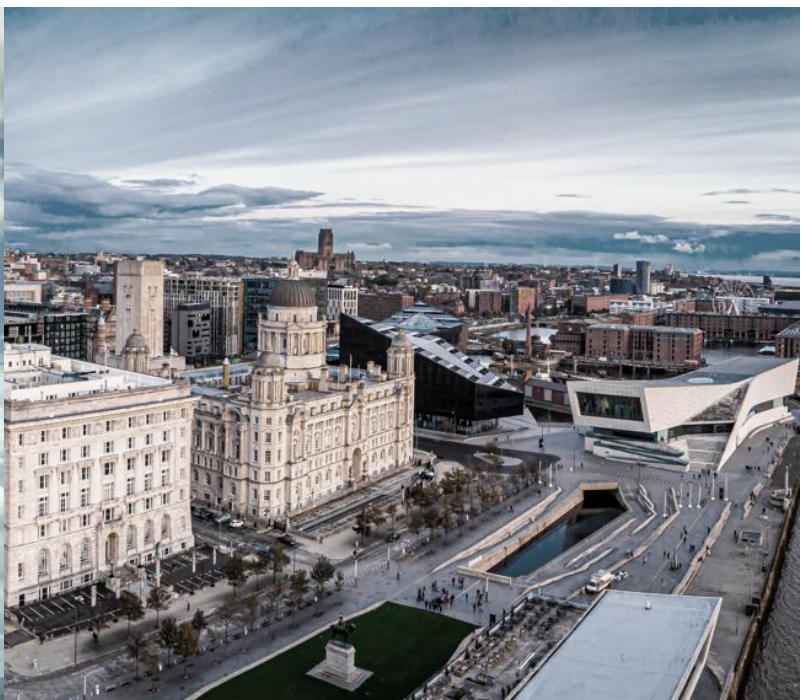


FUTURESERV

Stocktons, Manchester Energy Statement





Stocktons, Manchester

Energy Statement

Ref: P7495-FUT-XX-XX-RP-M-0001

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1. Executive Summary

1.1 Overview

Futureserv Ltd has been appointed to provide an Energy Strategy for the proposed development Stocktons, Manchester.

This statement will demonstrate how the proposals have been brought forward in the context of a strong commitment to sustainability and will not only show achievement of policy compliance as per Manchester City Council's (MCC) Places for Everyone Joint Development Plan with specific reference to:

- Policy JP-S2: Carbon and Energy
- Policy JP-S3: Heat and Energy Networks

But also Building Regulations Part L, and that sustainability objectives form an integral part of the applicant's aspirations for the development.

The results in this report represent the current and latest specification, as compliance with Part L1 2021 and the Client's target for all residential units to achieve no less than an EPC B rating is achieved successfully.

Results show compliance with Part L 2021, achieving:

- Block A Landlords: **2.91%** reduction in target carbon emissions, and a **2.80%** reduction in primary energy on day one
- Block B Landlords: **2.74%** reduction in target carbon emissions, and a **3.21%** reduction in primary energy on day one

Additionally, the proposed development achieves a 75.79% (Block A) and 76.71% (Block B) betterment over target carbon emissions, a 1.93% (Block A) and 1.05% (Block B) reduction in target fabric energy efficiency and a 54.07% (Block A) and 55.41% (Block B) betterment in primary energy on day one for the residential areas, therefore demonstrating significant reductions in target carbon emissions and primary energy use, and ultimately shows the strategy improves on the fundamental principles of the Building Regulations and will make a significant contribution to reducing the annual carbon emissions of the development.

1.2 Strategy

The design strategy has been advanced to ensure the development is in line with the Energy Hierarchy:

Be Lean – Demand reduction

- Passive measures adopted across the building including betterment of U-Values and air tightness over Part L (2021) limiting values
- Ensured G-Values are appropriate in reducing heat gains and losses

Be Clean – Maximising energy efficiency

- Increased hot water generating efficiencies
- Reduced Standing losses from pipes and cylinders
- Efficient LED lighting with improved controls
- Efficient and low energy motors in pumps and fans
- Efficient heat recovery in relevant systems
- Combined natural and mechanical ventilation systems

Be Green – Renewable Energy

- Low/zero carbon energy generation in the form of Air Source Heat Pumps to reduce energy demand
- Low/zero carbon energy generation in the form of Solar PV Panels to reduce energy demand

1.3 Results

Baseline carbon emissions have been established to produce full SAP and SBEM calculations for the buildings. By incorporating the three stages of the energy hierarchy, the results demonstrate compliance with MCC policy and Part L Building Regulations.

Block A		
SAP Calculations	Value	% Difference
TER (kgCO ₂ /yr/m ²)	13.30	
DER (kgCO ₂ /yr/m ²)	3.22	75.79%
TFEE (kWh/m ² /yr)	28.61	
DFEE (kWh/m ² /yr)	28.06	1.93%
TPER (kWh/m ² /yr)	73.70	
DPER (kWh/m ² /yr)	33.85	54.07%
EPC	All 523 Apartments Achieve EPC B	

Block B		
SAP Calculations	Value	% Difference
TER (kgCO ₂ /yr/m ²)	13.13	
DER (kgCO ₂ /yr/m ²)	3.06	76.71%
TFEE (kWh/m ² /yr)	25.91	

DFEE (kWh/m2/yr)	25.64	1.05%
TPER (kWh/m2/yr)	72.47	
DPER (kWh/m2/yr)	32.31	55.41%
EPC	All 200 Apartments Achieve EPC B	

Block A		
SBEM Calculations	Value	% Difference
TER (kgCO2/yr/m2)	3.09	
DER (kgCO2/yr/m2)	3.00	2.91%
TPER (kWh/m2/yr)	33.60	
DPER (kWh/m2/yr)	32.66	2.80%

Block B		
SBEM Calculations	Value	% Difference
TER (kgCO2/yr/m2)	4.75	
DER (kgCO2/yr/m2)	4.62	2.74%
TPER (kWh/m2/yr)	51.77	
DPER (kWh/m2/yr)	50.11	3.21%

TER: Target Emission Rate; DER: Dwelling Emission Rate; TFEE: Target Fabric Energy Efficiency;
DFEE: Dwelling Fabric Energy Efficiency; TPER: Target Primary Energy Rate; DPER: Dwelling
Primary Energy Rate

1.4 Proposed fabric specification SAP (Residential)

Block A:

Block A

Construction Element	Part L Specification	Development Specification
Floor	0.18 W/m ² K	0.11 W/m ² K
Curtain Walls	1.60 W/m ² K	0.73 W/m ² K
Roof	0.16 W/m ² K	0.11 W/m ² K
Glazing	1.60 W/m ² K	0.73 W/m ² K
Air Permeability	8 m ³ /h/m ²	1 Bed: 2.75 m ³ /h/m ² 2+3 Bed: 2.50 m ³ /h/m ²

Block A	
Fabric Specification	Type
External Walls	Curtain Walls
Party Walls	Fully Filled Cavity with Edge Sealing
Internal Partitions	Internal Partitions
Glazing	Triple Glazed

Block B:

Block B		
Construction Element	Part L Specification	Development Specification
Floor	0.18 W/m ² K	0.11 W/m ² K
Curtain Walls	1.60 W/m ² K	0.72 W/m ² K
Roof	0.16 W/m ² K	0.11 W/m ² K
Glazing	1.60 W/m ² K	0.72 W/m ² K
Air Permeability	8 m ³ /h/m ²	1 Bed: 2.75 m ³ /h/m ² 2+3 Bed: 2.50 m ³ /h/m ²

Block B	
Fabric Specification	Type
External Walls	Curtain Walls
Party Walls	Fully Filled Cavity with Edge Sealing
Internal Partitions	Internal Partitions
Glazing	Triple Glazed

1.4.1 Thermal Bridging Values SAP (Residential)

Default thermal bridging psi values have been used for all SBEM calculations.

For the **SAPs**, the values below have been used.

Thermal Bridging Detail	Psi Value
E2 Lintel	1.00
E3 Sill	0.10
E4 Jamb	0.10
E20 Exposed Floor	0.32
E21 Exposed Floor (Inverted)	0.32
E7 Party Floor Between Dwellings	0.00
E15 Flat Roof with Parapet	0.30
E16 Corner	0.09
E16 Corner	0.09
E18 Party Walls Between Dwellings	0.00
P3 Party Wall (Intermediate Floor Between Dwellings)	0.00
P7 Party Wall (Exposed Floor – Normal)	0.16
P4 Party Wall (Roof – Insulation at Ceiling Level)	0.12

1.5 Proposed fabric specification SBEM (Landlords)

Block A			
Construction Element	Part L Specification	Development Specification	Assumptions
Ground / Exposed Floor			
Floor	0.18 W/m ² K	0.11 W/m ² K	

External Wall			
Basement – Retaining wall	0.26 W/m ² K	0.26 W/m ² K	
Curtain Walls	1.60 W/m ² K	0.73 W/m ² K	
Roof			
Roof	0.16 W/m ² K	0.11 W/m ² K	
Internal Ceiling			
Internal Ceilings	N/A	1.087 W/m ² K	Default
Internal Partition			
Internal Partition	N/A	1.789 W/m ² K	Default
Generic Solid Internal Partition	N/A	0.64 W/m ² K	
Glazing			
Glazed Surfaces	1.60 W/m ² K	0.73 W/m ² K g value (S and W) = 0.40 g value (N and E) = 0.53	
Air Permeability			
Air Permeability	8 m ³ /h/m ²	3 m ³ /h/m ²	

Block B			
Construction Element	Part L Specification	Development Specification	Assumptions
Ground / Exposed Floor			
Floor	0.18 W/m ² K	0.11 W/m ² K	
External Wall			
Basement – Retaining wall	0.26 W/m ² K	0.26 W/m ² K	

