
Views (Holdings) Limited

Environmental Standards Statement

Proposed Residential Development with associated access, infrastructure and landscaping at Former Burnage Cricket Club, M19 1AX

18 February 2025

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1 Executive Summary

This Environmental Standards Statement has been prepared by Watt Energy on behalf of Views (Holdings) Limited to support a planning application for the Residential Development with associated access, infrastructure and landscaping at **Former Burnage Cricket Club, Manchester**. The statement specifically addresses the following Manchester City Council approved climate change action plans in addition to planning policies, as stipulated in the Manchester Core Strategy (July 2012):

- Guide to Development in Manchester SPD (2007)
- Our Manchester Strategy 2016-2025
- Manchester: A Certain Future (2013)
- Manchester Climate Change Board – The Zero Carbon Framework 2020-2038
- Climate Change and Low Emissions Implementation Plan 2016-2020
- Meeting Our Objectives and Targets – Manchester Climate Change Framework – 2020-25
- Manchester Residential Quality Guidance 2017
- Core Strategy Policy DM 1 - Development Management
- Core Strategy Policy EN 4 - Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development
- Core Strategy Policy EN 6 - Target Framework for CO₂ Reductions from Low or Zero Carbon Energy Supplies
- Core Strategy Policy EN 8 – Adaptation to Climate Change
- Core Strategy Policy EN 9 – Green Infrastructure
- Core Strategy Policy EN 14 – Flood Risk
- Core Strategy Policy EN 15 – Biodiversity and Geological Conservation
- Core Strategy Policy T 1 – Sustainable Transport
- Places for Everyone Joint Development Plan Document (DPD)- Policy JP-S2- Carbon and Energy

The statement details how the development will incorporate sustainable design and resource efficiency in line with the Energy Hierarchy, so to meet the policy requirements and council targets whilst reducing its overall environmental impact. The methodology and calculations are consistent with the MCC Appendix A EN6 Energy Target Explanation and all figures used within this report have been based on the most recent issue of drawings and modelled using Elmhurst Design SAP 10 to accurately predict Energy Usage and CO₂ reductions.

In relation to the planning documents and policies outlined above, the development is required to achieve a **10%** reduction in carbon emissions over Part L 2013 of the Building Regulations and also aim for a status of **carbon neutral**.

In order to achieve compliance, the development has been designed with a holistic low energy design concept involving a fabric first approach. The U-values, design air permeability and ventilation targets all aspire to high standards along with the consideration and application of low zero carbon renewable technologies.



Following the LZC feasibility assessment, it is proposed that the development incorporates LZC technologies in the form of an air source heat pump, as it is the most suitable LZC technology for the site.

As a result of the above the predicted site wide reduction in CO₂ over Part L 2013 of the Building Regulations can be summarised as:

- **64.2%** with SAP 10.1 carbon factors (proposed improvements to Part L)

This statement also examines how the design, specification and characteristics of the proposal will contribute to sustainability and meet the relevant objectives outlined within the National Planning Policy Framework (NPPF) 2024, in addition to the Manchester City Council approved climate change action plans and core strategy planning policies outlined above. The sustainability measures assessed included:

- Flood Risk Zone
- Green and Blue Infrastructure
- Sustainable Drainage Systems (SuDs)
- Biodiversity / Ecology
- Internal Water Efficiency
- Waste Management
- Materials
- Pollution Control
- Health and Wellbeing
- Sustainable Transport

The development therefore complies with all Manchester City Council's current and future policy requirements relating to creating a sustainable development.

In relation to the planning target centred around carbon emissions reduction, the proposed development is achieving a **64.2%** reduction in these emissions, over the Part L1A of the Building Regulations. This surpasses all of Manchester City Council's planning targets and therefore allows compliance to be reached.

2.2 Relevant Policies and Guidance

2.2.1 Local Planning Policy

2.2.1.1 Manchester Core Strategy

Manchester's Core Strategy (CS) was adopted on 11th July 2012 and is the key Development Plan Document (DPD) guiding the measures assessed in this report.

CS Policy DM 1 - Development Management: Stipulates that all new development should have regard for several development principles relevant to sustainability, including: waste management, designing for health, flood risk, green infrastructure, biodiversity. Additionally, subject to scheme viability, developers will be required to demonstrate that new non-domestic development will achieve a BREEAM Rating of 'Very Good' or for domestic development to achieve the Code for Sustainable Homes standard.

CS Policy EN 4 – Reducing CO2 Emissions: This policy targets the reducing of CO2 emissions through the following of the energy hierarchy; firstly, reducing the need for energy through efficient design measures, followed by clean energy and lastly, the application of renewable or LDC technologies. In addition to this point, MCC state within this policy all new development is required to use building materials that have low embodied carbon.

CS Policy EN 6 - Target Framework for CO2 Reductions from Low or Zero Carbon Energy Supplies: This Policy requires electricity intense residential development of 10 or more units to meet, as a minimum, a 15% reduction in domestic CO2 emissions over Part L of the 2010 Building Regulations, unless proven to be unviable. As Part L 2013 of the Building Regulations represents a 6% improvement on 2010 levels, this target is subsequently equivalent to a 9% improvement in CO2 emissions over Part L 2013. Section 2.3 provides evidence of how this target is achieved.

CS Policy EN 8 – Adaptation to Climate Change: Expects all new development to be adaptable to climate change in terms of its design, layout, siting, and function of both building associated external spaces.

CS Policy EN 9 – Green Infrastructure: Requires new developments to maintain existing green infrastructure whilst using every opportunity, in accordance with current Green Infrastructure Strategies, to enhance the quality and quantity of green infrastructure, improve the performance of its functions and create and improve linkages to and between area of green infrastructure.

CS Policy EN 14 – Flood Risk: This policy expects all new developments to minimise surface water run-off through the use of SuDs and Green Infrastructure.

CS Policy EN 15 – Biodiversity and Geological Enhancement: Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on or adjacent to the proposed site.

CS Policy T 1 – Sustainable Transport: Policy aims to deliver sustainable, high quality, integrated transport systems to encourage a shift away from car travel to public transport, cycling and walking.



2.2.1.2 Guide to Development in Manchester, Supplementary Planning Document 2007

The Development Guide in Manchester Supplementary Planning Documents (SPD) establish and set out the ongoing generation of the City by providing a set of set principles which will guide developers, architects, and residents in the design of the city. The MCC Core Strategy stipulates that all new residential developments should comply with the design guidance set out in the SPDs. These principles include the following environmental standards relevant to this report: energy strategy, water consumption, drainage management, weather resilience, waste management, construction management, biodiversity, and waterways.

2.2.1.3 Manchester Residential Quality Guide 2017

The Manchester Residential Quality Guide has been developed to help shape the creation of new homes and communities across the Greater Manchester city region, beginning with the Centre and its immediate surroundings. This document outlines the considerations, qualities, and opportunities that will help to deliver high quality residential development as part of successful and sustainable neighbourhoods across Manchester. The guidance includes the following nine components:

Make it Manchester – developers must understand the city’s unique character, heritage old and new, density and scale in various parts of the city and appreciate how new homes will fit into what is already there.

Make it bring people together – new homes must encourage a sense of community and neighbourliness, offering a mix of tenures to promote a mix of people.

Make it animate streets and spaces – understand the relationship between new homes and its environment and create public space.

Make it easy to get around – make sure developments have good transport links, along with good walking and cycling provision.

Make work with the landscape – development should improve the connection with the local environment with improved biodiversity, as well as greening and water schemes.

Make it practical – dealing with waste, car parking, bike storage and visitors should be made as easy as possible.

Make it future proof – design must anticipate the impacts of climate change and extreme weather with efficient design and adaptability.

Make it a home – sufficient space, natural light, privacy and storage are essential for people to settle down and flourish.

Make it happen – ensuring proposals are delivered, to a high quality, with high design standards and high sustainability.



2.2.1.4 Manchester's Great Outdoors 2015-25

A Green and Blue Infrastructure Strategy for Manchester aims to invest to date in the city's green and blue infrastructure over the next 10 years (by 2025). Four objectives have been established to enable the vision to be achieved: 1. Improve the quality and function of existing green and blue Infrastructure, to maximize the benefits it delivers. 2. Use appropriate green and blue infrastructure as a key component of new developments to help create successful neighbourhoods and support the city's growth. 3. Improve connectivity and accessibility to green and blue infrastructure within the city and beyond. 4. Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides to residents, the economy, and the local environment.

2.2.1.5 Manchester Climate Change Framework 2020-25

Following the declaration of a climate emergency by MCC In July 2019, this framework was adopted and is an in-depth strategy to accompany the Draft Manchester Zero Carbon Framework 2020-38, which was published in February 2019. It is a framework that will continue to develop over the next five years, in line with changes in policy, climate science, rate of progress and other factors. The framework has set out four objectives to facilitate this:

Objective 1 – Staying within our carbon budgets.

- Direct CO2 emissions: staying within our 15-million-ton carbon budget for 2018-2100, including reducing the CO2 emitted from our homes, workplaces and ground transport by at least 50% during 2020-25.
- Indirect CO2 emissions: understanding and taking action on the things that we consume, and which generate greenhouse gases through their production, transportation and disposal.

Objective 2 – Climate adaptation and resilience

- Increase the amount of urban green infrastructure cover, aiming for a 10% increase by 2038 from 2018 levels, in line with the Greater Manchester aim.
- Responding to these risks by incorporating adaptation and resilience within our plans and strategies, and acting to make necessary changes to our buildings, infrastructure and our natural environment.

Objective 3 – Health and wellbeing

- Adapt the city's built and natural environment and prepare our residents to become more resilient to these changes. Increasing the amount and quality of green space to enable residents to benefit from the improved physical and mental health that will come as a result.
- Improving the energy efficiency of the city's homes and providing access to affordable, secure supplies of renewable energy are essential to help get 38,000 Manchester households out of fuel poverty.



Objective 4 – Inclusive, zero carbon and climate resilient economy

- Ensure that Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit from playing an active role in decarbonizing and adapting the city to the changing climate.

2.2.2 Manchester City Council's Planning Document Targets

Manchester City Planning Policy currently uses the following documents to look to establish the carbon reduction targets to be achieved in new developments across the City.

These documents use different terminology to describe achieving the various reduced carbon emissions.

Please see below a summary of the terminology and targets set out within the current Manchester Planning Policy documents:

Planning Document:	Time of Production or Adoption:	Low Carbon Target:	Sustainable Design Definition:
Manchester Council's Core Strategy 2012-2027	Adopted 2012	Targets a 9% reduction in carbon emissions over Part L Building Regulations.	Low Carbon (9% over Part L 2013)
Climate Change and Low Emission Strategies 2016-2020	Adopted 2016	Targets a 48% reduction in carbon emissions from 1990 - 2020	Low Carbon (48% over 1990 emissions)
Manchester: A Certain Future	Produced in 2009, updated in 2013	Targets emitting 41% less CO ₂ in 2020 than in 2005 – Equates to 10% over Part L 2013 (if going by Part L requirements)	Low Carbon (10% over Part L 2013)

Table 1: Overview of Manchester Planning Documents Carbon Targets



2.2.3 Places for Everyone Joint Development Plan for Manchester

Places for Everyone is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been published by the GMCA on behalf of the nine districts.

