

Energy Statement
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Gorton
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zero3

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Issue	Date	Purpose	Author
A	11.07.22	For Planning	Andrew Keeling
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Document History

Approvals

This document requires the following approvals.

Signed approval forms are filed in the Management section of the project files.

Name	Signature	Title	Date of Issue	Version
Ryan Stocks	RS	Director	11.07.22	A
Ryan Stocks	RS	Director	07.09.22	B

Distribution

Name	Organisation	Role

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1.0 Executive Summary

The purpose of this Energy Statement is to demonstrate that the development site being proposed, Williams Road, Gorton, M18 7AY will meet all local and national requirements in terms of energy provision, building fabric and carbon reduction.

The report will then follow the Energy Hierarchy approach by prioritising fabric efficiency measures prior to the installation of high efficiency building services systems to enable the maximum viable reductions in CO₂ emissions over the Part L 2013 baselines. The overriding objective in the formulation of the strategy is to maximise the reduction in CO₂ emissions through the application of this Hierarchy with a cost-effective and technically appropriate approach that provides maximum benefit to the residents in terms of energy costs.

The new build dwellings are to be assessed under Part L1A (2013) of The Building Regulations (2010). The new build aspects of the site will be required to reduce their CO₂ emissions to meet Part L (2013) compliance. The specific reduction target beyond Part L 2013 for the site, is in line with Policy EN4 to EN6 of the Manchester City Council Core Strategy document to reduce the carbon dioxide emissions of predicted energy use by at least 15%, a range of energy efficient measures are proposed to provide energy efficient sustainable homes to the future residents.

A range of advanced energy efficiency measures are proposed. They enable the proposed development to meet the Target Fabric Energy Efficiency (TFEE) minimum standards for the residential aspect of the development through energy efficiency measures. In addition, where possible, all non-residential spaces are designed to meet the Part L2A 2013 TER requirements.

The proposed development will seek to use an efficient electric heating system for space heating together with heat pump hot water cylinders to achieve compliance with L1A 2013.

A site-wide 19% reduction in total CO₂ emissions is predicted over the Part L 2013 baseline for this development following Be Lean, Be Clean measures.

2.0 Introduction

This Energy statement is to support the application for the proposals at the development on Williams Road, Gorton, M18 7AY. The proposals present a scheme accommodating residential accommodation.

The accommodation is organised over Grd, 1st, 2nd and 3rd floors. A range of apartment sizes will be accommodated with apartments of 1 and 2 bedrooms.

In total, 40 apartments are proposed, 16No. 2 beds and 24No. 1 beds.

Zero3 are appointed to draft the Energy Statement for inclusion within the suite of application documents, in particular to comply with policy EN6 of the Manchester City Council Core Strategy document.

This report has been produced in order to provide the methodology by which the design being developed and in particular the energy hierarchy acknowledges and complies with Manchester City Council's requirements.

The assessment included in this report is based upon Standard Assessment Procedure (SAP) 2012 and references the associated carbon factors current under Approved Document Part L1 2013.