Curtain Walls	1.60 W/m ² K	0.72 W/m ² K	
Roof			
Roof	0.16 W/m ² K	0.11 W/m ² K	
Internal Ceiling			
Internal Ceilings	N/A	1.087 W/m ² K	Default
Internal Partition			
Internal Partition	N/A	1.789 W/m ² K	Default
Generic Solid Internal Partition	N/A	0.64 W/m ² K	
Glazing			
Glazed Surfaces	1.60 W/m ² K	0.72 W/m ² K g value (S and W) = 0.40 g value (N and E) = 0.53	
Air Permeability			
Air Permeability	8 m ³ /h/m ²	3 m ³ /h/m ²	

Introduction

Futureserv Ltd have been appointed to produce an Energy Strategy to support the planning application for the proposed development:

Stocktons, Manchester

This statement aims to address the relevant policies on a local and national level in which this development falls:

- Manchester City Council Places for Everyone Joint Development Plan
- National Planning Policy Framework (NPPF) (Adopted December 2024)

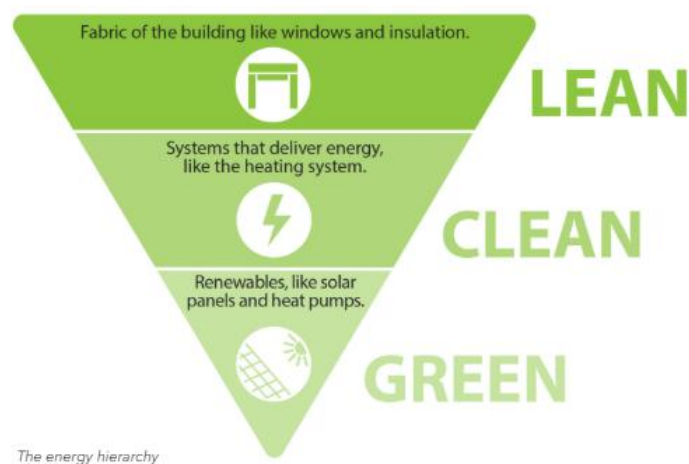
The methodology followed for this development utilises the 3- stage energy hierarchy to develop the low carbon energy design strategy. The hierarchy follows a **lean**, **clean** and **green** approach.

Baseline: The baseline carbon emissions are initially calculated using Part L 2021 notional specifications. This provides a target where further reductions can be judged where the hierarchy is applied in incremental stages.

Be Lean: Reducing demand through incorporating passive measures

Be Clean: Supplying the energy demand as efficiently as possible through active energy efficiency measures

Be Green: Incorporating low and zero carbon energy technologies to offset carbon emissions



2. Policy Review

The Manchester City Council Places for Everyone Joint Development Plan does not have any requirements for improvements on carbon emissions above that required for Part L 2021. Therefore, compliance with Part L, as demonstrated in this Energy Strategy will also satisfy the local planning requirements.

The SBEM and SAP assessments that form part of this report have been assessed against Part L 2021.

3. Equipment Efficiencies

3.1 SBEM (Block A)

Systems

System	Heating	Cooling	Ventilation
Sys 1 – VRF and MVHR (Occupied Amenity)	SCOP: 4.46	SEER: 7.53	SFP/HR Eff: 1.20 w/l/s @ 85% HR
Sys 2 – EPH Only (Circulation)	SCOP: 1.00	-	Natural Ventilation
Sys 3 – EPH with Extract (Ground Store and WC)	SCOP: 1.00	-	SFP: 0.40w/l/s
Sys 4 – EPH with MVHR	SCOP: 1.00	-	SFP/HR Eff: 1.20 w/l/s @ 85% HR

(Above Ground WC, Parcel Store, Changing)			
Sys 5 – ASHP and SandE (Swimming Areas)	SCOP: 3.50	SEER: 5.00	SFP/HR Eff: 1.60 w/l/s @ 85% HR
Sys 6 – DX Unit (Comms)	SCOP: 3.50	SEER: 5.00	-

Domestic Hot Water

- ASHP
- DHW Delivery Efficiency: 100%
- Hot Water Supply Temperature: 60°C
- Storage: 2000l
- Storage Losses: 0.0025 kWh/(l*day)
- Secondary Circuit:
 - Circulation Losses: 6 W/m
 - Loop Length: 250m
 - Pump Power: 0.1 kW

Lighting

Room Type	Lighting (lm/cW)	Control	Daylight Linking
Bike Store	120	Auto On Off	No
Bin Store	120	Auto On Off	No
Café	120	Auto On Off	Yes
Changing	120	Auto On Off	No
Circulation	120	Auto On Off	No
Comms	120	Auto On Off	No
Gym	120	Auto On Off	Yes
Lift	120	Auto On Off	No
Lounge	120	Auto On Off	Yes
Office	120	Auto On Off	Yes
Parcel Store	120	Auto On Off	No
Plant	120	Auto On Off	No
Reception	120	Auto On Off	No
Internal Void	-	NONE	No
Stairs	120	Auto On Off	No
Store	120	Auto On Off	No
Swimming	120	Auto On Off	Yes
WC	120	Auto On Off	No

Electric Power Factor

- >0.95

3.2 SBEM (Block B)

Systems

System	Heating	Cooling	Ventilation
Sys 1 – VRF and HRU (Occupied Amenity)	SCOP: 4.46	SEER: 7.53	SFP/HR Eff: 1.20 w/l/s @ 85% HR
Sys 2 – EPH with Extract (WC, Cleaners, Changing, Showers)	SCOP: 1.00	-	SFP: 0.40w/l/s
Sys 3 – EPH Only (Circulation, Plant)	SCOP: 1.00	-	Natural Ventilation
Sys 4 – DX Unit (Comms)	SCOP: 3.50	SEER: 5.00	-

Domestic Hot Water

- ASHP
- DHW Delivery Efficiency: 100%
- Hot Water Supply Temperature: 60°C
- Storage: 2000l
- Storage Losses: 0.0025 kWh/(l*day)
- Secondary Circuit:
 - Circulation Losses: 6 W/m
 - Loop Length: 250m
 - Pump Power: 0.1 kW

Lighting

Room Type	Lighting (lm/cW)	Control	Daylight Linking
Changing	120	Auto On Off	No
Bike store	120	Auto On Off	No
Bin store	120	Auto On Off	No
Circulation	120	Auto On Off	No
Cleaner	120	Auto On Off	No
Comms	120	Auto On Off	No
Gym	120	Auto On Off	No
Internal Voids	-	Auto On Off	No
Office – Cellular	120	Auto On Off	No
Office (inner)	212	Auto On Off	Yes

Office P1	220	Auto On Off	Yes
Office P2	215	Auto On Off	Yes
Office P3	218	Auto On Off	Yes
Office P4	222	Auto On Off	Yes
Office – Meeting	120	Auto On Off	No
Plant	120	Auto On Off	No
Reception	120	Auto On Off	Yes
Stairs	120	Auto On Off	No
Store	120	Auto On Off	No
Drying Room	120	Auto On Off	No
WC	120	Auto On Off	No
Cafe	120	Auto On Off	No
Tug Room	120	Auto On Off	No

Electric Power Factor

- >0.95

Solar PV

- Floor Area: 130m²
- Energy Generated by PV: 23.51 MWh/yr
- Azimuth (°clockwise from north): 180
- Inclination (° from horizontal): 30

3.4 SAP (Block A and B)

Ventilation

- Local MVHR (Vent Axia Sentinel econiq):
 - SFP/HR (Kitchen + 1 wet room) = 0.39w/l/s / 93% HR
 - SFP/HR (Kitchen + 2 wet rooms) = 0.46w/l/s / 93% HR

Heating

- Electric Panel Heaters:
 - 100% Efficiency

Domestic Hot Water

- Air Source Heat Pump (ASHP) Hot Water Cylinder (Dimplex EDL):
 - 1 + 2 Bed: 200L
 - Losses: 1.61kWh/day
 - COP: 3.21
 - 3 Bed: 270L
 - Losses: 1.77kWh/day
 - COP: 3.24

Lighting

- 100% LEL fittings

Solar PV

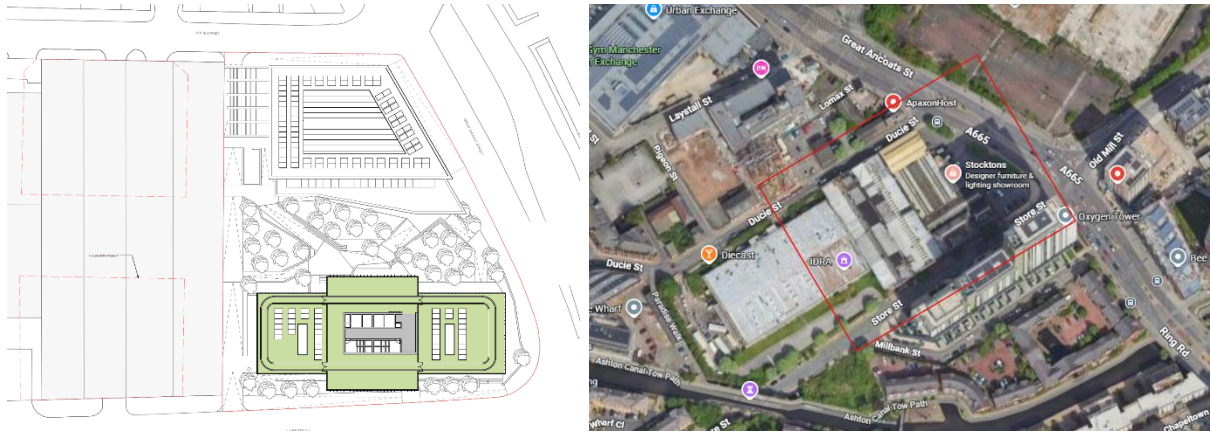
Initially, the following apartments were assessed to achieve an EPC C rating with the implemented systems. Futureserv have therefore proposed that these units shall benefit from a combined 4.8kWp PV in Block A, and 2.8kWp PV in Block B, reducing the reliability on grid electricity. As a result of this revision, these apartment units are predicted to achieve an EPC B rating.