The plan is a joint development plan of the nine districts which will determine the kind of development that takes place in their boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development.

It will also ensure all new developments are sustainably integrated into Greater Manchester's transport network or supported by new infrastructure.

The Key DPD policies considered in this report are:

Policy JP-S1: Carbon and Energy

As per policy JP S1, to help tackle climate change, the 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.

Evidence from the 5 Year Environment Plan indicates that to achieve net zero carbon emissions in new developments, a substantial increase in the use of renewable and photovoltaic technology will be necessary.

Therefore, the 'Places for everyone joint development plan' (Adopted 21 March 2024) set out the below best practice thresholds for Reducing Energy Demand and Onsite Renewable Energy Generation within residential developments.

Year	Space Heat Demand Threshold	Hot Water Energy Demand
2021 - 2025	Houses (30kWh/m ²) Flats (25kWh/m ²)	20% energy demand reduction in the total heat required for water heating.

These have been seen as the starting point in relation to reducing energy demand for space heating and onsite renewable energy generation for this development. These threshold figures have since been achieved and results are further demonstrated in section 2.3.



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:

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.

2.2.4 National Planning Policy

The NPPF (revised December 2024) sets out the Government’s planning policies for England and how these are expected to be applied. The overall emphasis of the NPPF is to reiterate the Government’s key objectives, including securing sustainable development.

The NPPF defines the purpose of the planning system as being to contribute to the achievement of sustainable development. It explains at Paragraph 8 that there are three dimensions to sustainable development. These are economic, social and environmental and should be pursued simultaneously through the planning system.

Paragraph 10 of section 2 of the NPPF states that at the heart of the Framework is a presumption in favour of sustainable development.

2.3 Sustainable Design Strategy

2.3.1 Energy and Carbon Emissions

Building Services Strategy

In response to the policy requirements and climate change plan targets set out in section 2.2, developments should aim to assist and achieve the following carbon reduction targets:

1. Achieve a minimum of 10% CO₂ reduction over the Part L 2013 Target Emission Rate (TER), as per Target 2 (Electricity intense buildings) in Table 12.1 of Policy EN6.
2. Reducing Energy Demand following best practice thresholds, i.e. 30kWh/m² for Houses and 25kWh/m² in Flats and Onsite Renewable Energy Generation within residential developments.
3. Assist in achieving carbon neutrality by 2038.

To achieve the most accurate calculations and estimates, the proposed units have been modelled using *SAP 2012* the governments Standard Assessment Procedure for residential dwellings.

The proposed strategy for minimising energy use and carbon emissions is based on the energy hierarchy described in CIBSE Guide F 2012 (Energy efficiency in buildings). The energy hierarchy has been adopted for the development to ensure that the correct approach to design is taken to promote an energy-efficient low carbon solution (see figure 2). This has ensured that the benefits of effective methods of energy use reduction have been maximised first. The approach adopted is as follows:



Fig 2: Energy Hierarchy

Minimise energy demand – Implement passive design measures and optimise the building envelope in terms of orientation, air tightness, and insulation. For example, the proposal is targeting a low carbon classification through a holistic low energy design concept as it will be designed with a fabric first approach whereby standards designed to exceed Building Regulations compliancy are aspired to for all fabric U-values and air permeability targets.

Meet demands efficiently – Specification of energy efficient decentralised plant, heating, ventilation, lighting, and system controls to facilitate efficient operation.

Particular attention is being paid to the wellbeing of occupants. The ventilation strategy has been developed to minimise noise ingress from the proposed location as far as possible while minimising the risk of overheating.

Additional Renewable Energy Measures

Opportunities for incorporating low and zero carbon technologies (LZCT) have been considered for this development. The viability of several separate technologies was examined in a LZCT study (see section 3).

Efficient and Sustainable Design Measures

In line with the above Sustainable Design Strategy, the following Energy Efficient design measures are specified.

- High levels of insulation throughout with minimal thermal bridges
- Passive solar gains and internal heat sources
- Excellent level of airtightness
- Good indoor air quality by openable windows

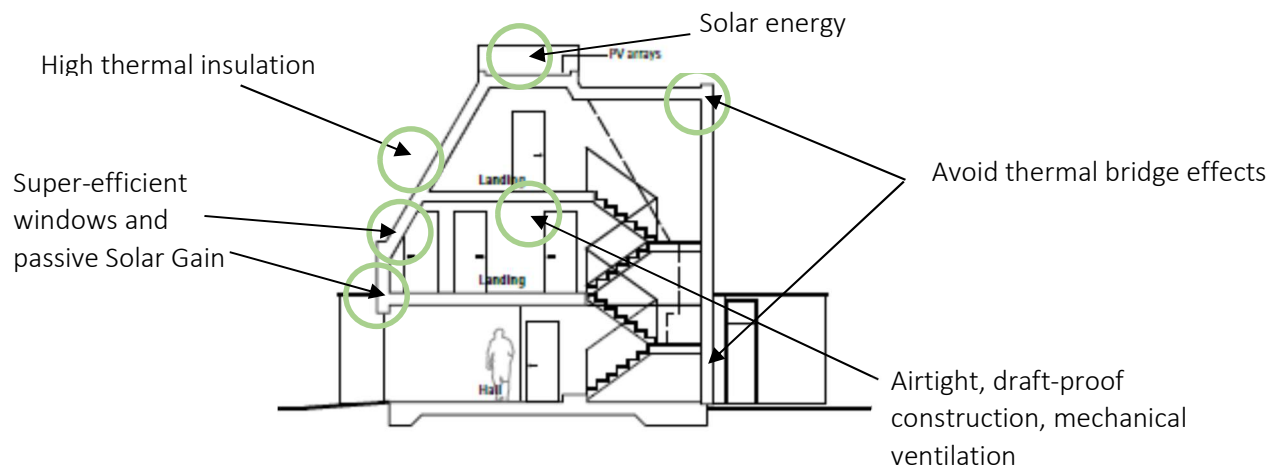


Fig 3. Efficient Design Measure examples

The Proposed specifications and key energy efficient design measures are as follows:

Residential Units:

- Ground floor U-values of 0.12 W/m²K
- External Wall U-values of 0.18 W/m²K
- External Sloped Roof U-values of 0.12 W/m²K
- External Flat Ceiling U-values of 0.12 W/m²K
- Double Glazed Window U-values of 1.3 W/m²K
- Solid Frame Door U-values of 1.3 W/m²K
- 100% low energy lighting throughout
- 100 Efficient Electric Panel Heaters to each house
- 200L Dimplex Edel ASHP HW unit to each house for hot water
- Balanced Whole house mechanical ventilation using Vent Axia Sentinel Kinetic FH MVHR
- Assumed Air Permeability Rate of 3m³/hm² in all houses

2.3.2 Choice and Impact of Renewable Technology

All reasonable technologies were investigated for their suitability to the site and development; please refer to section 3 for details.

Following the feasibility study there is a suitable LZC technology currently proposed; the Manchester Planning target is being met through energy efficiency measures and a low carbon energy source in form of an ASHP unit to each dwelling. It has been recommended that the total on-site energy is to be provided by a 100% renewable energy electricity provider, classifying the development as both **Low Carbon** and **Carbon Neutral**.



Energy and CO₂ Reduction Summary

A summary of all stages of the energy demand assessment from baseline figures to final carbon reduction are shown in Figures 1 & 2 below:

	Summary of CO2 Emission Reductions	Total CO2 emissions (kgCO2/year)
	Carbon Factors (Gas / Electric)	0.210 / 0.136
BASELINE	Baseline emissions	4771.7
BE GREEN	Improved emissions (after incorporation of renewable energy technology)	1706.9
	% CO2 displaced in total	64.2%

Table 2: Summary of CO2 Reductions



	Energy Demand (kWh pa)	Energy saving achieved (%)	Regulated CO ₂ emissions (kg pa)	Saving achieved on residual CO ₂ emissions (%)
Building Regulations Part L compliance ("Baseline" energy demand & emissions)	20396.7		4771.7	
Proposed scheme after on-site renewables	12551.0	38.5%	1706.9	64.2%
Total savings on residual emissions				64.2%

Table 3. Total Energy and Carbon Emissions Savings Based on SAP 10.1. Carbon Factors



For a full Breakdown of the figures and calculations please see Appendix A – Energy Demand Assessment Spreadsheet.

Baseline energy demand

‘Standard Assessment Procedure - SAP 2012’ was used to produce example SAP reports to generate the figures used within the calculations.

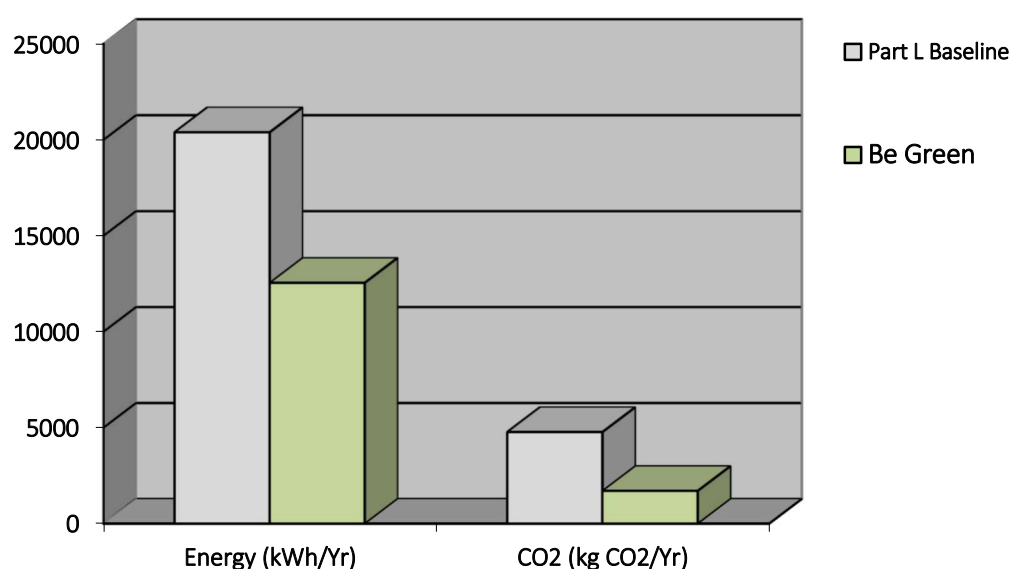
Baseline energy demand (kWh pa)	20396.7
Baseline carbon emissions (kg pa)	4771.7

Be Green stage

The following table demonstrates how the development achieves the reduction in carbon dioxide emissions from LZC technologies.