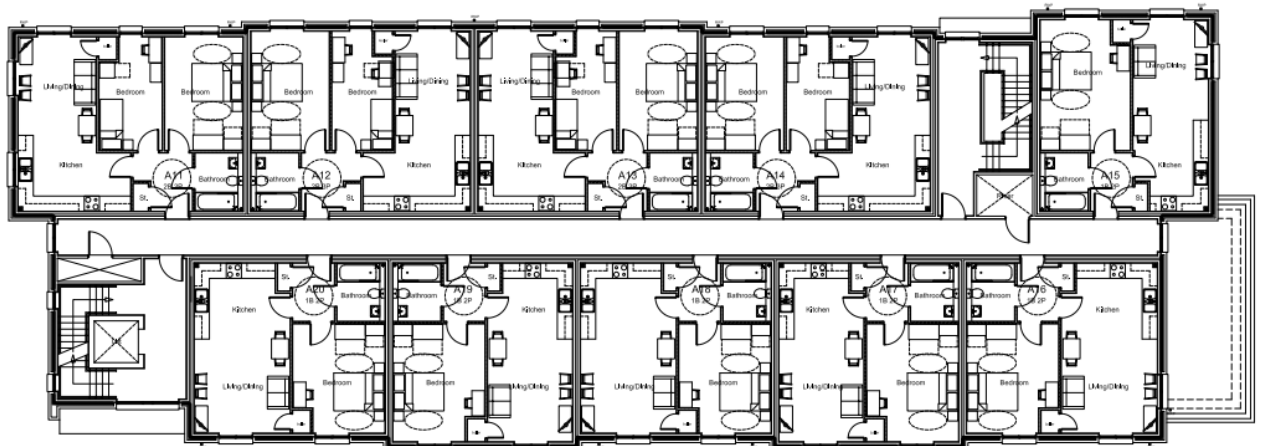
elmhurstenergy
APPROVED
ENERGY ASSESSOR

4.0 Proposed Development

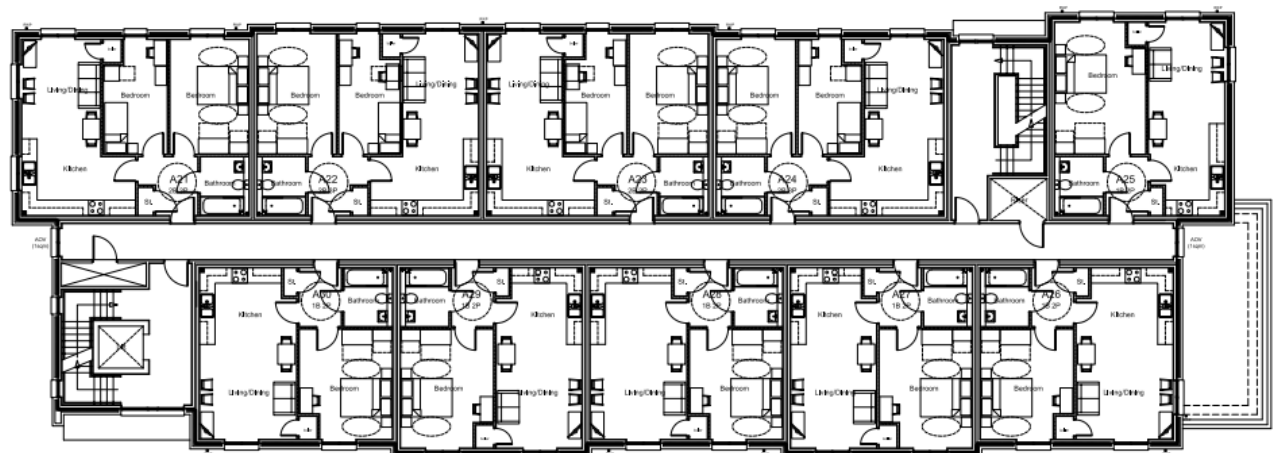
The development consists of floors Grd, 1st, 2nd and 3rd.



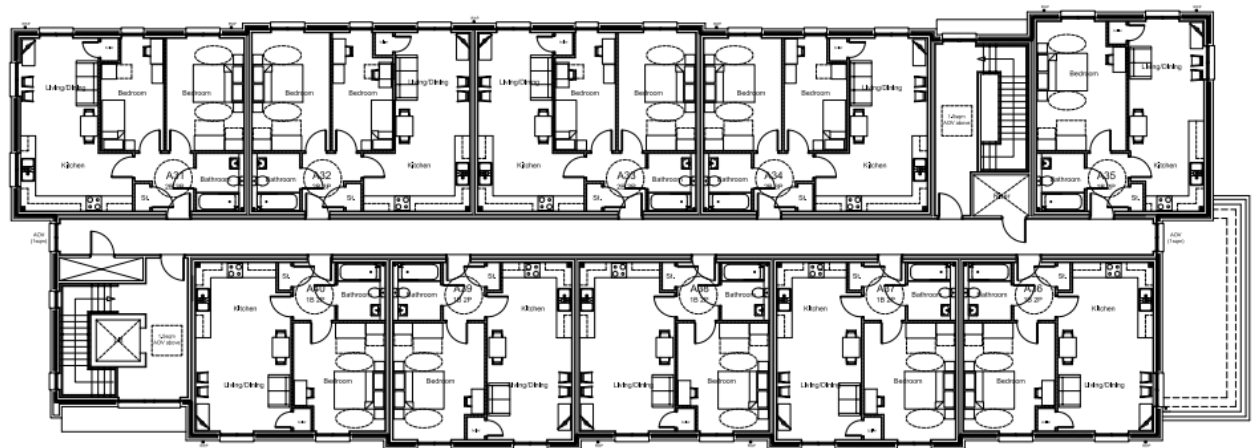
Ground Floor Plan



First Floor Plan



Second Floor Plan



Third Floor Plan

The breakdown of the apartments is 16No. 2 bedroom apartments and 24No. 1 bedroom apartments totalling 40No. units.



