

ENERGY STATEMENT

for

15 NEW-BUILD DWELLINGS

at

**ABBAY HEY LANE/
BATTERSBY STREET**

Openshaw
Manchester
M11 1JW

by

LANCASTER MALONEY LIMITED

Equitas House
Unit 6 Station View
Rhino Court
Stockport
SK7 5ER

Date: November 2020

Ref: 2011/00

Rev: A

CONTENTS

- 1 Introduction
- 2 Manchester Core Strategy
- 3 Response to Core Strategy
- 4 Results
- 5 Conclusion
- 6 Comparison with Energy Council's strategy in Environmental Standards Statement Ref: Z35145 Rev C for MSV Housing Group (27 March 2020)

1 Introduction

This Energy Statement has been produced further to the planning application in respect of the above development.

It sets out how the development will contribute to Achieving Manchester Core Strategy Policies EN4 and EN6.

2 Manchester Core Strategy

Policy EN 4

Reducing CO2 Emissions by Enabling Low and Zero Carbon Development

The Council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO2 emissions, and rising fossil fuel prices, through the following actions:

- All development must follow the principle of the Energy Hierarchy, being designed:
 - to reduce the need for energy through design features that provide passive heating, natural lighting and cooling
 - to reduce the need for energy through energy efficient features such as improved insulation and glazing
 - to meet residual energy requirements through the use of low or zero carbon energy generating technologies
- Wherever possible new development and retrofit projects, including energy generation plant, must be located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies.
- Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings.
- Where appropriate new development and retrofit projects will be required to connect to and/or make contributions to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing / potential decentralised energy schemes.
- The use of building materials with low embodied carbon in new development and refurbishment schemes.

Policy EN 6

Target Framework for CO₂ reductions from low or zero carbon energy supplies

Applications for residential development of 10 or more units and all other development over 1,000 sq m will be expected as a minimum to meet the target shown in Tables 12.1 or 12.2, unless this can be shown not to be viable. This should be demonstrated through an energy statement, submitted as part of the Design and Access Statement. Such a statement will be expected to set out the projected regulated energy demand and associated CO₂ emissions for all phases of the development.

Developments smaller than the above threshold, but involving the erection of a building or substantial improvement to an existing building will also be expected to meet the minimum target, where viable, but will not be expected to submit an energy statement.

The target framework relates to three broad development locations and their potential for low and zero carbon, decentralised energy. The areas are defined as follows:

- Target 1 Network development areas: Locations where the proximity of new and existing buildings, the mix of uses and density of development provide the right conditions to support district heating (and cooling).
- Target 2 Electricity intense areas: Locations where the predominant building type has an all electric fit-out such as retail units and leisure complexes.
- Target 3 Micro-generation areas: Locations where lower densities and a fragmented mix of uses tend to mean that only building scale solutions are practical.

Domestic CO₂ emissions reduction targets

Table 12.1

Target	% Minimum requirement
Target 1: Network development area	CHP/district heating anchor or connection or where not feasible a 15% increase on Part L 2010
Target 2: Electricity intense buildings	+15% increase on Part L 2010
Target 3: Micro generation area	+15% increase on Part L 2010

3 Response to Core Strategy

The contractor's approach to addressing EN4 & EN6 has been to adopt a 'fabric first' approach based on "Fabric first - Focus on fabric and services performance to increase energy performance in new homes (October 2010 edition)" published by the Energy Saving Trust.

This approach exceeds the requirements of the current Building Regulations Part L and exceeds the requirement of Code 3.

In summary the proposed construction is as follows.

	Proposed U values	Improvement on Table 2 Limiting fabric parameters	
External wall	0.18W/m ² K	40%	(0.30W/m ² K)
Roof insulated at joist	0.09W/m ² K	55%	(0.20W/m ² K)
Ground floor	0.11W/m ² K	56%	(0.25W/m ² K)
Windows	1.2W/m ² K	40%	(2.00W/m ² K)
Patio doors	1.2W/m ² K	40%	(2.00W/m ² K)
Front/rear doors	1.0W/m ² K	50%	(2.00W/m ² K)

Thermal Bridging

Accredited Construction Details to be adopted and as applicable Plasmor Aglite Ultima Thermal Bridging Values.

Hi-Therm Lintels to be used throughout.

Ventilation

Decentralised Mechanical Extract Ventilation dMEV:

- Vectaire Elegance EL1003 Plus.
- Fans to kitchens, bathrooms, en-suites and WCs.

Design Air Permeability

	Proposed DAP	Improvement on Table 2 Limiting fabric parameters	
Design Air Perm:	4.0m ³ /hm ²	60%	(10m ³ /hm ²)

Primary Heating

Gas fired central heating system with radiators.