Energy saving from the use of renewables (kWh)	7845.8
Saving on residual emissions from the use of renewables (kg)	3064.8
Saving on residual emissions from the use of renewables (%)	64.2%

The chart below illustrates the improvements over the Part L Compliant Baseline:



Places for Everyone – Heating Demand

The below table demonstrates how threshold values for Reducing Heating Energy Demand is achieved, using Onsite Renewable Energy Generation within residential developments.

Baseline Total Main heating demand (kWh/yr)	125.68
Proposed Total Main heating demand (kWh/yr) with On-site renewables	68.09
Heating demand saving achieved (%)	38.5% overall

Space heating demand Summary for 5 house types at Former Burnage Cricket Club as below:

House Type A – Mid Terrace

Area (sq.m)	110.88
Baseline heating demand (kWh/yr)	2989.01
Water heating demand with Onsite renewables (kWh/yr)	751.37
Heating demand (kwh/sqm) - Places for everyone threshold > 20%	25.13%

House Type B – Semi Detached

Area (sq.m)	110.88
Baseline heating demand (kWh/yr)	2970.62
Water heating demand with Onsite renewables (kWh/yr)	751.37
Heating demand (kwh/sqm) - Places for everyone threshold > 20%	25.28%

House Type C– Mid Terrace

Area (sq.m)	110.88
Baseline heating demand (kWh/yr)	2987.28
Water heating demand with Onsite renewables (kWh/yr)	751.37
Heating demand (kwh/sqm) - Places for everyone threshold > 20%	25.15%



House Type D – End Terrace

Area (sq.m)	98.28
Baseline heating demand (kWh/yr)	2923.95
Space heating demand with Onsite renewables (kWh/yr)	734.31
Heating demand (kwh/sqm) - Places for everyone threshold > 20%	25.11%

Flat Type H

Area (sq.m)	39.77
Baseline heating demand (kWh/yr)	2232.06
Space heating demand with Onsite renewables (kWh/yr)	516
Heating demand (kwh/sqm) - Places for everyone threshold > 20%	23.11%

2.3.3 Manchester City Council' Policy and Targets Summary

With regards to the Manchester City Council's planning documents policy and targets (outlined in section 2.2.1 to 2.2.3) the table below details how the Sustainable Design Strategy (outlined in section 2.3.1) achieves the current planning policy requirements and targets.

Planning Document:	Sustainable Design Strategy
Manchester Council's Core Strategy 2012-2027	The Sustainable Design Strategy achieves a 64.2% reduction in carbon emissions over Part L 2013 - exceeding the N6 documents Low Carbon target of 9% over Part L 2013.
Climate Change and Low Emission Strategies 2016-2020	The Sustainable Design Strategy achieves a 64.2% reduction in carbon emissions over Part L 2013 – exceeding the documents Low Carbon target of 48% over 1990 Emissions.
Manchester: A Certain Future	The Sustainable Design Strategy achieves a 64.2% reduction in carbon emissions over Part L 2013 – exceeding the documents Low Carbon target of 10% over Part L 2013.

Table 4. Summary of MCC and Planning Targets

As a result of the sustainable design parameters outlined within section 2.3.1 and the energy and CO2 reduction figures summarised above, the Residential Development with associated access, infrastructure and landscaping at Former Burnage Cricket Club, Manchester site achieves a total reduction of **64.2%** in carbon emissions over Part L.

The low carbon classification for the development at Burnage development can be derived from its prioritisation of fabric first carbon reduction through exceeding Building Regulation design standards, before the incorporation of on-site renewable technologies.



2.4 Adaptation to Climate Change

In addition to the primary building design and fabric, many other issues that will influence creating a Sustainable Development, including flood prevention, material use, waste minimisation and transport. All these issues feature regularly within the separate climate change action plans, outlined within section 2.2, as areas that Manchester is aiming to significantly improve on in order to become a more carbon neutral and clean city.

All the sections of creating a sustainable development should be taken into consideration from the start of the development and promoted throughout the building construction on site in order to maximise their benefits. Additionally, features which enable more efficient usage should also be specified to encourage the building users to maintain efficient use once construction has been completed.

2.4.1 Flood Risk Zone

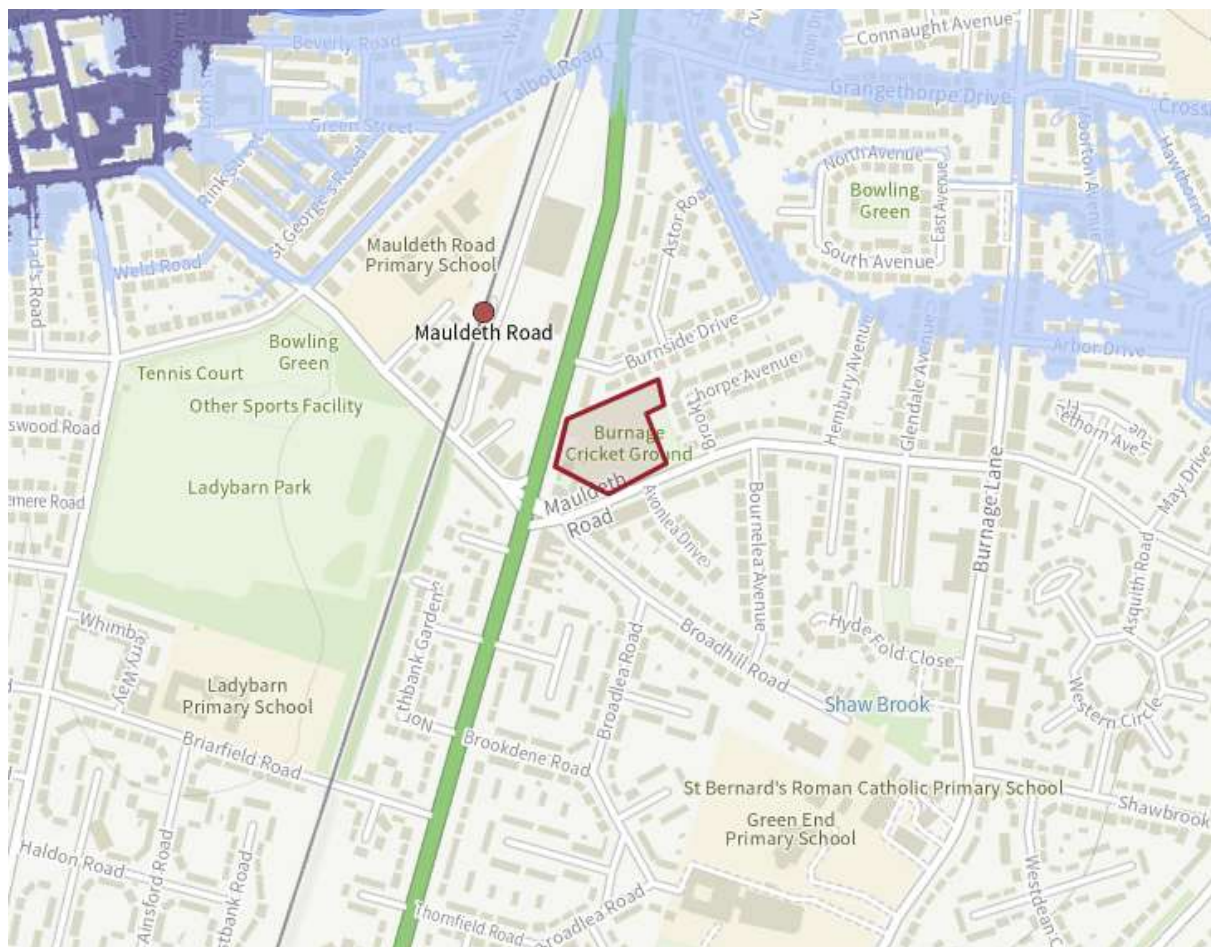


Fig 4: Flood Risk Map

The above map and snippet have been taken from a government licenced flood risk map for Manchester. It can be seen that the site is just located within flood risk zone 1 and therefore has minimal to no risk of flooding.

2.4.2 Green Blue Infrastructure

2.4.2.1 Sustainable Drainage Systems (SuDs)

Even though it has been shown that the proposed scheme is located on a site with a low to zero flood risk, a drainage strategy assessment should be undertaken, by a suitably qualified professional, to assess the feasibility of introducing on-site SuDs measures, that will reduce surface water run-off, and any flood risks associated.

By incorporating SuDs, flood risk can be managed and mitigated. Section 1.1 of the SuDs Manual (Ciria C753) states the following:

“Sustainable drainage systems (SuDS) can deliver multiple benefits. Surface water is a valuable resource, and this should be reflected in the way it is managed and used in the built environment.

It can add to and enhance biodiversity, beauty, tranquillity and the natural aesthetic of buildings, places and landscapes and it can help make them more resilient to the changing climate.”

The general concept of SuDs is to manage the flood and pollution risks in developed areas. This is done by efficiently managing surface water run-off by either slowing down the surface water run-off, or by reducing the quantity of surface water run-off. There are different methods to achieve this such as:

- Harvesting – capturing rainwater and facilitate its use within the development
- Infiltrating – rainwater infiltrates into the ground
- Storing – capturing rainwater and control the flow through the means of storing and releasing it slowly i.e. attenuation
- Conveying & treating – capturing rainwater and removing any contaminants, then convey the flow towards a downstream system

The SuDS Manual describes the four pillars of SuDS design as Water Quality, Water Quantity, Amenity and Biodiversity as illustrated in Figure 3 below:

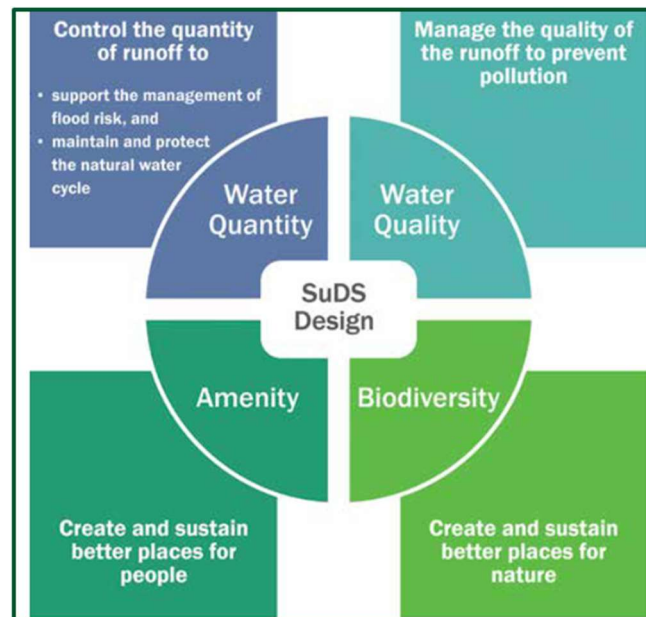


Fig 5. Representation of figure 2.1 of the SuDs Manual

SuDS are increasingly gaining popularity as a holistic solution to a wide range of pressing issues including flood risk, water pollution, groundwater depletion, biodiversity loss and urban decline.