Block A			
Unit Reference	EPC Without PV	PV (30° South Facing) kWp	EPC With PV
01.02 (2 BED)	C	0.7	B
44.01 (2 BED)	C	0.8	B
44.02 (2 BED)	C	1.0	B
44.04 (2 BED)	C	0.9	B
01.01 (2 BED)	C	0.6	B
44.05 (2 BED)	C	0.2	B
44.07 (2 BED)	C	0.1	B
44.08 (2 BED)	C	0.1	B
44.11 (2 BED)	C	0.2	B
34.01 (2 BED)	C	0.2	B

Block B			
Unit Reference	EPC Without PV	PV (30° South Facing) kWp	EPC With PV
24.05 (2 BED)	C	1.3	B
24.01 (2 BED)	C	1.0	B
24.03 (2 BED)	C	0.5	B

4. Development Proposals

This Energy Statement has been prepared to illustrate the environmental aspects of the proposed development highlighting the energy/carbon emissions profile and to assess the options available for reducing energy consumption and carbon emissions, in accordance with MCC's policies.



Stocktons Site & Location Plan



Typical Residential Floor Plan (Level 22) of Stocktons Block A (Bottom) and Block B (Top)

Assessing against future net zero targets help to determine the future potential magnitude of change when compared to industry net zero benchmarks. This development has been designed to target LETI and RIBA best practices for whole life embodied carbon and operational energy for 2025 and 2030.

MCC Sustainable Outcome Metrics	Business as Usual	2025 Target	2030 Target
Whole Life Embodied Carbon (kgCO ₂ e/m ²)	1,200	< 800	< 625
Operational Energy (kWh/m ² /year)	120	70	35

Futureserv have collaborated with the design team to provide a holistic solution for the building, that will provide an efficient envelope and contain intelligent building services therefore reducing the environmental impact of the development while providing comfortable living accommodation.

4.1 Energy Hierarchy

The energy hierarchy assists in the transition towards a sustainable energy system, in which Policy JP-S1 of the Manchester Places for Everyone Joint Development Plan Document aligns with in terms of reducing heat demand, and the use of low and zero carbon technologies such as Solar PV, connecting to or investing in district heating networks where this is applicable as per Policy JP-S3.

4.2 Decarbonisation of the power sector

The UK government has set an ambition for all electricity generation to be decarbonised by 2035. Approximately 60% of electricity today comes from low carbon sources, with fossil fuels accounting for the remainder.

While electricity demand is expected to increase following the implementation of e.g. heat pumps, a report produced by the BEIS (HC 283) states that to meet this demand a significant reduction in energy demand, and sustained investment in technology and infrastructure is required.

Furthermore, in a bid to move away from fossil fuels, the UK government are actively phasing out natural gas as a heating source, and for gas heating to be banned from 2025.

5. Policy Review

5.1 National Planning Policy Framework (NPPF 2026)

The National Planning Policy Framework (NPPF) (August 2026) sets out the Government’s planning policies for England and continues to emphasise the role of the planning system in achieving sustainable development. The updated framework strengthens the requirement for plan-making and decision-making to support the transition to a low-carbon economy and to address climate resilience comprehensively.

“The purpose of the planning system is to contribute to the achievement of sustainable development, by managing the use and development of land in the long-term public interest.”

Achieving sustainable development in the 2026 framework is expressed through three independent overarching objectives – economic, social, and environmental – which must be pursued in mutually supportive ways. Section 1.17 explains that these objectives include

“supporting efforts to mitigate and adapt to climate change, including moving to a low carbon economy...improving biodiversity, using natural resources prudently, and minimising waste and pollution.”

In the context of the Energy Strategy, the 2026 NPPF sets clear expectations for how development proposals should address climate change, resource efficiency and long-term environmental performance. The framework requires development to minimise greenhouse gas emissions through a combination of fabric-first energy efficiency, low-carbon and renewable energy technologies, and efficient building services design that reduces operational energy demand. This aligns with the environmental objective’s requirement to “support efforts to mitigate and adapt to climate change, including moving to a low carbon economy.”

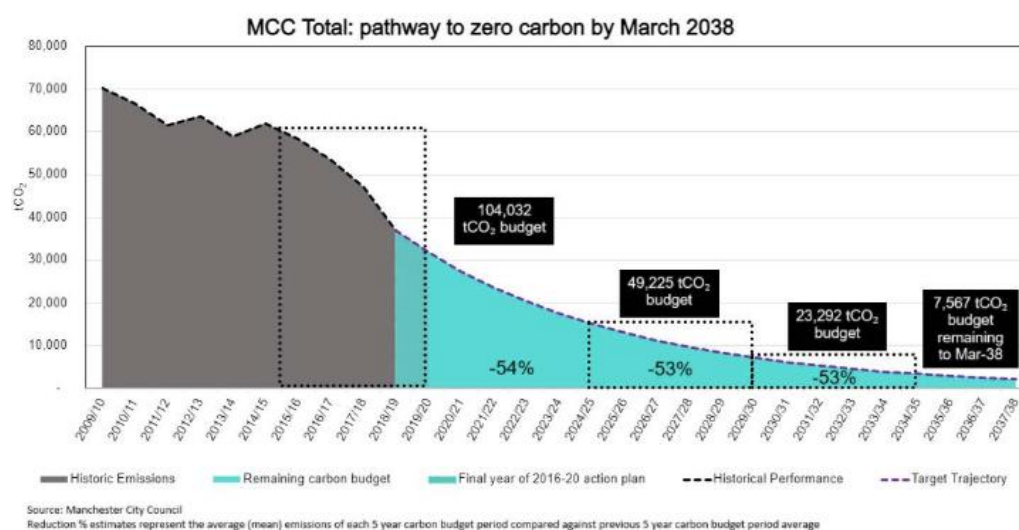
The NPPF also places significant emphasis on climate adaption and resilience, requiring developments to be designed to withstand long-term climatic risks. Section 1.17 highlights the need to “protect and enhance our natural, built and historic environment,” which includes designing for overheating risk, flood risk management, water efficiency, and integration of green infrastructure that supports biodiversity and ecological networks.

Furthermore, the framework encourages the prudent use of natural resources, including the reuse and adaption of existing buildings where feasible, the reduction of embodied carbon through material selection and construction practices, and the minimisation of waste and pollution across the lifecycle of development. These expectations collectively ensure that the new development contributes positively to climate mitigation, strengthens climate resilience, and delivers sustainable, high-performing built environments aligned with national policy.

5.2 Responses to Climate Change

The UK government has committed to a legally binding agreement as part of the Climate Change Act to reduce greenhouse gas emissions. A target has been set to reduce carbon emissions by 100% of 1990 levels by 2050.

On a local level, Manchester City Council declared a climate emergency in July 2019, and made a commitment to work towards reducing carbon emissions. An ambitious target was set for Greater Manchester to be carbon neutral by 2038.



5.3 Manchester Places for Everyone Joint Development Plan

5.3.1 Policy JP-S1: Sustainable Development

To help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and actively seek opportunities to secure net gains across each of the different objectives.

5.6 To meet our carbon commitments we will need to:

- Be carbon neutral by 2038
- Hold cumulative carbon dioxide emissions to within our carbon budget
- Initiate a programme of mitigation to reduce emissions including by:
 - Significantly upscaling solar photovoltaic energy
 - Reducing heat demand in homes
 - Moving away from carbon intensive gas as the primary source of heat
 - Reducing heating and cooling demand for the public and commercial buildings
 - Increasing biofuel use
 - Enable sustainable choices for travel and decarbonise transport
 - Significantly upscaling building retrofit; and
 - Increase the delivery of nature- based solutions and biodiversity net gain.

5.17 ... where planning applications for residential development are accompanied by an energy statement, the following best practice thresholds should be seen as the starting point in relation to reducing energy demand and onsite renewable energy generation. The threshold set out in Table 5.1, for post 2025 are consistent with the GM Five Year Environment Plan.

-	Space Heat Demand	Hot Water Energy Demand	Renewable Energy Generation Targets
2021 – 2025	Houses (30kWh/m2) Flats (25kWh/m2)	20% energy demand reduction in the total heat required for water heating	Photovoltaic installation: 20% ground floorspace
2025 – onwards	Houses (20kWh/m2) Flats (15kWh/m2)	20% energy demand reduction in the total heat required for hot water heating	Photovoltaic installation: 40% ground floorspace

Table 5.1 Best Practice Thresholds for Reducing Energy Demand and Onsite Renewable Energy Generation within residential developments

5.3.2 Policy JP-S2: Carbon and Energy

The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

1. Promoting the retrofitting of existing buildings with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling
2. Promoting the use of life cycle cost and carbon assessment tools to ensure the long- term impacts from development can be captured

3. Taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities
4. Increasing the range of nature- based solutions including carbon sequestration through the restoration of peat-based habitats, woodland management, tree-planting and natural flood management techniques
5. An expectation that new development will, unless it can be demonstrated that it is not practicable or financially viable:
 - a. Be net zero carbon which applies:
 - From adoption- to regulated operational carbon emissions
 - From 2028 – to all emissions ‘in construction

From 2025, development should also calculate and minimise carbon emissions from unregulated emissions alongside regulated emissions.