North Elevation



South Elevation



East Elevation



Williams Road Elevation

5.0 Policy and Legislation

There are a number of planning policies both national and local that apply to the proposed development.

The UK government has signed up to a legally binding agreement to reduce Carbon emissions by 34% based on 1990 levels before 2020 and by 80% before 2050, this responsibility is being discharged using the Climate Change Act 2008.

The National Planning Policy Framework (NPPF), offers specific guidance which highlights the UK's aspiration to support a transition to a Low Carbon future in a changing climate and in particular, to encourage the use of renewable resources such as Renewable Energy and states;

Planning authorities should ensure that development plans contribute to global sustainability by addressing the causes and effects of climate change through policies which reduce energy use and emissions, promote development of renewable energy resources, and take climate change impacts into account in the location and design of development.

Local Policies

The proposed development is located in Gorton with the local policies adopted by Manchester City Council outlined within the Manchester Local Development Framework Core Strategy Development Plan Document.



Manchester's Local Development Framework

Core Strategy Development Plan Document

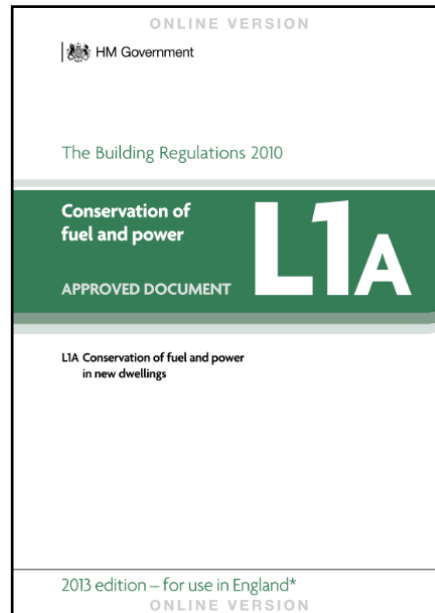
Adopted 11th July 2012

Published by Manchester City Council
planningstrategy@manchester.gov.uk



Building Regulations Part L1A (2013)

The proposed development is being designed to comply with the Building regulations approved document Part L1A, 2013 edition. This approved document takes effect from 6th April 2014.



Part L1A 2013 aims to improve energy efficiency standards for new homes by 25% in 2010 and 44% in 2013 relative to 2006 standards.

The notional dwellings used to determine carbon dioxide and fabric energy efficiency targets is the same size and shape as the actual dwelling, constructed to a concurrent specification.

6.0 Energy Assessment

Manchester City Council obligates the applicant to estimate the energy demand of the proposed development together with the dwelling emission rates (DER). This is in line with the core strategy documents in establishing the baseline emissions for the development.

The assessment included is based upon Standard Assessment Procedure (SAP) 2012 and references the associated carbon factors current under Approved Document Part L1 2013 in 2021.

Whilst the detailed design stage has yet to be commenced, it is possible to make initial estimates of the likely energy usage of the development by producing a full apartment

range of SAP calculations across the development using the current plans, general arrangements and elevations for input data and energy figures for the site to meet the current Building regulations Part L1 energy criteria.

Passive Design Improvements

On the completion of the model and establishment of the Target Emission rates (TER), the dwelling emissions have been reduced through judicious passive design. This has involved an assessment of non-energy consuming design decisions to create a fabric first approach to energy efficiency. This is through;

- Improved air permeability performance
- Better thermal Insulation

Passive fabric measures across the building include improvements to the thermal performance and air tightness above Part L requirements of the Building Regulations and this effectively allows the building envelope to attenuate external conditions without recourse to active Building Services.

The table below presents the proposed material specification that will be incorporated within the building design to limit heat losses and ensure efficient operation of the proposed dwellings.

An airtightness of **6m³/hr/m² @50Pa** is targeted for the development in order to minimise uncontrolled ventilation. An improved air tightness reduces heat losses and energy demand of the dwelling.