Drainage Hierarchy

To alleviate pressure on existing sewer networks and to address issues of climate change the following hierarchy has been developed and implemented from a planning perspective.

The Planning Practice Guidance, states that:

“Generally, the aim should be to discharge surface run-off as high up the following hierarchy of drainage options as reasonable practicably:

- 1. Into the ground (infiltration)*
- 2. To a surface water body*
- 3. To a surface water sewer*
- 4. To a combined sewer”*

The “Building Regulations Approved Document H” refer to this discharge hierarchy.

Description	Benefit
Flood risk management	SuDS aim to have an attenuating effect by slowing down and storing surface water run-off
Drainage resilience	Future proofing designed to be resilient against climate change
Natural flow regime protection	Mimic natural drainage arrangements to emulate natural flow
Water quality	Filter out pollutants and discharge cleaner water
Water reuse	Can be strategically placed to clean and capture water for reuse
Biodiversity and ecology	SuDS use vegetation and natural landscape to support biodiversity and ecology
Amenity	Improve visual integrity and desirability of the site by implementing green and blue features
Carbon reduction	SuDS can reduce carbon use throughout the life cycle including construction, maintenance, and demolition
Microclimate	Aim in reducing heat island effects
Education	Educate and engage the general public about surface water management

Table 5. Outline of types of green/blue infrastructure and associated benefit

2.4.2.2 Biodiversity

Similarly, to the previous section on SuDs, there could be adverse impacts on the surrounding ecology as well potential for the enhancement. Therefore, an ecology report should be produced, by a suitably qualified professional, in order to ensure that any existing ecology on or near the site is adequately protected and to determine the possibility of new habitat creation, planting schemes, green wall areas.



2.4.3 Internal Water Efficiency

Part G of the Building Regulations requires all new dwellings to have an internal water consumption of no greater than 110 litres / person / day, unless specified to be less. Therefore, fittings proposed should have low flow rates, capacities, effective flush volumes etc. Example targets for these to achieve the required internal consumption are as follows:

Appliance	Unit of measure	Amount (litres)
WC (Dual flush)	Full flush volume	4
WC (Dual flush)	Part flush volume	2.6
Taps (excluding kitchen)	Flow rate l/min	5
Kitchen taps	Flow rate l/min	6
Bath	Capacity to Overflow	170
Shower	Flow rate l/min	8
Washing Machine	Litres / kg dry load	8.17
Dishwasher	Litres / place setting	1.25

Table 6. Internal Water Efficiency Flow Rates

The above rates will achieve a total internal water consumption of 106.31 with a bath present and 98.25 with only a shower present.

The specifying of 'A' rated appliances should be prioritised where possible.



2.4.4 Waste Management

2.4.4.1 Occupational Waste

Manchester City Council's Waste Storage and Collection Guidance for New Developments 2017 encourages all new developments to incorporate a waste management strategy into the build at the earliest stage possible.

2.4.4.2 Construction Waste

A target of at least 90% of waste generated on site, throughout the construction stage of the development, to be diverted from landfill' will be included as part of a Construction Environmental Management Plan (CEMP) to be agreed with MCC.

The proposal will also endeavour to maximise the use of recycled materials on site, whereby further promoting the minimising of waste production.

2.4.5 Materials

The construction of new buildings and building elements has a large environmental impact in terms of both, energy, and embodied carbon of new materials. Therefore, Manchester City Council promote the prioritising of environmentally friendly materials, where possible, and encourages the use of recycled building materials. This information should also be incorporated into the SWMP mentioned in the previous subsection (Waste Management) as a means of promoting the re-using and recycling of materials.

Where new materials are to be used, careful consideration of their environmental impact should be taken. This can be achieved by ensuring that only materials that score well under The Green Guide to Specification. This useful online tool can be used as a reference that provides guidance on the relative environmental impacts for a wide range of different building specifications. The BRE's Environmental Profile Methodology determines the Life Cycle Assessment (LCA) of materials, which is what the Guide's specifications are based on.

In order to take full advantage of low impact materials, elements key to the scheme should be specified to achieve ratings of between A+ and C under The Green Guide's ratings. Insulation materials that are specified will also have a global warming potential (GWP) of 5 or less, with an ODP of 0. Additionally, 100% of all timber used as part of the scheme will be responsibly sourced from suppliers that are either Forest Stewardship Council (FSC) accredited, Programme for the Endorsement of Forestry Certification accredited, or a similar recognised accreditation body.

To further promote embodied energy and carbon savings, the scheme will first prioritise the reusing of any demolished materials within the site, however if this is not possible secondary priority must be given to the redirecting from landfill, in line with the waste hierarchy.

Finally, in addition to the above policy points, the development is also recommended to register with the Considerate Constructors Scheme, or a similar approved scheme.



2.4.6 Pollution Control

To reduce emissions of gases with high global warming potential (GWP) and nitrogen oxide (NOx) into the atmosphere, new buildings will be specified with insulating materials that have a GWP of less than 5. This will follow throughout the development to reduce the impact that the construction phase has upon climate change.

Additionally, the following measures will be implemented:

- Pollution Prevention Guidance will be adhered to in respects of air (dust) and water (ground and surface) pollution during the demolition and construction phase.
- External light fittings will be controlled through a time switch, or daylight sensor, to prevent operation during daylight hours to limit the impact of artificial lighting for the development's residents and surrounding environment.

Sound insulation will be specified to achieve Building Regulation Part E compliance standard (this will be verified by pre-completion testing) in addition to meeting the requirements of the council. This will reduce the impact of sound pollution for the occupants within adjoining dwellings.

2.4.7 Sustainable Transport

A key message from all climate change adaptation plans (as mentioned in section 2.2), specifically *Our Manchester Strategy 2016-2025*, *The Zero Carbon Framework* (formulated by the Manchester Climate Change Board) and *Manchester City Council's Core Strategy 2012-2027*, is the need to increase the proportion of cycling, walking and public transport journeys. This is due to it providing both environmental and social benefits through the reducing of emissions, improving air quality, and promoting a more active lifestyle.

The proposed development acknowledges the benefits associated with these forms of sustainable transport and is allowing access to a large central cycle store, thereby encouraging all residents to commute in a sustainable manner. Additionally, the **Transport Assessment (TA) and Travel Plan (TP) produced by CBO Transport** assess and demonstrate the site's sustainability in relation to all non-car travel modes, reinforcing the commitment to sustainable transport initiatives.

It identifies measures to address anticipated transport impacts and aims to improve accessibility and safety for all travel modes, particularly sustainable alternatives to private car use.

Key sustainable transport considerations in a TA include:

- Walking and Cycling Infrastructure
- Public Transport Accessibility
- Travel Demand Management

Travel Plan (TP)

- Promotion of Active Travel
- Public Transport Incentive
- Car Sharing and Pooling

The site is located near the former Burnage Cricket Club and benefits from excellent transport links. Mauldeth Road Train Station is just a short walk away, providing direct rail connections to Manchester city centre and beyond. Additionally, multiple bus routes operate along Kingsway and Fog Lane, offering frequent services to surrounding areas. This strong public transport connectivity enhances accessibility while reducing dependence on private vehicles and their associated environmental impacts.

Transport Links

- **Train:** The site is located near a train stop namely, Mauldeth Road, which is located approximately 0.2 miles northwest of the site. This station provides access to additional Manchester stations as well as regional and national destinations.
- **Bus:** The nearest bus stop is located on Kingsway A34 and is less than 0.1 miles from the site. These will provide frequent services to Victoria Station, Piccadilly station and Gardens, where further buses can be caught to more regional destinations.

Local Amenities

- Ladybarn Park is located just 0.2 miles from the site, providing accessible recreational space for residents.
- The site is well connected to Manchester City Centre, with Deansgate situated 3.8 miles away and accessible via an 18-minute bus journey.
- Manchester Metropolitan University and the University of Manchester are both within an 18-minute bus journey, offering convenient access to higher education via the transport nodes outlined earlier.
- Given its proximity to Central Manchester, the site benefits from strong transport links to cultural venues, places of worship, and the City Library, enhancing accessibility to a diverse range of amenities.

3 Feasibility Assessment of Renewable Energy and Low Carbon Technologies

Solar Hot Water (Thermal)

Solar water heating systems are one of the more familiar renewable technologies used at the moment. They use the energy from the sun to heat water, most commonly for hot water needs. Solar heating systems use a heat collector that is usually mounted on a roof in which the sun heats a fluid. This fluid is used to heat water that is stored in either a separate hot water cylinder or in a twin-coil hot water cylinder (the second coil is used to provide additional heating from a boiler or other heat source).

Solar hot water panels could be used however, PV will provide slightly better savings and avoid the need for water storage cylinders when compared.

Renewable Technology Not Chosen.

Photovoltaic Panels (PV)

Photovoltaic modules convert sunlight directly to DC electricity. The solar cells consist of a thin piece of semiconductor material, in most cases of silicon. Through a process called doping, very small amounts of impurities are added to the semiconductor, which creates two different layers called n-type and p-type layers.

Certain wavelengths of light are able to ionize the silicon atoms, which separates some of the positive charges (holes) from the negative charges (electrons). The holes move into the positive or p-layer and the electrons into the negative or n-layer. These opposite charges are attracted to each other, but most of them can only re-combine by the electrons passing through an external circuit, due to an internal potential energy barrier. This flow of electrons produces a DC current.

Additionally, the Manchester planning target is already being satisfied solely through the use of energy efficiency measures and the development is achieving a low carbon and carbon neutral status.

Renewable Technology Not Chosen.

Ground Source Heat pumps

A heat pump is a device that takes up heat at a certain temperature and releases it at a higher temperature. The essential components of a heat pump are heat exchangers (through which energy is extracted and emitted) and a means of pumping heat between the exchangers. The effectiveness of the heat pump is measured by the ratio of the heating capacity to the effective power input, usually known as the coefficient of performance (COP). Ground-source heat pumps (GSHP) extract heat from the ground. They are classified as either water-to-air or water-to-water units depending on whether the heat distribution system in the building uses air or water. Ground source heat pumps either use long shallow trenches or deep vertical boreholes to take low grade heat from the ground and then compress it to create higher temperatures.

Ground source heat pumps would not be suitable due to the lack of land space around the properties and the associated costs.