Development proposals should set out how this has been achieved in an energy statement in accordance with the energy hierarchy, which in order of importance seeks to:

- i. Minimise energy demand
- ii. Maximise energy efficiency
- iii. Use renewable energy
- iv. Use low carbon energy and
- v. Utilise other energy sources

From 2025 any residual carbon emissions that cannot be fully mitigated on- site should be offset, in agreement with the relevant local planning authority through a financial contribution to a carbon offset fund.

As an interim measure, development should be consistent with the 2021 Part L Building Regulations unless superseded by changes to building regulations and/or national or local planning policies.

- b. Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance of a low carbon energy/heating/cooling network that is adaptable to non- fossil fuels later
- c. In residential developments, achieve energy demand reductions in terms of space heat demand; hot water energy demand and the delivery of on-site renewable energy generation, in accordance with Table 5.1.

For renewable energy generation priority should be given to PV installation where technically feasible, alternative technology will be appropriate where the equivalent generation is evidenced.

5.3.3 Policy JP-S3: Heat and Energy Networks

The provision of decentralised energy infrastructure is critical to the delivery of our objectives for low carbon growth, carbon reductions and an increase in local energy generation. The following measures will help to achieve this:

1. Delivery of renewable and low carbon energy schemes will be supported with particular emphasis on the use of decentralised energy networks in areas identified as ‘Heat and Energy Network Opportunity Areas’. These have been identified where:
 - a. Existing heat/energy networks are operational or have been commissioned
 - b. Proposals for new heat networks/energy networks are being progressed, or future opportunities have been identified in city- region master planning
 - c. Sufficient density of existing heat demand occurs
 - d. Significant future development is proposed at the strategic development locations
2. Within the identified ‘Heat and Energy Network Opportunity Areas’, unless it can be demonstrated that there are more effective alternatives for minimising carbon emissions or such connection is not practicable or financially viable, it is expected that:
 - a. New residential developments that are ‘10 dwellings or more’ or other developments over 1,000m² floorspace shall:
 - i. Connect to an existing or planned heat/energy network or be designed to enable future connection (where within 500m of such a network); and/or
 - ii. Install a site wide or communal heat/energy network solution

The development must aim to meet the requirements of the Manchester Places for Everyone Joint Development Plan Document and follow the guidelines set above.

Development must follow the principles of the Energy Hierarchy, being designed:

- To reduce the need for energy through design features
- To reduce the need for energy through energy efficient features
- To meet residual energy requirements using low or zero carbon energy generating technologies.

6. Building Regulations

Part L 2021 of the Building Regulations took effect in June 2022, adopting a 27% and 31% uplift in CO₂ emission standards in comparison to the previous Part L 2013 for domestic and non-domestic buildings respectively.

The improvements upon Part L demonstrate a significant uplift, the effects of this will continue to improve as the UK electricity grid continues to decarbonise.

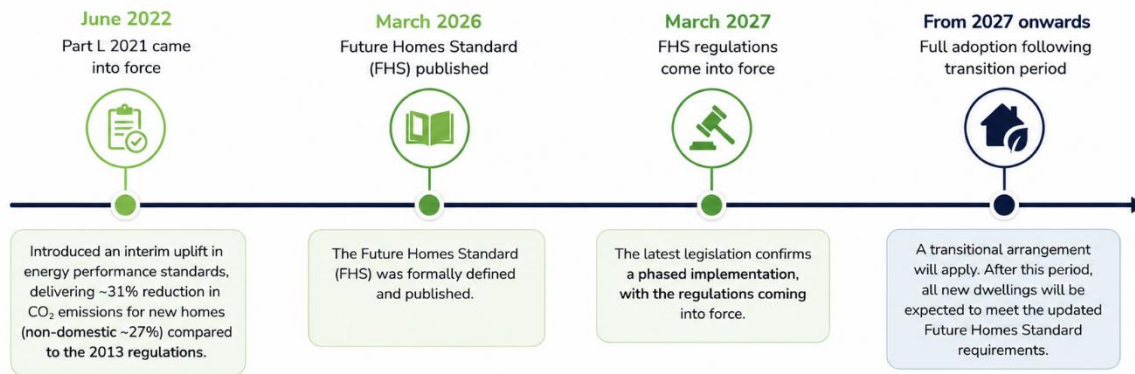
The Future Homes Standard (FHS) was formally defined and published in March 2026. While originally intended for introduction in 2025, the latest legislation confirms a phased implementation, with the regulations coming into force in March 2027.

A transitional arrangement will apply, allowing developments that submit a building notice or full plans application before this date to continue being constructed under Part L 2021 standards. Full adoption of the Future Homes Standard is therefore expected following this transition period, after which, all new dwellings will be anticipated to meet the updated requirements.

Under the Future Homes Standard, new dwellings must achieve at least a 75% reduction in carbon emissions compared to 2013 standards, ensuring they are effectively “zero-carbon ready”. This will be delivered through a combination of low-carbon building services systems, improved building fabric performance, and increased integration of on-site renewable energy generation.

Future Homes Standard (FHS) Timeline

Key dates for the introduction and implementation of the Future Homes Standard in England



Future Homes Standards Roadmap

7. Design Measures

7.1 Be Lean – Reduce Energy Demand

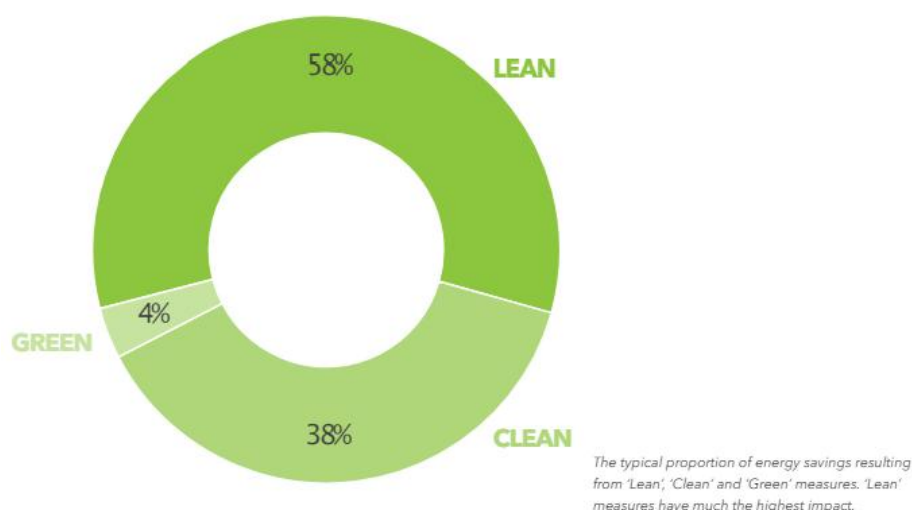
As a result of maximising the performance of the building fabric through passive design measures, the energy efficiency of the building becomes improved and so reducing carbon emissions as a result. Incorporating passive design measures can also reduce the need for maintenance during the building's life.

The following may be considered for the design:

- Maximised air tightness
- High resistance insulation
- Optimised daylight through the provision of openings
- Solar shading to reduce solar gain
- Optimised natural ventilation
- Enhanced U-Values exceeding Part L limiting values

Focusing on passive design measures is generally considered to be the most sustainable method in comparison to relying on energy saving technology or renewable energy generation which may be expensive, have a high embodied energy rate and may not be used efficiently by the consumer.

By incorporating energy efficiency measures into the building envelope, occupants are less likely to require changes in their habits, and so there is less reliance on the end user in maximising the building's energy efficiency.



7.1.1 Fabric values

The table below shows the proposed material specification that will be incorporated within the building design to limit heat loss and ensure efficient operation of the proposed development.

An air tightness of 3 m³/hr/m² @50Pa has been targeted for the landlords' areas of this development, and an air tightness of 2.5 m³/hr/m² @50Pa in the 2+3 Bed apartments and 2.75 m³/hr/m² @50Pa in the 1 Bed apartments has been targeted for the residential areas, to minimise uncontrolled ventilation through the building, therefore reducing heating and cooling energy demand.

Fabric Specification – SAP (Residential)

Block A			
Construction Element	Part L Specification	Development Specification	Improvement over Part L 2021
Floor	0.18 W/m ² K	0.11 W/m ² K	38.89%
Curtain Wall	1.60 W/m ² K	0.73 W/m ² K	54.38%
Roof	0.16 W/m ² K	0.11 W/m ² K	31.25%
Glazing	1.60 W/m ² K	0.73 W/m ² K	54.38%
Air Permeability	8 m ³ /h/m ²	1 Bed: 2.75 m ³ /h/m ²	65.63%
		2+3 Bed: 2.50 m ³ /h/m ²	68.75%

Block B			
Construction Element	Part L Specification	Development Specification	Improvement over Part L 2021
Floor	0.18 W/m ² K	0.11 W/m ² K	38.89%
Curtain Wall	1.60 W/m ² K	0.72 W/m ² K	55%
Roof	0.16 W/m ² K	0.11 W/m ² K	31.25%
Glazing	1.60 W/m ² K	0.73 W/m ² K	54.38%
Air Permeability	8 m ³ /h/m ²	1 Bed: 2.75 m ³ /h/m ²	65.63%
		2+3 Bed: 2.50 m ³ /h/m ²	68.75%

Fabric Specification – SBEM (Landlords)

Block A			
Construction Element	Part L Specification	Development Specification	Assumptions
Ground / Exposed Floor			
Floor	0.18 W/m ² K	0.11 W/m ² K	
External Wall			
Basement – Retaining wall	0.26 W/m ² K	0.26 W/m ² K	
Curtain Walls	1.60 W/m ² K	0.73 W/m ² K	
Roof			
Roof	0.16 W/m ² K	0.11 W/m ² K	
Internal Ceiling			
Internal Ceilings	N/A	1.087 W/m ² K	Default
Internal Partition			
Internal Partition	N/A	1.789 W/m ² K	Default