Construction Element	Building Regulation Specification	Development Specification	Improvement
Floor	0.25 W/m ² k	0.14 W/m ² k	44%
Wall	0.30 W/m ² k	0.19 W/m ² k	37%
Roof	0.20 W/m ² k	0.13 W/m ² k	35%
Window	2.2 W/m ² k	1.4 W/m ² k	36%
Air Permeability	10m ³ /h/m ² @50Pa	6m ³ /h/m ² @50Pa	

Energy Efficiency Improvements

In addition to the Passive design measures described to improve the building envelope performance, the Active Building Services are to be designed to minimise direct energy consumption and CO₂ emissions, with particular emphasis on the following;

- Improved Hot water efficiencies, high efficiency heat pump cylinders for the apartments;
- Reduced Standing Losses from Pipes;
- Increased Hot Water Generating Efficiencies;
- Energy Efficient LED Lighting;
- Improved Lighting Controls;
- Low Energy Motors in Pumps and Fans;
- Efficient Heat Recovery in other systems and,
- Improved Heating Controls;

It is currently proposed the dwellings heat energy for Domestic Hot Water to be generated using high efficiency heat pump cylinders.

The ventilation systems will be designed as mechanical ventilation heat recovery systems for 16No. units in line with the acoustic report, with the remainder being provided with high efficiency extract fans, these systems will help reduce the occurrence of moisture and mould.

All internal lighting installations will make use of low energy technologies with 100% low energy lighting.

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

SITE SUMMARY REPORT



Issued on Date 14/06/2022

Total number of sites	1
Total number of blocks	1
Total number of properties	40
Total number of assessments	40
Of which new build	40
Existing	0
Conversion	0

Site

22-083, West Pennines, England, Williams Road, , , Gorton, , , Created: 09/06/2022

Blocks

R1, Williams Rd, Average DER: 19.06, Average TER: 23.25, Building Regulations: Pass

AS DESIGNED

Blocks:

R1 Williams Rd

Average DER	19.06
Average TER	23.25
Building Regulations	PASS

Property Ref	Type Ref	House Name	House No	Street	Assessment Ref No	DER	TER	Building Regs		SAP Score
								TER/DER	General Compliance	
A01 (WRG)	2B3P				001	23.65	25.98	Pass	Pass	83 B
A02 (WRG)	2B3P				001	19.55	23.52	Pass	Pass	87 B
A03 (WRG)	2B3P				001	22.63	23.52	Pass	Pass	84 B
A04 (WRG)	2B3P				001	22.63	23.52	Pass	Pass	84 B
A05 (WRG)	1B2P				001	25.47	26.85	Pass	Pass	83 B
A06 (WRG)	1B2P				001	24.31	25.67	Pass	Pass	85 B
A07 (WRG)	1B2P				001	23.55	25.27	Pass	Pass	85 B
A08 (WRG)	1B2P				001	23.52	25.19	Pass	Pass	85 B
A09 (WRG)	1B2P				001	20.11	25.27	Pass	Pass	88 B
A10 (WRG)	1B2P				001	20.42	25.45	Pass	Pass	87 B
A11 (WRG)	2B3P				001	17.71	22.56	Pass	Pass	88 B
A12 (WRG)	2B3P				001	13.48	20.17	Pass	Pass	91 B
A13 (WRG)	2B3P				001	13.48	20.17	Pass	Pass	91 B
A14 (WRG)	2B3P				001	16.23	20.17	Pass	Pass	89 B
A15 (WRG)	1B2P				001	19.37	23.49	Pass	Pass	88 B
A16 (WRG)	1B2P				001	17.58	22.21	Pass	Pass	89 B
A17 (WRG)	1B2P				001	16.72	21.82	Pass	Pass	90 B
A18 (WRG)	1B2P				001	16.76	21.77	Pass	Pass	90 B
A19 (WRG)	1B2P				001	13.71	21.82	Pass	Pass	91 B
A20 (WRG)	1B2P				001	14.07	22.00	Pass	Pass	91 B
A21 (WRG)	2B3P				001	17.71	22.56	Pass	Pass	88 B
A22 (WRG)	2B3P				001	13.48	20.17	Pass	Pass	91 B
A23 (WRG)	2B3P				001	13.48	20.17	Pass	Pass	91 B
A24 (WRG)	2B3P				001	16.23	20.17	Pass	Pass	89 B
A25 (WRG)	1B2P				001	19.37	23.49	Pass	Pass	88 B