Renewable Technology Not Viable

Air Source Heat pumps

Air source heat pumps absorb heat from the outside air. This is usually used to heat radiators, underfloor heating systems, or warm air convectors and hot water in your home. An air source heat pump extracts heat from the outside air in the same way that a fridge extracts heat from its inside. The system performs down to air temperatures of -20°C which means that they are more than suitable for installations within the UK. Hot water and Heating can be provided 365 days a year. The hot water is produced without the aid of electrical immersions and at 55°C is more than hot enough for baths and showers.

There are two main types of air source heat pump system:

- An air-to-water system distributes heat via your wet central heating system. Heat pumps work much more efficiently at a lower temperature than a standard boiler system would. So, they are more suitable for under-floor heating systems or larger radiators, which give out heat at lower temperatures over longer periods of time.
- An air-to-air system produces warm air which is circulated by fans to heat your home. They are unlikely to provide you with hot water as well.

An air source heat pump Hot water Only unit has been used to achieve low carbon and compliance targets for this development. The Dimplex Edel ASHPHW only units are a low carbon highly efficient form of hot water heating. It consists of a ducted system to supply extracted stale hot air to an internally installed air source heat pump mounted on the top of a water cylinder. The heat pump collects energy from the air and converts this into heat, which is then transferred to the water within the cylinder – creating hot water up to 60°C.

Renewable Technology Chosen.



Biomass Heating

Biomass is any plant-derived organic material that renews itself over a short period.

Biomass energy systems are based on either the direct or indirect combustion of fuels derived from those plant sources. The most common form of biomass is the direct combustion of wood in treated or untreated forms. The use of biomass is becoming increasingly common in some European countries.

The environmental benefits relate to the significantly lower amounts of energy used in biomass production and processing compared to the energy released when they are burnt. This can range from a four-fold return for biodiesel to an approximate 20-fold energy return for woody biomass. Biomass-fuels can be used to produce energy on a continuous basis (unlike renewables such as wind or solar energy) and it can be an economic alternative to fossil fuels as it is a potential source of both heat and electricity.

However, Biomass systems have particular design management and maintenance requirements associated with sourcing, transportation and storage and are therefore more commonly used in commercial developments rather than domestic installations. It can be less convenient to operate than mains-supplied fuels such as natural gas and are more management intensive and require expertise in facilities management. Sources of biomass can also fluctuate, so boilers should be specified to operate on a variety of fuels without risk of overheating or tripping out.

A communal biomass system would not be feasible for this development due to the expense associated with the necessary output to heat all dwellings on the site.

Renewable Technology Not Chosen

Wind

Wind turbines convert the kinetic energy in wind into mechanical energy that is then converted to electricity. Turbines are available in a range of sizes and designs and can either be free-standing, mounted on a building or integrated into a building structure.

The wind speed in the area is under the advised minimum and the built-up area means that a wind turbine wouldn't be feasible.

Renewable Technology Not Viable



4 Conclusion

This statement has assessed the proposed development at Former Burnage Cricket Club site against the relevant climate change and sustainability policies and targets, as outlined within the Manchester City Council Core Strategy (July 2012), Our Manchester Strategy, Manchester: A Certain Future and The Zero Carbon Framework, through the following of the energy hierarchy, the modelling of houses in the Elmhurst SAP 10 software and addressing all aspects of a sustainable development. In addition, the proposal has been assessed against national sustainable design definitions to determine how it can be classified.

As part of this process, the development was designed with a fabric first approach; with U-values, design air permeability and ventilation targets all aspiring to exceed Building Regulations Part L 2013 standards. This approach demonstrates a holistic low energy design concept, involving very low limiting values and thus led to high-energy performance targets and being defined as a low carbon development.

Furthermore, an LZC feasibility assessment was carried out, with all suitable technologies investigated for their suitability to the site and development. The reduction rises further to **64.2%** when using SAP 10.1 carbon factors. In addition to this renewable technology provision, the development can also be defined as carbon neutral because it will achieve net zero carbon emissions. This is to be achieved by obtaining all the energy used on site from a 100% renewable energy electricity provider.

Additionally, Places for everyone joint development plan' (Adopted 21 March 2024) set out best practice thresholds for Reducing Energy Demand and Onsite Renewable Energy Generation within residential developments. (i.e. space heating reduction of 30kWh/m² for Houses and 25kWh/m² in Flats). This has since been achieved in the development.

The development will also be adapting to climate change by incorporating sustainable drainage measures into the design, protecting existing ecology, enhancing biodiversity where possible and providing cycle storage provision to residents.

In addition to the following of the energy hierarchy through the efficient design and renewable technology measures mentioned and meeting all relevant Manchester City Council carbon targets the proposal will include many sustainability measures throughout construction and once completed, which will contribute heavily to the development's sustainability performance and accord with the requirements of the NPPF. The key measures to be included and therefore can be taken from this report include:

- The proposal sits within Flood Risk Zone 1 and therefore has minimal to no risk of flooding.
- A SuDs strategy will be incorporated and will ensure any additional surface water is collected, treated and removed.
- Internal water efficiency will be prioritised by ensuring that efficient water fixtures are proposed so that each dwelling achieves less than 110L per person per day and 'A' rated appliances will be specified where possible.

- Waste minimisation will be targeted from throughout construction and occupational phase. It is targeted that at least 90% of construction waste will be diverted from landfill. Whilst tri-separator refuse shoots will be installed on each floor to promote recycling.
- In addition to targeting Secure by Design accreditation through adoption crime prevention measures, the site layout promotes busy spaces and routes and facilitates natural surveillance. These will therefore reduce the fear of crime and subsequently improving mental health of residents, visitors and workers.
- Prioritising reusing existing materials and locally sourced materials for construction to reduce waste and transportation to landfill in addition and promote a low embodied carbon development.
- When new materials are specified that are not locally attainable then only those that score well on the BRE: The Green Guide to Specification are to be used; to further encourage the use of sustainable materials and reductions in embodied carbon.
- The proximity of the Manchester City Centre and Deansgate to the proposed site is highly sustainable in terms of transport and local amenities as it is near a number of public transport nodes including Levenshulme Train Station, multiple bus stops and additional Metrolink stations, as well as a multitude of shops and other local amenities.
- The development will also include significant cycle storage provision, as well as being located on a cycle route.

As a result of all the above, the proposed sustainable design and energy strategy allows the development to comply with Manchester City Council's planning policy requirement and is in line with all targets put forward in their planning documents.

House Type / Name	Type A	Type B	Type C	Type D	Type H - Apts	TOTAL (kWh/yr)	SAP 10.2	TOTAL (kgCO2/yr)
Frequency	1	1	1	1	1	5		
BASELINE Dwelling Emission Rate (TER)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Carbon Emission Factor	Associated Total CO2 (kgCO2/yr)
Main Heating Fuel Requirement (TER)	2625.99	3393.34	2689.36	3180.59	1004.27	12893.55	0.210	2707.6
Secondary Main Heating Fuel Requirement (TER)						0	0.136	0.0
Secondary Heating Fuel Requirement (TER)						0	0.136	0.0
Water Fuel Requirement (TER)	2989.01	2970.62	2987.28	2923.95	2232.06	14102.92	0.210	2961.6
Electricity Pumps Fans Requirement (TER)	86	86	86	86	86	430	0.136	58.5
Electricity Lighting Requirement (TER)	239.34	243.02	239.34	222.24	108.95	1052.89	0.136	143.2
PV Energy Produced (TER)	-1826.8	-1826.8	-1826.8	-1619.3	-982.9	-8082.6	0.136	-1099.2
TOTAL PER DEVELOPMENT	4113.5	4866.1	4175.1	4793.5	2448.4	20396.7		4771.7
FINAL Dwelling Emission Rate (DER)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Carbon Emission Factor	Associated Total CO2 (kgCO2/yr)
Main Heating Fuel Requirement (DER)	1108.63	1809.39	1154.81	1765.82	532.5	6371.15	0.136	866.5
Secondary Main Heating Fuel Requirement (DER)						0	0.136	0.0
Secondary Heating Fuel Requirement (DER)						0	0.136	0.0
Water Fuel Requirement (DER)	751.37	751.37	751.37	734.31	516	3504.42	0.136	476.6
Electricity Pumps Fans Requirement (DER)	348.94	348.94	348.94	316.84	122.27	1485.93	0.136	202.1
Electricity Lighting Requirement (DER)	255.48	259.4	255.48	237.23	181.86	1189.45	0.136	161.8
TOTAL PER DEVELOPMENT						12551.0		1706.9
PV Energy Produced (DER)	0.0	0.0	0.0	0.0	0.0	0.0	0.136	0.0
TOTAL PER DEVELOPMENT	2464.4	3169.1	2510.6	3054.2	1352.6	12551.0		1706.9



Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 19 Dec 2024 13:54:22

Project Information			
Assessed By	Daniel Watt	Building Type	House, Mid-terrace
OCDEA Registration	EES/027301	Assessment Date	2024-12-19

Dwelling Details			
Assessment Type	As designed	Total Floor Area	111 m ²
Site Reference	Type A	Plot Reference	Type A - Mid Terraced
Address	Type A, M19 1AX		

Client Details	
Name	Views
Company	Views
Address	., ., .

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Electricity		
Target carbon dioxide emission rate	8.92 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	3.33 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	46.41 kWh _{PE} /m ²		
Dwelling primary energy	34.53 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	28.0 kWh/m ²		
Dwelling fabric energy efficiency	26.0 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.12	GF (0.12)	OK
Roofs	0.16	0.12	Roof (1) (0.12)	OK
Windows, doors, and roof windows	1.6	1.3	Front (1.3)	OK
Rooflights	2.2	1.3	Rooflight, North West (1.3)	OK

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	48.55	0.18	
Party wall: Party Wall (1)	278	0 (!)	
Ground floor: GF, GF	36.96	0.12	
Exposed roof: Roof (1)	14.55	0.12	
Exposed roof: Roof (2)	23.96	0.12	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
Front, Windows	8.63	South East	0.7	1.3
Rear, Windows	6.94	North West	0.7	1.3
Rooflight, Rooflights	2.25	North West	0.7	1.3
Door, Door	1.72	South East	N/A	1.3

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Not government-approved scheme	0.03 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E3: Sill	Not government-approved scheme	0.04	
External wall	E4: Jamb	Not government-approved scheme	0.05	
External wall	E5: Ground floor (normal)	Not government-approved scheme	0.16	
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0.07	
External wall	E10: Eaves (insulation at ceiling level)	Not government-approved scheme	0.06	
External wall	E12: Gable (insulation at ceiling level)	Not government-approved scheme	0.24	
External wall	E13: Gable (insulation at rafter level)	Not government-approved scheme	0.04	
External wall	E18: Party wall between dwellings	Not government-approved scheme	0.06	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	3 m ³ /hm ² , Design value (!)	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Room heaters - Electricity		
Efficiency	100.0%	
Emitter type		
Flow temperature		
System type	Panel, convector or radiant heaters	
Manufacturer		
Model		
Commissioning		
Main heating system 2: Heat pump with radiators or underfloor heating - Electricity		
Efficiency	0.0%	
Emitter type		
Flow temperature		
System type	Heat Pump	
Manufacturer	GDC Group Ltd	
Model	EDL200UK-630	
Commissioning		
Secondary heating system: N/A		
Fuel	N/A	
Efficiency	N/A	
Commissioning		