Generic Solid Internal Partition	N/A	0.64 W/m ² K	
Glazing			
Glazed Surfaces	1.60 W/m ² K	0.73 W/m ² K g value (S and W) = 0.40 g value (N and E) = 0.53	
Air Permeability			
Air Permeability	8 m ³ /h/m ²	3 m ³ /h/m ²	

Block B			
Construction Element	Part L Specification	Development Specification	Assumptions
Ground / Exposed Floor			
Floor	0.18 W/m ² K	0.11 W/m ² K	
External Wall			
Basement – Retaining wall	0.26 W/m ² K	0.26 W/m ² K	
Curtain Walls	1.60 W/m ² K	0.72 W/m ² K	
Roof			
Roof	0.16 W/m ² K	0.11 W/m ² K	
Internal Ceiling			
Internal Ceilings	N/A	1.087 W/m ² K	Default
Internal Partition			
Internal Partition	N/A	1.789 W/m ² K	Default
Generic Solid Internal Partition	N/A	0.64 W/m ² K	
Glazing			

Glazed Surfaces	1.60 W/m ² K	0.72 W/m ² K g value (S and W) = 0.40 g value (N and E) = 0.53	
Air Permeability			
Air Permeability	8 m ³ /h/m ²	3 m ³ /h/m ²	

7.2 Be Clean – Supply energy efficiently

In addition to the passive design measures, active design measures are implemented to minimise direct energy consumption and CO₂ emissions, with particular emphasis on:

- Increased hot water generating efficiencies
- Reduced standing losses from pipes and cylinders
- Efficient LED lighting with improved controls
- Efficient and low energy motors in pumps and fans
- Efficient heat recovery in relevant systems
- Combined natural and mechanical ventilation systems

All internal lighting installations will make use of low energy technologies combined with presence and absence detection in selected areas.

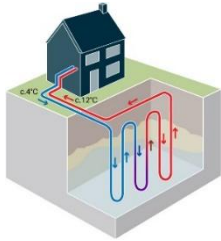
All fans, motors and pumps will be specified to incorporate ECA accredited technology and appropriate controls.

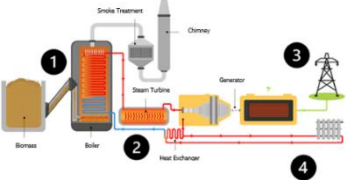
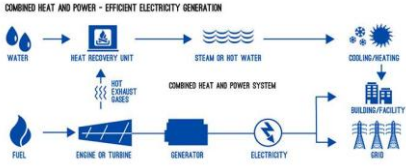
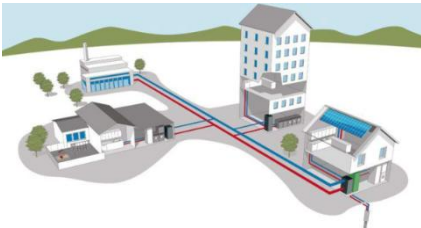
Both blocks incorporate efficient HVAC and domestic hot water systems designed to optimise energy performance and occupant comfort. Block A uses a combination of VRF and MVHR units for amenity spaces, supported by electric panel heaters circulation and extract ventilation, achieving high heating and cooling efficiencies (SCOP 4.46, SEER 7.53) and effective heat recovery up to 85%. Block B features ASHP and DX units (SCOP 3.50, SEER 5.0) serving the swimming and communication areas, with ventilation efficiencies reaching 1.60w/l/s @85% HR. Both blocks share an ASHP-based DHW system delivering 100% efficiency at 60°C, with 2000l storage capacity, minimal thermal losses, and a well-balanced secondary circuit ensuring efficient distribution throughout the buildings.

7.3 Be Green – Use LZC technology

To comply with Manchester City Council's Local Plan, which aims to utilise LZC technologies, there are numerous options to consider. All acknowledged and commercially available technologies have been considered and assessed.

Proposed Technology	Description	Comments
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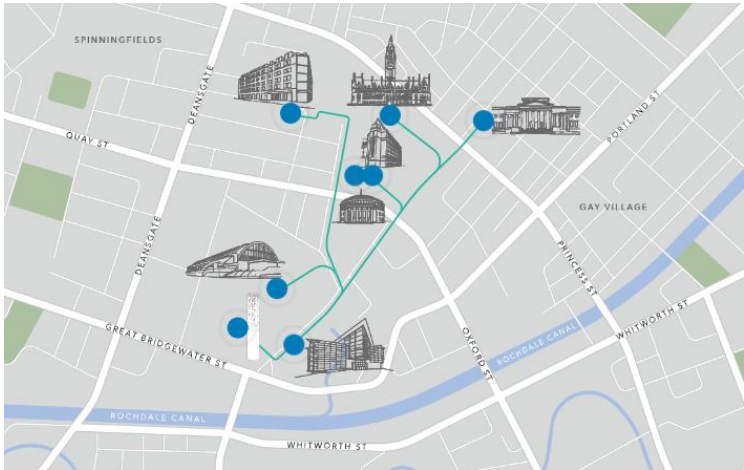
Air Source Heat Pumps SELECTED 	Air source heat pumps extract ambient air which is transferred into water. This can be used to heat or cool a building.	Air source heat pumps will be utilised for domestic hot water generation.
Solar Photovoltaic SELECTED 	Photovoltaic panels absorb sunlight, in turn generating electricity. This system will assist in offsetting emissions from grid electricity. During low demand periods, excess electricity can be fed back into the grid network through a system known as 'net metering'	The available flat roof areas can be used to accommodate this system and is therefore a viable source of technology to meet LZC needs.
Ground Source Heat Pump DISCOUNTED 	The ground remains at a constant temperature of approximately 10-12°C, offering the ability to extract energy throughout the winter and discharge energy during the summer through cooling with the energy exchange being achieved by open or closed loop systems linked to heat pumps.	The inclusion of Ground Source Heat Pumps has been discounted due to the requirement of extensive boreholes and pipework. The location of this development renders this option unviable and so has been discounted.
Solar Thermal DISCOUNTED 	Solar thermal systems consist of flat plate or vacuum tube collectors. Sunlight is absorbed heating up and transferring thermal energy to the collector.	The restricted flat roof areas available negate the inclusion of a panel system offering any significant contributions. Additionally, this technology makes a limited contribution to reducing the building's energy demand and carbon emissions. A Solar Photovoltaic system would be better suited to this development.

Biomass Boiler DISCOUNTED 	Biomass is burned in a biomass boiler to heat water. This may be sourced from wood based materials such as logs, pellets or chips.	Biomass boiler solutions have been discounted at this location due to potential clean air issues, deliverability logistics and the lack of available storage space.
Wind Turbines DISCOUNTED 	The most common design is for three blades mounted on a horizontal axis, which is free to rotate into the wind. This drives a generator to produce electricity which is linked to the grid or charge batteries.	Wind turbines have been discounted due to the resulting visual/noise impact from the equipment, and relatively poor performance of the solution when used within Urban and Sub-Urban locations.
Combined Heat and Power DISCOUNTED 	On- site generation of electricity and the utilisation of waste heat from this process within a building can create a beneficial arrangement whereby the transmission losses of grid supplied electricity can be omitted.	The integration of Combined Heat and Power technology has been discounted due to the city centre location and clean air act implications with the flue discharge alongside the movement to utilise decarbonised grid electricity over traditional fossil fuel heating systems.
District Heat Network DISCOUNTED 	Establishing a connection to a District Heating Network can enable the delivery of low carbon and sustainable energy to residents and businesses. The feasibility of this is dependent on the proximity of the development to the network to enable a connection.	Connection to a District Heat Network has been discounted due to alternative methods being more viable.

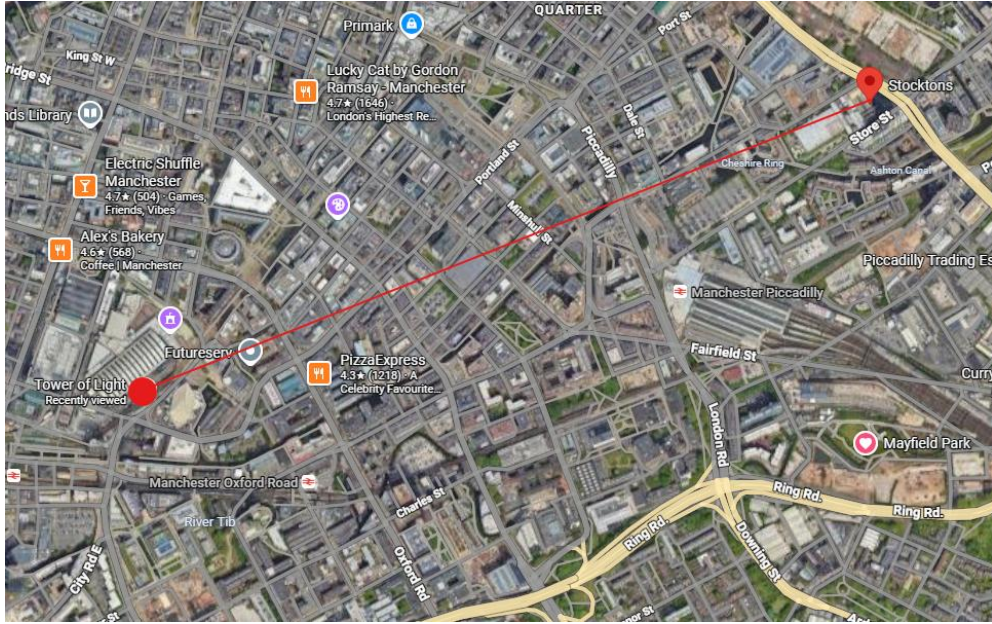
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8. District Heat Network

As part of Policy JP-S3: Heat and Energy Networks of the Places for Everyone Joint Development Plan, it is stated that developments should connect to a district heating scheme where such schemes exist, unless it can be demonstrated that there are more effective alternatives for minimising carbon emissions, or where such connection is not practical or financially viable.