SITE SUMMARY REPORT



A26 (WRG)	1B2P				001	17.58	22.21	Pass	Pass	89 B
A27 (WRG)	1B2P				001	16.72	21.82	Pass	Pass	90 B
A28 (WRG)	1B2P				001	16.76	21.77	Pass	Pass	90 B
A29 (WRG)	1B2P				001	13.71	21.82	Pass	Pass	91 B
A30 (WRG)	1B2P				001	14.07	22.00	Pass	Pass	91 B
A31 (WRG)	2B3P				001	23.26	25.73	Pass	Pass	84 B
A32 (WRG)	2B3P				001	19.80	23.59	Pass	Pass	87 B
A33 (WRG)	2B3P				001	19.80	23.59	Pass	Pass	87 B
A34 (WRG)	2B3P				001	19.80	23.59	Pass	Pass	87 B
A35 (WRG)	1B2P				001	25.13	26.60	Pass	Pass	84 B
A36 (WRG)	1B2P				001	24.56	25.72	Pass	Pass	84 B
A37 (WRG)	1B2P				001	23.85	25.33	Pass	Pass	85 B
A38 (WRG)	1B2P				001	23.87	25.29	Pass	Pass	85 B
A39 (WRG)	1B2P				001	20.41	25.33	Pass	Pass	87 B
A40 (WRG)	1B2P				001	20.66	25.50	Pass	Pass	87 B

AS BUILT

N/A

EXISTING

N/A

CONVERSIONS (AS DESIGNED)

N/A

CONVERSIONS (AS BUILT)

N/A

Summary

Total Blocks	1
Total Properties	40
Total Assessments	40
Of which new build	40
Existing	0
Conversion	0



Total Carbon Emissions for Development	42,131 kg/CO2/annum
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Energy Demand	64,905 kwh/annum
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The anticipated carbon emissions for the development is **42,131 kg/CO2/annum**, this is 19% improvement from the baseline emissions.

The total energy demand of the development at this stage has also been calculated to be **64,905 kwh/annum**.

Part L1A 2013 aims to improve energy efficiency standards for new homes by 44% in 2013 relative to 2006 standards.

Therefore, the carbon emissions of the development are a minimum 44% better than the baseline emission requirements as set out within the 2006 standards.

Hence, the CO2 reduction due to utilising the energy hierarchy on this development is in line with latest national and local standards.

6.0 Conclusions

This energy statement has summarised the energy hierarchy requirements for the Williams Road development to respond to the Manchester Council Core Strategy document and Policies.

The development will incorporate 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 efficient fabric design in excess of the thermal properties set out within the Building Regulations.

The 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 hot water generation plant, energy efficient and highly controllable lighting.

There are a range of sustainable technology options that could feasibly be considered for this project however due to the site's location and particularly the development's type as residential use, when considering energy distribution and metering arrangement, there are significant drawbacks with some of the available options which make realising the maximum benefit of some of these technologies prohibitive although with ambitious aspirations the options should not be dismissed as implausible.

Overall, the Carbon emissions from the proposed development show compliance with the baseline set by current Building Regulations Part L 2013 with an improvement of 19%.

Total Carbon Emissions for Development	42,131 kg/CO2/annum
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The strategy improves on the fundamental principles of the Building Regulations, and will make a significant contribution to reducing the annual CO₂ emissions of the development.

The method of demonstrating that the design incorporates energy efficiency measures and meets the planning aspiration for energy requirements to be met are below:

The design has applied passive principles and incorporates a 'fabric-first' approach to achieve a highly-efficient thermal envelope and reduce primary energy requirements to the point that anecdotal evidence would suggest that heating energy demands are

actually below that projected by the software calculations resulting in a reduction in actual operational energy use compared to the desktop assessments.

The application of passive principles to maximise thermal efficiency is a valid and cost-effective proposal. The upgrades to the fabric will offer a significant improvement over and above the limiting factors set out with Approved document L1A as shown within this report.

Water-efficient fittings (e.g. aerated shower heads and taps) will help to reduce loads for water heating.

Electrical demand for lighting will be minimised using energy efficient lighting throughout all areas.

The hot water cylinder provided will be a heat pump cylinder and will be insulated with low standing losses.

Fittings will be specified to give a reasonable balance between low water consumption, performance and cost. This will allow the fixtures selected to have a proven track record of reliability, provide performance in line with the expectation of the occupants and to meet architectural aesthetic aspirations.

The design is currently progressing based on achieving a consumption of 125 l/p/d as required by Part G of the Building Regulations.