5 Hot water

Cylinder/store - type: N/A		
Capacity	N/A	
Declared heat loss	N/A	
Primary pipework insulated	N/A	
Manufacturer		
Model		
Commissioning		
Waste water heat recovery system 1 - type: N/A		
Efficiency		
Manufacturer		
Model		

6 Controls

Main heating 1 - type: Programmer and room thermostats		
Function		
Ecodesign class		
Manufacturer		
Model		

Main heating 2 - type: Not applicable		
Function		
Ecodesign class		
Manufacturer		
Model		
Water heating - type: N/A		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	67 lm/W	FAIL
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.84 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	84%	OK
Manufacturer/Model	Sentinel Kinetic FH, 408167A	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Predicted Energy Assessment

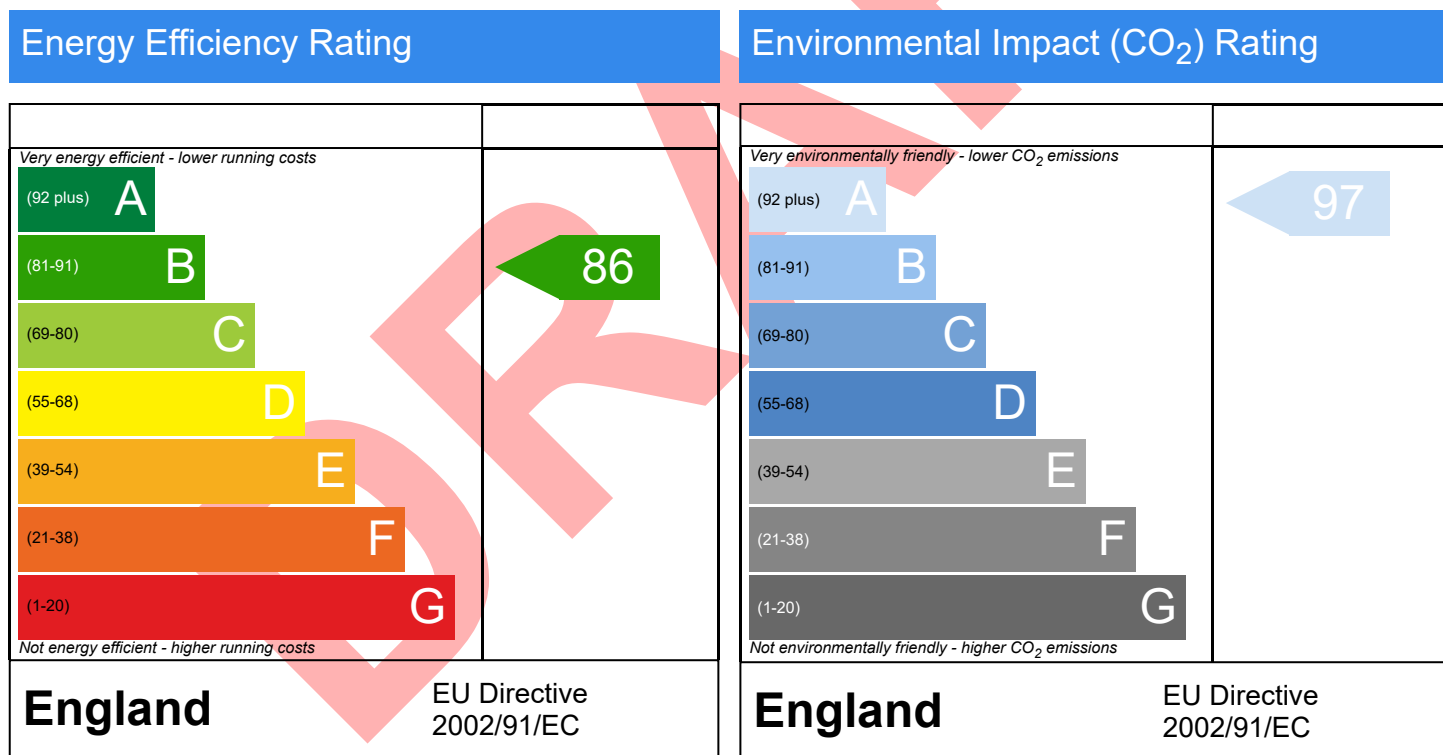


Type A, M19 1AX

Dwelling type: House, Mid-Terrace
Date of assessment: 19/12/2024
Produced by: Daniel Watt
Total floor area: 110.88 m²
DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 19 Dec 2024 13:54:22

Project Information			
Assessed By	Daniel Watt	Building Type	House, Semi-detached
OCDEA Registration	EES/027301	Assessment Date	2024-12-19

Dwelling Details			
Assessment Type	As designed	Total Floor Area	111 m ²
Site Reference	Type B	Plot Reference	Type B - Semi Detached
Address	Type A, M19 1AX		

Client Details	
Name	Views
Company	Views
Address	., ., .

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Electricity		
Target carbon dioxide emission rate	10.34 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.32 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	54.09 kWh _{PE} /m ²		
Dwelling primary energy	44.56 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	34.1 kWh/m ²		
Dwelling fabric energy efficiency	32.3 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.12	GF (0.12)	OK
Roofs	0.16	0.12	Roof (1) (0.12)	OK
Windows, doors, and roof windows	1.6	1.3	Front (1.3)	OK
Rooflights	2.2	1.3	Rooflight, North West (1.3)	OK

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	111.41	0.18	
Party wall: Party Wall (1)	70.45	0 (!)	
Ground floor: GF, GF	36.96	0.12	
Exposed roof: Roof (1)	16.8	0.12	
Exposed roof: Roof (2)	21.71	0.12	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
Front, Windows	8.63	South East	0.7	1.3
Rear, Windows	5.59	North West	0.7	1.3
Rooflight, Rooflights	2.25	North West	0.7	1.3
Door, Door	1.72	South East	N/A	1.3

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Not government-approved scheme	0.03 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E3: Sill	Not government-approved scheme	0.04	
External wall	E4: Jamb	Not government-approved scheme	0.05	
External wall	E5: Ground floor (normal)	Not government-approved scheme	0.16	
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0.07	
External wall	E10: Eaves (insulation at ceiling level)	Not government-approved scheme	0.06	
External wall	E12: Gable (insulation at ceiling level)	Not government-approved scheme	0.24	
External wall	E13: Gable (insulation at rafter level)	Not government-approved scheme	0.04	
External wall	E18: Party wall between dwellings	Not government-approved scheme	0.06	
External wall	E11: Eaves (insulation at rafter level)	Not government-approved scheme	0.04	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))			
Maximum permitted air permeability at 50Pa	8 m ³ /hm ²		
Dwelling air permeability at 50Pa	3 m ³ /hm ² , Design value (!)		OK
Air permeability test certificate reference			

4 Space heating	
Main heating system 1: Room heaters - Electricity	
Efficiency	100.0%
Emitter type	
Flow temperature	
System type	Panel, convector or radiant heaters
Manufacturer	
Model	
Commissioning	
Main heating system 2: Heat pump with radiators or underfloor heating - Electricity	
Efficiency	0.0%
Emitter type	
Flow temperature	
System type	Heat Pump
Manufacturer	GDC Group Ltd
Model	EDL200UK-630
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls		
Main heating 1 - type: Programmer and room thermostats		
Function		
Ecodesign class		
Manufacturer		
Model		
Main heating 2 - type: Not applicable		
Function		
Ecodesign class		
Manufacturer		
Model		
Water heating - type: N/A		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	67 lm/W	FAIL
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.84 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	84%	OK
Manufacturer/Model	Sentinel Kinetic FH, 408167A	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Predicted Energy Assessment

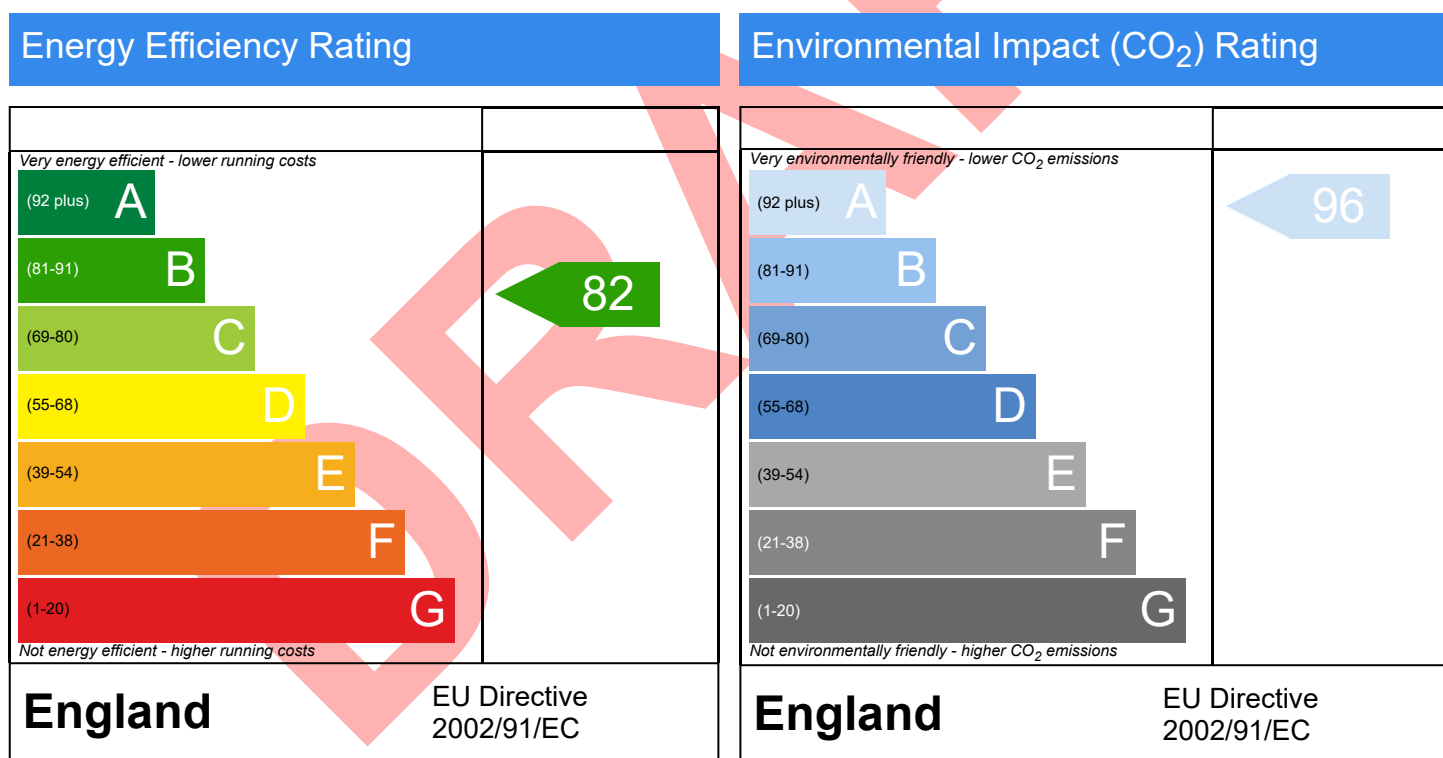


Type A, M19 1AX

Dwelling type: House, Semi-Detached
Date of assessment: 19/12/2024
Produced by: Daniel Watt
Total floor area: 110.88 m²
DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 19 Dec 2024 13:54:22

Project Information			
Assessed By	Daniel Watt	Building Type	House, Mid-terrace
OCDEA Registration	EES/027301	Assessment Date	2024-12-19

Dwelling Details			
Assessment Type	As designed	Total Floor Area	111 m ²
Site Reference	Type C	Plot Reference	Type C - Mid Terraced
Address	Type A, M19 1AX		

Client Details	
Name	Views
Company	Views
Address	.. .