Manchester’s Energy Network Route which will provide energy to the Manchester Town Hall when complete



While the proposed development is relatively close to the site within a 1.2-mile distance, alternative low-carbon and renewable technologies such as air source heat pumps and solar PV are more closely aligned with the servicing strategy for the development. These technologies offer beneficial carbon factors resulting in reduced regulated carbon emissions.

9. Results

A full set of SAP and SBEM calculations have been completed to determine the carbon emissions from the development. By incorporating the three stages of the energy hierarchy, the results demonstrate compliance with MCC policy and Building Regulations Part L.

SAP Calculations (Residential)

Block A		
SAP Calculations	Value	% Difference
TER (kgCO ₂ /yr/m ²)	13.30	
DER (kgCO ₂ /yr/m ²)	3.22	75.79%
TFEE (kWh/m ² /yr)	28.61	
DFEE (kWh/m ² /yr)	28.06	1.93%
TPER (kWh/m ² /yr)	73.70	
DPER (kWh/m ² /yr)	33.85	54.07%

EPC	All 523 Apartments Achieve EPC B
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Block B		
SAP Calculations	Value	% Difference
TER (kgCO2/yr/m2)	13.13	
DER (kgCO2/yr/m2)	3.06	76.71%
TFEE (kWh/m2/yr)	25.91	
DFEE (kWh/m2/yr)	25.64	1.05%
TPER (kWh/m2/yr)	72.47	
DPER (kWh/m2/yr)	32.31	55.41%
EPC	All 200 Apartments Achieve EPC B	

SBEM Calculations (Landlord Areas)

Block A		
SBEM Calculations	Value	% Difference
TER (kgCO2/yr/m2)	3.09	
DER (kgCO2/yr/m2)	3.00	2.91%
TPER (kWh/m2/yr)	33.60	
DPER (kWh/m2/yr)	32.66	2.80%

Block B		
SBEM Calculations	Value	% Difference
TER (kgCO2/yr/m2)	4.75	
DER (kgCO2/yr/m2)	4.62	2.74%
TPER (kWh/m2/yr)	51.77	
DPER (kWh/m2/yr)	50.11	3.21%

TER: Target Emission Rate; DER: Dwelling Emission Rate; TFEE: Target Fabric Energy Efficiency; DFEE: Dwelling Fabric Energy Efficiency; TPER: Target Primary Energy Rate; DPER: Dwelling Primary Energy Rate

10. Conclusion

This Energy and Sustainability Strategy has summarised the energy hierarchy requirements for Stocktons, Manchester to respond to emission reduction aspirations set out within Manchester City Council's Places for Everyone Joint Development Plan (JP-S1, JP-S2, JP-S3) to implement the use of low carbon and/ or renewable technologies and ensure the way in which Stocktons, Manchester is designed and constructed is in a way that is sustainable in terms of design, and energy.

The proposed development will incorporate a fabric first approach using passive energy techniques available in the construction industry to reduce its ongoing requirement to consume energy to heat, ventilate, and light the building. This is achieved by improved highly efficient fabric design which exceeds the thermal properties set out within the Building Regulations Part L.

The proposed development will incorporate energy efficiency measures in its building services to reduce the carbon footprint of the site below the passive improvement stage, using highly efficient heat generation plants, and energy efficient LED lighting.

The approach adopted is to implement energy saving options which reduce the requirement for regulated energy, such as a more efficient building envelope, and utilising high efficiency low carbon technologies which are feasible and appropriate for this type of building.

Net zero energy is an ambitious goal for any building; however, this is achievable through significant load reductions, increased efficiencies and the use of low/zero carbon energy. This is the lean, clean, green approach as followed in this document. The regulated energy sources are targeted for reduction by means of both passive and active measures in terms of highly improved u-values, reduced air tightness, energy efficient MEP systems, and the use of ASHP.

The proposed development demonstrates compliance with the Building Regulations Part L by achieving:

- Block A Landlords: **2.91%** reduction in target carbon emissions, and a **2.80%** reduction in primary energy on day one
- Block B Landlords: **2.74%** reduction in target carbon emissions, and a **3.21%** reduction in primary energy on day one

Additionally, the proposed development achieves a 75.79% (Block A) and 76.71% (Block B) betterment over target carbon emissions, a 1.93% (Block A) and 1.05% (Block B) reduction in target fabric energy efficiency and a 54.07% (Block A) and 55.41% (Block B) betterment in primary energy on day one for the residential areas, therefore demonstrating significant reductions in target carbon emissions and primary energy use, and ultimately shows the strategy improves on the fundamental principles of the Building Regulations and will make a significant contribution to reducing the annual carbon emissions of the development.

Appendix A: SAP Block Compliance (Block A)

Block Compliance				
41.12 (1B1P - 1 BATH) - 00001	45.41	2.73	14.93	81.71 %
42.01 (2B4P - 2 BATH) - 00001	70.29	3.55	13.44	73.59 %
42.02 (2B4P - 2 BATH) - 00001	70.29	3.55	13.44	73.59 %
42.03 (2B4P - 2 BATH) - 00001	72.95	2.51	12.81	80.41 %
42.04 (2B4P - 2 BATH) - 00001	76.98	3.43	13.59	74.76 %
42.05 (2B4P - 2 BATH) - 00001	76.59	2.97	12.58	76.39 %
42.06 (2B4P - 2 BATH) - 00001	77.14	2.15	10.65	79.81 %
42.07 (2B4P - 2 BATH) - 00001	70.29	2.95	11.74	74.87 %
42.08 (2B4P - 2 BATH) - 00001	70.29	2.95	11.74	74.87 %
42.09 (1B2P - 1 BATH) - 00001	49.91	2.49	12.66	80.33 %
42.10 (2B4P - 2 BATH) - 00001	74.78	2.65	11.75	77.45 %
42.11 (2B4P - 2 BATH) - 00001	75.74	2.95	12.53	76.46 %
42.12 (1B1P - 1 BATH) - 00001	45.41	2.73	14.93	81.71 %
43.01 (2B4P - 2 BATH) - 00001	70.29	3.55	13.44	73.59 %
43.02 (2B4P - 2 BATH) - 00001	70.29	3.55	13.44	73.59 %
43.03 (2B4P - 2 BATH) - 00001	72.95	2.51	12.81	80.41 %
43.04 (2B4P - 2 BATH) - 00001	76.98	3.43	13.59	74.76 %
43.05 (2B4P - 2 BATH) - 00001	76.59	2.97	12.58	76.39 %
43.06 (2B4P - 2 BATH) - 00001	77.14	2.15	10.65	79.81 %
43.07 (2B4P - 2 BATH) - 00001	70.29	2.95	11.74	74.87 %
43.08 (2B4P - 2 BATH) - 00001	70.29	2.95	11.74	74.87 %
43.09 (1B2P - 1 BATH) - 00001	49.91	2.49	12.66	80.33 %
43.10 (2B4P - 2 BATH) - 00001	74.78	2.65	11.75	77.45 %
43.11 (2B4P - 2 BATH) - 00001	75.74	2.95	12.53	76.46 %
43.12 (1B1P - 1 BATH) - 00001	45.41	2.73	14.93	81.71 %
Totals:	34327.54	1680.55	7041.99	
Average DER = 3.22 kgCO ₂ /m ²	% DER/TER	PASS		
Average TER = 13.30 kgCO ₂ /m ²	75.79 %			

Block Compliance



42.06 (2B4P - 2 BATH) - 00001	77.14	15.95	19.94	20.01 %
42.07 (2B4P - 2 BATH) - 00001	70.29	25.56	22.49	-13.62 %
42.08 (2B4P - 2 BATH) - 00001	70.29	25.56	22.49	-13.62 %
42.09 (1B2P - 1 BATH) - 00001	49.91	15.35	18.24	15.84 %
42.10 (2B4P - 2 BATH) - 00001	74.78	23.04	24.33	5.29 %
42.11 (2B4P - 2 BATH) - 00001	75.74	27.23	28.21	3.45 %
42.12 (1B1P - 1 BATH) - 00001	45.41	22.01	27.04	18.61 %
43.01 (2B4P - 2 BATH) - 00001	70.29	32.14	30.46	-5.49 %
43.02 (2B4P - 2 BATH) - 00001	70.29	32.14	30.46	-5.49 %
43.03 (2B4P - 2 BATH) - 00001	72.95	23.79	28.76	17.30 %
43.04 (2B4P - 2 BATH) - 00001	76.98	32.63	33.33	2.12 %
43.05 (2B4P - 2 BATH) - 00001	76.59	27.61	28.67	3.68 %
43.06 (2B4P - 2 BATH) - 00001	77.14	15.95	19.94	20.01 %
43.07 (2B4P - 2 BATH) - 00001	70.29	25.56	22.49	-13.62 %
43.08 (2B4P - 2 BATH) - 00001	70.29	25.56	22.49	-13.62 %
43.09 (1B2P - 1 BATH) - 00001	49.91	15.35	18.24	15.84 %
43.10 (2B4P - 2 BATH) - 00001	74.78	23.04	24.33	5.29 %
43.11 (2B4P - 2 BATH) - 00001	75.74	27.23	28.21	3.45 %
43.12 (1B1P - 1 BATH) - 00001	45.41	22.01	27.04	18.61 %
Totals:	34327.54	14456.30	14875.91	
Average DFEE = 28.06 kWh/m ² /yr	% DFEE/TFEE	PASS		
Average TFEE = 28.61 kWh/m ² /yr	1.93 %			

Block Compliance Report - DPER				
Block Reference: Stocktons Block A FULL R3		Block Name: Stocktons Block A R1		
Property-Assessment Reference	Floor area (m ²)	DPER (kWh/m ² /yr)	TPER (kWh/m ² /yr)	% DPER/TPER

Block Compliance



42.06 (2B4P - 2 BATH) - 00001	77.14	23.08	59.25	61.05 %
42.07 (2B4P - 2 BATH) - 00001	70.29	31.11	65.23	52.31 %
42.08 (2B4P - 2 BATH) - 00001	70.29	31.11	65.23	52.31 %
42.09 (1B2P - 1 BATH) - 00001	49.91	26.83	70.62	62.01 %
42.10 (2B4P - 2 BATH) - 00001	74.78	28.09	65.23	56.94 %
42.11 (2B4P - 2 BATH) - 00001	75.74	31.06	69.41	55.25 %
42.12 (1B1P - 1 BATH) - 00001	45.41	29.24	82.99	64.77 %
43.01 (2B4P - 2 BATH) - 00001	70.29	37.10	74.39	50.13 %
43.02 (2B4P - 2 BATH) - 00001	70.29	37.10	74.39	50.13 %
43.03 (2B4P - 2 BATH) - 00001	72.95	26.78	70.93	62.24 %
43.04 (2B4P - 2 BATH) - 00001	76.98	35.85	75.09	52.26 %
43.05 (2B4P - 2 BATH) - 00001	76.59	31.28	69.67	55.10 %
43.06 (2B4P - 2 BATH) - 00001	77.14	23.08	59.25	61.05 %
43.07 (2B4P - 2 BATH) - 00001	70.29	31.11	65.23	52.31 %
43.08 (2B4P - 2 BATH) - 00001	70.29	31.11	65.23	52.31 %
43.09 (1B2P - 1 BATH) - 00001	49.91	26.83	70.62	62.01 %
43.10 (2B4P - 2 BATH) - 00001	74.78	28.09	65.23	56.94 %
43.11 (2B4P - 2 BATH) - 00001	75.74	31.06	69.41	55.25 %
43.12 (1B1P - 1 BATH) - 00001	45.41	29.24	82.99	64.77 %
Totals:	34327.54	17684.48	39035.03	
Average DPER = 33.85 kWh/m ² /yr	% DPER/TPER	PASS		
Average TPER = 73.70 kWh/m ² /yr	54.07 %			

Appendix B: SAP Block Compliance (Block B)

Block Compliance				
23.09 (2B4P - 2 BATH) - 00001	62.36	2.35	11.32	79.24 %
24.01 (2B4P - 2 BATH) - 00001	72.13	5.44	18.52	70.63 %
24.02 (2B4P - 2 BATH) - 00001	70.26	4.61	16.77	72.51 %
24.03 (2B4P - 2 BATH) - 00001	66.95	5.53	18.94	70.80 %
24.04 (1B1P - 1 BATH) - 00001	39.68	4.97	20.13	75.31 %
24.05 (2B4P - 2 BATH) - 00001	77.23	5.42	18.99	71.46 %
24.06 (2B4P - 2 BATH) - 00001	68.57	4.27	15.13	71.78 %
24.07 (2B4P - 2 BATH) - 00001	69.16	4.09	15.07	72.86 %
24.08 (2B4P - 2 BATH) - 00001	70.01	5.22	16.17	67.72 %
24.09 (2B4P - 2 BATH) - 00001	62.36	3.97	15.34	74.12 %
Totals:	12060.55	608.82	2692.56	
Average DER = 3.06 kgCO ₂ /m ²	% DER/TER	PASS		
Average TER = 13.13 kgCO ₂ /m ²	76.71 %			

Block Compliance Report - DFEE				
Block Reference: Stocktons Block B FULL R2		Block Name: Stocktons Block B R1		
Property-Assessment Reference	Floor area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)	% DFEE/TFEE
04.01 (2B4P - 2 BATH) - 00001	72.13	37.30	36.36	-2.59 %
04.02 (2B4P - 2 BATH) - 00001	70.26	33.60	35.96	6.54 %
04.03 (2B4P - 2 BATH) - 00001	66.95	31.79	33.80	5.95 %
04.04 (1B1P - 1 BATH) - 00001	47.10	20.11	22.79	11.78 %
04.05 (2B4P - 2 BATH) - 00001	62.36	17.87	19.05	6.16 %
05.01 (2B4P - 2 BATH) - 00001	72.13	32.12	31.01	-3.60 %
05.02 (2B4P - 2 BATH) - 00001	70.26	22.71	24.64	7.81 %
05.03 (2B4P - 2 BATH) - 00001	66.95	29.68	31.54	5.89 %
05.04 (1B1P - 1 BATH) - 00001	39.68	21.48	24.54	12.49 %
05.05 (2B4P - 2 BATH) - 00001	77.23	33.75	31.51	-7.12 %
05.06 (1B1P - 1 BATH) - 00001	27.20	23.31	21.49	-8.44 %

Block Compliance



23.05 (2B4P - 2 BATH) - 00001	77.23	33.75	31.51	-7.12 %
23.06 (2B4P - 2 BATH) - 00001	68.57	18.68	18.17	-2.83 %
23.07 (2B4P - 2 BATH) - 00001	69.16	18.01	18.11	0.56 %
23.08 (2B4P - 2 BATH) - 00001	70.01	23.34	22.89	-1.99 %
23.09 (2B4P - 2 BATH) - 00001	62.36	16.78	17.96	6.53 %
24.01 (2B4P - 2 BATH) - 00001	72.13	55.56	54.17	-2.57 %
24.02 (2B4P - 2 BATH) - 00001	70.26	43.47	45.25	3.93 %
24.03 (2B4P - 2 BATH) - 00001	66.95	52.51	54.31	3.31 %
24.04 (1B1P - 1 BATH) - 00001	39.68	43.60	46.60	6.43 %
24.05 (2B4P - 2 BATH) - 00001	77.23	59.33	57.38	-3.41 %
24.06 (2B4P - 2 BATH) - 00001	68.57	39.47	37.47	-5.32 %
24.07 (2B4P - 2 BATH) - 00001	69.16	38.57	37.36	-3.24 %
24.08 (2B4P - 2 BATH) - 00001	70.01	45.13	43.27	-4.30 %
24.09 (2B4P - 2 BATH) - 00001	62.36	36.55	36.65	0.27 %
Totals:	12060.55	4957.24	5028.27	
Average DFEE = 25.64 kWh/m ² /yr	% DFEE/TFEE	PASS		
Average TFEE = 25.91 kWh/m ² /yr	1.05 %			

Block Compliance Report - DPER				
Block Reference: Stocktons Block B FULL R2		Block Name: Stocktons Block B R1		
Property-Assessment Reference	Floor area (m ²)	DPER (kWh/m ² /yr)	TPER (kWh/m ² /yr)	% DPER/TPER
04.01 (2B4P - 2 BATH) - 00001	72.13	43.87	79.40	44.75 %
04.02 (2B4P - 2 BATH) - 00001	70.26	38.34	80.63	52.45 %
04.03 (2B4P - 2 BATH) - 00001	66.95	37.39	78.59	52.42 %
04.04 (1B1P - 1 BATH) - 00001	47.10	27.85	76.99	63.83 %
04.05 (2B4P - 2 BATH) - 00001	62.36	25.72	63.90	59.75 %
05.01 (2B4P - 2 BATH) - 00001	72.13	36.92	72.90	49.36 %
05.02 (2B4P - 2 BATH) - 00001	70.26	25.96	67.02	61.27 %

Block Compliance



22.03 (2B4P - 2 BATH) - 00001	66.95	34.68	75.85	54.28 %
22.04 (1B1P - 1 BATH) - 00001	39.68	30.57	85.38	64.20 %
22.05 (2B4P - 2 BATH) - 00001	77.23	38.94	72.04	45.95 %
22.06 (2B4P - 2 BATH) - 00001	68.57	25.26	60.54	58.28 %
22.07 (2B4P - 2 BATH) - 00001	69.16	24.73	60.24	58.95 %
22.08 (2B4P - 2 BATH) - 00001	70.01	29.50	64.20	54.05 %
22.09 (2B4P - 2 BATH) - 00001	62.36	25.29	62.68	59.65 %
23.01 (2B4P - 2 BATH) - 00001	72.13	36.92	72.90	49.36 %
23.02 (2B4P - 2 BATH) - 00001	70.26	25.96	67.02	61.27 %
23.03 (2B4P - 2 BATH) - 00001	66.95	34.68	75.85	54.28 %
23.04 (1B1P - 1 BATH) - 00001	39.68	30.57	85.38	64.20 %
23.05 (2B4P - 2 BATH) - 00001	77.23	38.94	72.04	45.95 %
23.06 (2B4P - 2 BATH) - 00001	68.57	25.26	60.54	58.28 %
23.07 (2B4P - 2 BATH) - 00001	69.16	24.73	60.24	58.95 %
23.08 (2B4P - 2 BATH) - 00001	70.01	29.50	64.20	54.05 %
23.09 (2B4P - 2 BATH) - 00001	62.36	25.29	62.68	59.65 %
24.01 (2B4P - 2 BATH) - 00001	72.13	54.97	101.23	45.70 %
24.02 (2B4P - 2 BATH) - 00001	70.26	47.87	91.89	47.91 %
24.03 (2B4P - 2 BATH) - 00001	66.95	56.44	103.58	45.51 %
24.04 (1B1P - 1 BATH) - 00001	39.68	51.84	110.80	53.21 %
24.05 (2B4P - 2 BATH) - 00001	77.23	54.13	103.69	47.80 %
24.06 (2B4P - 2 BATH) - 00001	68.57	44.42	83.10	46.55 %
24.07 (2B4P - 2 BATH) - 00001	69.16	42.59	82.76	48.54 %
24.08 (2B4P - 2 BATH) - 00001	70.01	53.96	88.61	39.10 %
24.09 (2B4P - 2 BATH) - 00001	62.36	41.45	84.34	50.85 %
Totals:	12060.55	6448.54	14874.41	
Average DPER = 32.31 kWh/m ² /yr	% DPER/TPER	PASS		
Average TPER = 72.47 kWh/m ² /yr	55.41 %			