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Electricity		
Target carbon dioxide emission rate	9.04 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	3.39 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	47.04 kWh _{PE} /m ²		
Dwelling primary energy	35.19 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	28.5 kWh/m ²		
Dwelling fabric energy efficiency	26.6 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.12	GF (0.12)	OK
Roofs	0.16	0.12	Roof (1) (0.12)	OK
Windows, doors, and roof windows	1.6	1.3	Front (1.3)	OK
Rooflights	2.2	1.3	Rooflight, South East (1.3)	OK

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	48.55	0.18	
Party wall: Party Wall (1)	278	0 (!)	
Ground floor: GF, GF	36.96	0.12	
Exposed roof: Roof (1)	31.46	0.12	
Exposed roof: Roof (2)	4.77	0.12	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
Front, Windows	8.63	North West	0.7	1.3
Rear, Windows	6.94	South East	0.7	1.3
Rooflight, Rooflights	2.25	South East	0.7	1.3
Door, Door	1.72	North West	N/A	1.3

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Not government-approved scheme	0.03 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E3: Sill	Not government-approved scheme	0.04	
External wall	E4: Jamb	Not government-approved scheme	0.05	
External wall	E5: Ground floor (normal)	Not government-approved scheme	0.16	
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0.07	
External wall	E10: Eaves (insulation at ceiling level)	Not government-approved scheme	0.06	
External wall	E12: Gable (insulation at ceiling level)	Not government-approved scheme	0.24	
External wall	E13: Gable (insulation at rafter level)	Not government-approved scheme	0.04	
External wall	E18: Party wall between dwellings	Not government-approved scheme	0.06	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	3 m ³ /hm ² , Design value (!)	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Room heaters - Electricity		
Efficiency	100.0%	
Emitter type		
Flow temperature		
System type	Panel, convector or radiant heaters	
Manufacturer		
Model		
Commissioning		
Main heating system 2: Heat pump with radiators or underfloor heating - Electricity		
Efficiency	0.0%	
Emitter type		
Flow temperature		
System type	Heat Pump	
Manufacturer	GDC Group Ltd	
Model	EDL200UK-630	
Commissioning		
Secondary heating system: N/A		
Fuel	N/A	
Efficiency	N/A	
Commissioning		

5 Hot water

Cylinder/store - type: N/A		
Capacity	N/A	
Declared heat loss	N/A	
Primary pipework insulated	N/A	
Manufacturer		
Model		
Commissioning		
Waste water heat recovery system 1 - type: N/A		
Efficiency		
Manufacturer		
Model		

6 Controls

Main heating 1 - type: Programmer and room thermostats		
Function		
Ecodesign class		
Manufacturer		
Model		

Main heating 2 - type: Not applicable		
Function		
Ecodesign class		
Manufacturer		
Model		
Water heating - type: N/A		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	67 lm/W	FAIL
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.84 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	84%	OK
Manufacturer/Model	Sentinel Kinetic FH, 408167A	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Predicted Energy Assessment

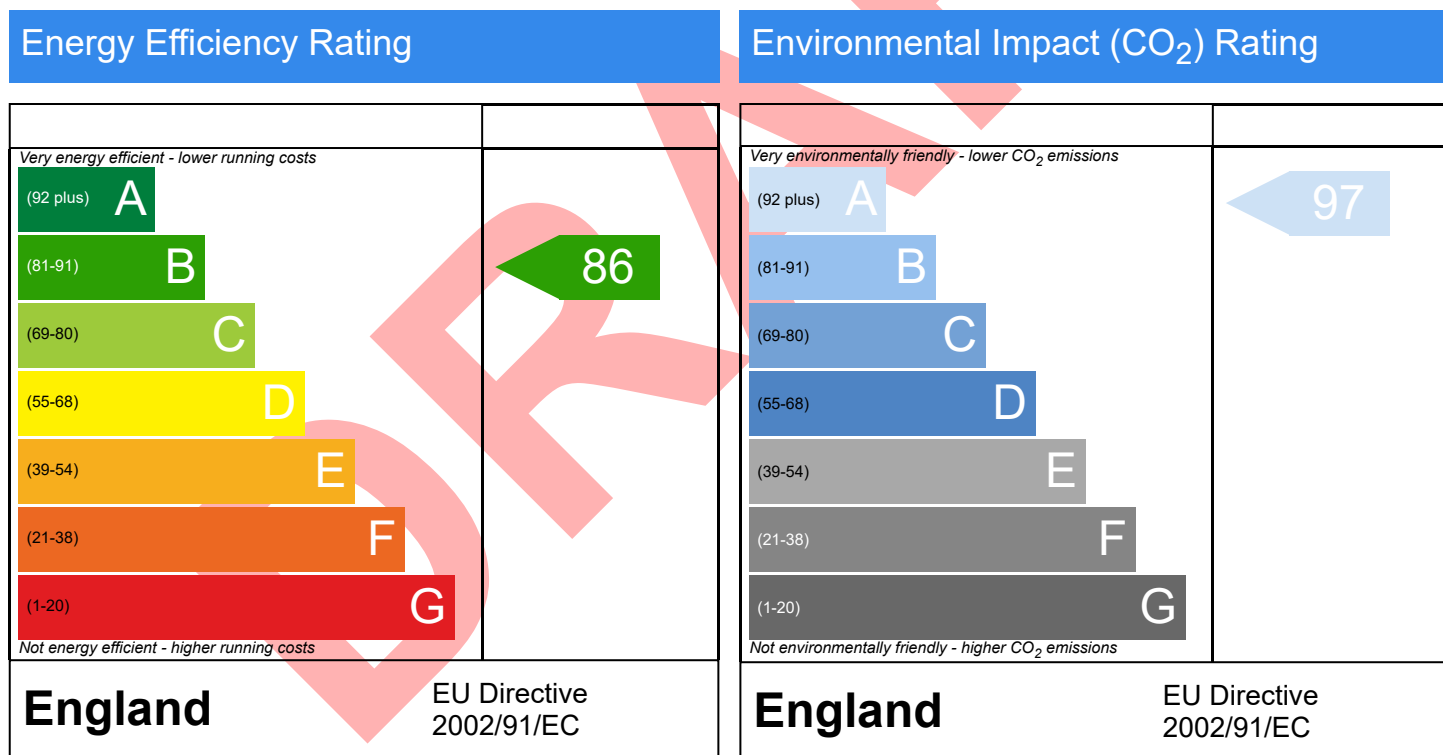


Type A, M19 1AX

Dwelling type: House, Mid-Terrace
Date of assessment: 19/12/2024
Produced by: Daniel Watt
Total floor area: 110.88 m²
DRRN:

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The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 19 Dec 2024 13:54:22

Project Information			
Assessed By	Daniel Watt	Building Type	House, End-terrace
OCDEA Registration	EES/027301	Assessment Date	2024-12-19

Dwelling Details			
Assessment Type	As designed	Total Floor Area	98 m ²
Site Reference	Type D	Plot Reference	Type D - End Terraced
Address	Type A, M19 1AX		

Client Details	
Name	Views
Company	Views
Address	., ., .

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Electricity		
Target carbon dioxide emission rate	11.36 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.71 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	59.52 kWh _{PE} /m ²		
Dwelling primary energy	48.5 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	36.2 kWh/m ²		
Dwelling fabric energy efficiency	34.5 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.12	GF (0.12)	OK
Roofs	0.16	0.12	Roof (1) (0.12)	OK
Windows, doors, and roof windows	1.6	1.3	Front (1.3)	OK
Rooflights	2.2	1.3	Rooflight, South East (1.3)	OK

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	107.58	0.18	
Party wall: Party Wall (1)	160.58	0 (!)	
Ground floor: GF, GF	32.76	0.12	
Exposed roof: Roof (1)	15.98	0.12	
Exposed roof: Roof (2)	18.11	0.12	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
Front, Windows	5.7	North West	0.7	1.3
Rear, Windows	7.46	South East	0.7	1.3
Rooflight, Rooflights	1.29	South East	0.7	1.3
Door, Door	2.6	North West	N/A	1.3
Rooflight, Rooflights	1.29	North West	0.7	1.3

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Not government-approved scheme	0.03 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E3: Sill	Not government-approved scheme	0.04	
External wall	E4: Jamb	Not government-approved scheme	0.05	
External wall	E5: Ground floor (normal)	Not government-approved scheme	0.16	
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0.07	
External wall	E10: Eaves (insulation at ceiling level)	Not government-approved scheme	0.06	
External wall	E18: Party wall between dwellings	Not government-approved scheme	0.06	
External wall	E16: Corner (normal)	Not government-approved scheme	0.09	
External wall	E11: Eaves (insulation at rafter level)	Not government-approved scheme	0.04	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	3 m ³ /hm ² , Design value (!)	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Room heaters - Electricity		
Efficiency	100.0%	
Emitter type		
Flow temperature		
System type	Panel, convector or radiant heaters	
Manufacturer		
Model		
Commissioning		
Main heating system 2: Heat pump with radiators or underfloor heating - Electricity		
Efficiency	0.0%	
Emitter type		
Flow temperature		
System type	Heat Pump	
Manufacturer	GDC Group Ltd	
Model	EDL200UK-630	
Commissioning		
Secondary heating system: N/A		
Fuel	N/A	
Efficiency	N/A	
Commissioning		

5 Hot water

Cylinder/store - type: N/A		
Capacity	N/A	
Declared heat loss	N/A	
Primary pipework insulated	N/A	
Manufacturer		
Model		
Commissioning		
Waste water heat recovery system 1 - type: N/A		
Efficiency		
Manufacturer		
Model		