Appendix C: BRUKL (Block A)

BRUKL Output Document



HM Government

Compliance with England Building Regulations Part L 2021

Project name

Stockton A - Landlords

As designed

Date: Fri May 29 14:28:07 2026

Administrative information

Building Details

Address: Manchester,

Certifier details

Name: Futureserv

Telephone number:

Address: , ,

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.31

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.31

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 115.49

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	3.09
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	3
Target primary energy rate (TPER), kWh _{eq} /m ² annum	33.6
Building primary energy rate (BPER), kWh _{eq} /m ² annum	32.66
Do the building's emission and primary energy rates exceed the targets?	BER <= TER BPER <= TPER

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

Fabric element	U _a -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.26	0.26	B1000000:Surf[1]
Floors	0.18	0.11	0.11	00000009:Surf[0]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.11	0.11	32000000:Surf[0]
Windows** and roof windows	1.6	0.73	0.73	00000013:Surf[0]
Rooflights***	2.2	-	-	No roof lights in building
Personnel doors^	1.6	-	-	No personnel doors in building
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building
U_a-Limit = Limiting area-weighted average U-values [W/(m²K)] U_a-Calc = Calculated area-weighted average U-values [W/(m²K)] * 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. *** Values for rooflights refer to the horizontal position. ^ For fire doors, limiting U-value is 1.8 W/m²K NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				
Air permeability	Limiting standard		This building	
m ³ /(h.m ²) at 50 Pa	8		3	

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters			Building Use	
	Actual	Notional	% Area	Building Type
Floor area [m ²]	10493.9	10493.9		Retail/Financial and Professional Services
External area [m ²]	4513.7	4513.7		Restaurants and Cafes/Drinking Establishments/Takeaways
Weather	MAN	MAN		Offices and Workshop Businesses
Infiltration [m ³ /hm ² @ 50Pa]	3	3		General Industrial and Special Industrial Groups
Average conductance [W/K]	2057.38	1351.79		Storage or Distribution
Average U-value [W/m ² K]	0.46	0.3	46	Hotels
Alpha value* [%]	25.34	10		Residential Institutions: Hospitals and Care Homes
* Percentage of the building's average heat transfer coefficient which is due to thermal bridging				Residential Institutions: Residential Schools
				Residential Institutions: Universities and Colleges
				Secure Residential Institutions
			54	Residential Spaces
				Non-residential Institutions: Community/Day Centre
				Non-residential Institutions: Libraries, Museums, and Galleries
				Non-residential Institutions: Education
				Non-residential Institutions: Primary Health Care Building
				Non-residential Institutions: Crown and County Courts
				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	1.93	1.95
Cooling	1.13	0.6
Auxiliary	1.53	1.04
Lighting	8.58	10.69
Hot water	8.93	8.52
Equipment*	46.51	46.51
TOTAL**	22.11	22.8

* 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	0.07
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	0	0.07

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	46.82	26.18
Primary energy [kWh _{PE} /m ²]	32.66	33.6
Total emissions [kg/m ²]	3	3.09

Appendix D: BRUKL (Block B)

BRUKL Output Document



HM Government

Compliance with England Building Regulations Part L 2021

Project name

Stockton B - Landlord

As designed

Date: Mon Jun 01 07:46:33 2026

Administrative information

Building Details

Address: Manchester,

Certifier details

Name: Futureserv

Telephone number:

Address: , ,

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.31

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.31

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 227.62

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	4.75
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	4.62
Target primary energy rate (TPER), kWh _{ep} /m ² annum	51.77
Building primary energy rate (BPER), kWh _{ep} /m ² annum	50.11
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

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

Fabric element	U _{s-Limit}	U _{s-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.26	0.26	B1000009:Surf[0]
Floors	0.18	0.11	0.11	B1000036:Surf[0]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.11	0.11	00000022:Surf[1]
Windows** and roof windows	1.6	0.72	0.72	B1000036:Surf[1]
Rooflights***	2.2	-	-	No roof lights in building
Personnel doors ^Δ	1.6	1.6	1.6	0000000A:Surf[1]
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building
U _{s-Limit} = Limiting area-weighted average U-values [W/(m ² K)] U _{s-Calc} = Calculated area-weighted average U-values [W/(m ² K)] U _{i-Calc} = Calculated maximum individual element U-values [W/(m ² K)] * 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. *** Values for rooflights refer to the horizontal position. Δ For fire doors, limiting U-value is 1.8 W/(m ² K) NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	3

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters			Building Use	
	Actual	Notional	% Area	Building Type
Floor area [m ²]	7831.8	7831.8		Retail/Financial and Professional Services
External area [m ²]	5317	5317		Restaurants and Cafes/Drinking Establishments/Takeaways
Weather	MAN	MAN		Offices and Workshop Businesses
Infiltration [m ³ /hm ² @ 50Pa]	3	3		General Industrial and Special Industrial Groups
Average conductance [W/K]	2406.61	2034.78		Storage or Distribution
Average U-value [W/m ² K]	0.45	0.38	72	Hotels
Alpha value* [%]	25.35	10		Residential Institutions: Hospitals and Care Homes
* Percentage of the building's average heat transfer coefficient which is due to thermal bridging				Residential Institutions: Residential Schools
				Residential Institutions: Universities and Colleges
				Secure Residential Institutions
			28	Residential Spaces
				Non-residential Institutions: Community/Day Centre
				Non-residential Institutions: Libraries, Museums, and Galleries
				Non-residential Institutions: Education
				Non-residential Institutions: Primary Health Care Building
				Non-residential Institutions: Crown and County Courts
				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	4.12	2.24
Cooling	3.87	2.26
Auxiliary	1.74	1.24
Lighting	9.86	13.31
Hot water	17.34	16.5
Equipment*	68.45	68.45
TOTAL**	36.94	35.56

* 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	3	0.49
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	3	0.49

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	96.78	51.9
Primary energy [kWh _{PE} /m ²]	50.11	51.77
Total emissions [kg/m ²]	4.62	4.75

Appendix E: Energy and Carbon Performance (Residential)

Energy and Carbon Performance Residential

Major development (+10 homes)

Version 1.0

Project Name: Stocktons, 140 Great Ancoats Street

Application ref:

Date: May-26

		Ref. name	Block A	Block B
		No. dwellings	523	200
		Area (m ² GIA)	34328	12080.6
		Target values	Building 1	Building 2
Minimise energy demand	Space heating demand (kWh/m ² GIA/yr)	≤ 15 (flats) ≤ 20 (houses)	6.18 kWh/m ² GIA/yr	4.71 kWh/m ² GIA/yr
	Calculation methodology used to calculate space heating demand and confirmation that this covers all homes/blocks	Predictive energy model	CIBSE TM54 (to be undertaken at detailed design)	
	Form factor per building	≤ 2	0.71	0.84
	Average external wall U-value (W/m ² K)	≤ 0.15	0.73 (curtain walling)	0.72 (curtain walling)
	Average window U-value (W/m ² K)	≤ 1 (triple)	0.73	0.72
	Air permeability rate (m ³ /h/m ² @ 50 Pa)	≤ 1	2.75 (1 bed) 2.5 (2+3 bed)	2.75 (1 bed) 2.5 (2+3 bed)
Maximise energy efficiency	Energy use intensity (kWh/m ² GIA/yr)	≤ 35	57.26	57.13
	Calculation methodology used to calculate energy use intensity and confirmation that this covers all homes/blocks	Predictive energy model	CIBSE TM54 (to be undertaken at detailed design)	
Use renewable energy	PV footprint area (% of ground floor space)	≥ 40		
	Annual renewable energy generation (kWh/m ² building footprint/yr)	-	0.075	0.129

	Renewable energy balance (%)	-	0.13	0.23
	Total energy used (kWh/yr)	-	1985444	688993.4
	Total energy generated on-site (kWh/yr)	-	2833.44	1558.14
Use low carbon energy	Fossil fuel free (yes/no)	Yes	Yes	Yes
	Heat source	Electric	Electric	Electric
	Low Carbon Heat Appraisal completed	Yes	Yes	Yes
	Heat network suitability	-	No	No
	Exemption requested	-		
	Efficiency of heating system (SCOP)	≥ 3.5	1.0	1.0
	Carbon content of heat (gCO ₂ /kWh)	≤ 100	180.4	180.5
Reduce overheating risk	Have Part O overheating requirements been met without the use of mechanical cooling?	Yes	Yes	Yes
	If no, how many homes are cooled?	Yes	N/A	NA
	Has a CIBSE TM59 assessment been carried out using DSY2 and DSY3 weather files? Have any additional passive measures been included as a result?	Yes	No	No
Minimise embodied carbon	Upfront embodied carbon (kgCO ₂ e/m ² GIA)	≤ 500-600	521	
	List top three materials with the highest upfront embodied carbon emissions (kgCO ₂ e/m ² GIA): Material 1	-		
	Material 2	-		
	Material 3			
	Lifecycle embodied carbon (kgCO ₂ e/m ² GIA) - for large major developments only	-	805	
Offsets	Offset contribution (£)	-	N/A – no details on offset scheme available	