6 Controls

Main heating 1 - type: Programmer and room thermostats		
Function		
Ecodesign class		
Manufacturer		
Model		

Main heating 2 - type: Not applicable		
Function		
Ecodesign class		
Manufacturer		
Model		
Water heating - type: N/A		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	67 lm/W	FAIL
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.84 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	84%	OK
Manufacturer/Model	Sentinel Kinetic FH, 408167A	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Predicted Energy Assessment

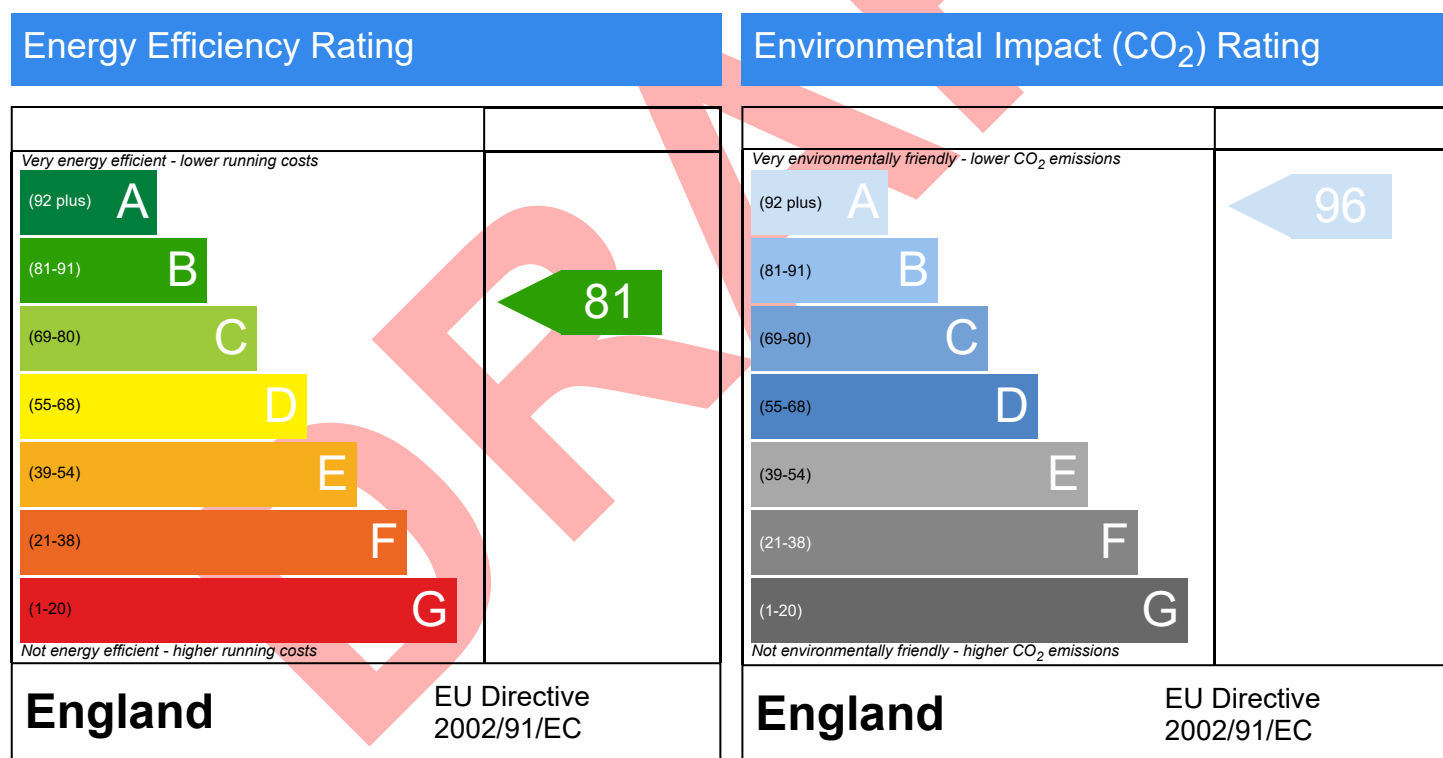


Type A, M19 1AX

Dwelling type: House, End-Terrace
Date of assessment: 19/12/2024
Produced by: Daniel Watt
Total floor area: 98.28 m²
DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

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The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 19 Dec 2024 13:54:22

Project Information			
Assessed By	Daniel Watt	Building Type	Flat, Semi-detached
OCDEA Registration	EES/027301	Assessment Date	2024-12-19

Dwelling Details			
Assessment Type	As designed	Total Floor Area	40 m ²
Site Reference	Type H - Apts	Plot Reference	Type H - Apt
Address	Type A, M19 1AX		

Client Details	
Name	Views
Company	Views
Address	.., .., ..

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Electricity		
Target carbon dioxide emission rate	14.58 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	5.03 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	76.98 kWh _{PE} /m ²		
Dwelling primary energy	52.63 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	33.2 kWh/m ²		
Dwelling fabric energy efficiency	31.4 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	0.12	Roof (1) (0.12)	OK
Windows, doors, and roof windows	1.6	1.3	Front (1.3)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	39.31	0.18	
Party wall: Party Wall (1)	15.48	0 (!)	
Exposed roof: Roof (1)	17.7	0.12	
Exposed roof: Roof (2)	24.3	0.12	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
Front, Windows	3.84	North West	0.7	1.3
Rear, Windows	1.92	South East	0.7	1.3

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Not government-approved scheme	0.03 (!)	
External wall	E3: Sill	Not government-approved scheme	0.04	
External wall	E4: Jamb	Not government-approved scheme	0.05	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E18: Party wall between dwellings	Not government-approved scheme	0.06	
External wall	E16: Corner (normal)	Not government-approved scheme	0.09	
External wall	E11: Eaves (insulation at rafter level)	Not government-approved scheme	0.04	
External wall	E7: Party floor between dwellings (in blocks of flats)	Not government-approved scheme	0.07	
External wall	E14: Flat roof	Calculated by person with suitable expertise	0.08	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))				
Maximum permitted air permeability at 50Pa		8 m ³ /hm ²		
Dwelling air permeability at 50Pa		3 m ³ /hm ² , Design value (!)		OK
Air permeability test certificate reference				

4 Space heating	
Main heating system 1: Room heaters - Electricity	
Efficiency	100.0%
Emitter type	
Flow temperature	
System type	Panel, convector or radiant heaters
Manufacturer	
Model	
Commissioning	
Main heating system 2: Heat pump with radiators or underfloor heating - Electricity	
Efficiency	0.0%
Emitter type	
Flow temperature	
System type	Heat Pump
Manufacturer	GDC Group Ltd
Model	EDL200UK-630
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Programmer and room thermostats	
Function	
Ecodesign class	
Manufacturer	
Model	
Main heating 2 - type: Not applicable	
Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: N/A		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	67 lm/W	FAIL
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.84 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	84%	OK
Manufacturer/Model	Sentinel Kinetic FH, 408167A	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
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Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Predicted Energy Assessment

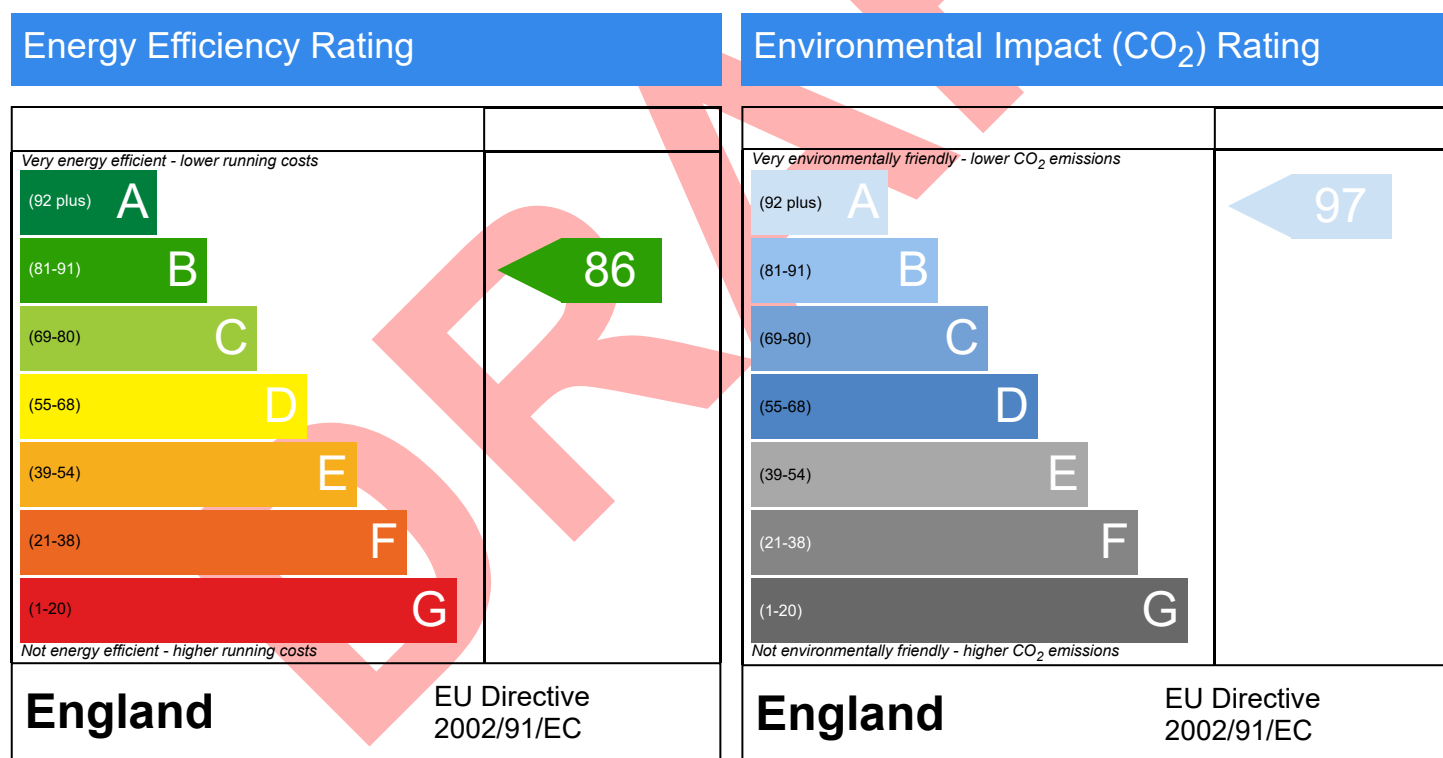


Type A, M19 1AX

Dwelling type: Flat, Semi-Detached
Date of assessment: 19/12/2024
Produced by: Daniel Watt
Total floor area: 39.77 m²
DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

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The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.