Condensing Combination boiler:

Index	017515
Manufacturer Reference	000035
DB Entry Updated	2020/Jul/27 16:20
Manufacturer Name	Worcester
Brand Name	Worcester
Model Name	Greenstar
ModelQualifier	36CDi Compact ErP
Boiler ID	47-406-81
Annual Seasonal Efficiency	89.8
SAP Winter Seasonal Efficiency	90.7
SAP Summer Seasonal Eff'y	87.9

WITH:

Flue Gas Heat Recovery System:

ID	060035
Ref No	020051
Date	2016/Jan/13 16:24
Manufacturer	Bosch Thermotechnology Ltd
Brand	Worcester
Model	Greenstar Xtra
Model Qualifier	2015

Space heating controls:

- Time and temperature zone control by suitable arrangement of plumbing and electrical services.

Special Features:

- Boiler interlock
- Weather compensator.

Secondary heating

None

Lighting

100% low energy lighting.

4 Results

Assessor Name: Steven Lancaster
Stroma Number: STRO004320
Software Name: Stroma FSAP
Software Version: Version: 1.0.5.12

Dwelling	SAP	DER	TER	DFEE	TFEE	% Improv't	Total Floor Area
Plot 1	B 86 (85.56)	14.46	18.07	39.6	54.6	19.98	94.32
Plot 2	B 86 (86.13)	13.51	16.96	35.3	48.8	20.34	94.32
Plot 3	B 86 (86.13)	13.51	16.96	35.3	48.8	20.34	94.32
Plot 4	B 86 (86.13)	13.51	16.96	35.3	48.8	20.34	94.32
Plot 5	B 86 (86.13)	13.51	16.96	35.3	48.8	20.34	94.32
Plot 6	B 86 (86.13)	13.51	16.96	35.3	48.8	20.34	94.32
Plot 7	B 86 (86.13)	13.51	16.96	35.3	48.8	20.34	94.32
Plot 8	B 86 (86.13)	13.51	16.96	35.3	48.8	20.34	94.32
Plot 9	B 86 (85.6)	14.37	18.02	39.5	54.7	20.26	94.32
Plot 10	B 86 (85.54)	14.48	18.15	40	55.3	20.22	94.32
Plot 11	B 86 (85.6)	14.37	18.02	39.5	54.7	20.26	94.32
Plot 12	B 85 (84.67)	15.75	19.76	41	57	20.29	72.13
Plot 13	B 85 (84.67)	15.75	19.76	41	57	20.29	72.13
Plot 14	B 84 (83.88)	17.23	21.86	41.1	59.2	21.18	50.1
Plot 15	B 84 (84.01)	16.99	20.51	42.8	56.4	17.16	59.9

Calculation Summary

Total Floor Area (m ²)	1,291.78
Average TER	17.95
Average DER	14.33
Average DFEE	37.78
Average TFEE	52.23
Compliance	Pass
% Improvement DER TER	20.17
% Improvement DFEE TFEE	27.67

Result:

Average 20% DER/TER improvement (rounded) on Building Regulations Part L (2013)

Average 28% DFEE/TFEE improvement (rounded) on Building Regulations Part L (2013)

5 Conclusion

Compliance with the criteria of the Manchester Core Strategy have been achieved by the proposed energy strategy while taking MCC's declaration of a Climate Emergency and the emerging GMSF policies into consideration.

The proposals comply with the adopted Core Strategy Policies EN 4 and EN6 and the Supplementary Planning Document (SPD) criteria.

The development has been designed and specified in accordance with the principles of the energy hierarchy consistent with the adopted Core Strategy Policy EN 4.

The proposals significantly exceed the energy efficiency requirements and carbon dioxide emission reduction targets within the Core Strategy policies EN4 and EN6 and GMSF policy GM-S 2.

The dwelling emission rate (DER) is reduced by 20% over Part L1A (2013) through fabric efficiency, air tightness, thermal bridging and energy efficient M&E systems.

The dwelling fabric energy efficiency (DFEE) reduction is 28% better than the Part L1A (2013) compliance standard through enhanced fabric efficiency.

6 Comparison with Energy Council's strategy in Environmental Standards Statement Ref: Z35145 Rev C for MSV Housing Group (27 March 2020)

The main difference is that the Energy Council proposal adopts a more modest set of U-values for the external fabric and a gas combination boiler of modest performance. The efficiency of the scheme as a whole is then 'topped up' with the installation of photovoltaic panels on the roof of the two flats.

Thus, it would be fair to say that, compared to Core Strategy targets, the majority of dwellings under-perform whilst the flats significantly over-perform so that, overall, the development achieves a DER/TER improvement of 17.9%. This is illustrated by Table 5 of the Energy Council's report (reproduced below for ease of reference).

Ref.	Type	Area (m ²)	No. of Type	TER	DER	Improv. Factor (%)	Target Carbon Emissions (Kg CO ₂ /yr)	Designed Carbon Emissions (Kg CO ₂ /yr)
Z35145	Plot 1 +9	89.73	2	18.20	17.93	1.48	3,266	3,218
Z35146	Plot 2-8	89.98	7	16.98	16.39	3.47	10,695	10,323
Z35154	Plot 10+11	89.73	2	19.70	19.56	0.71	3,535	3,510
Z35156	Plot 12+13	72.02	2	19.79	19.36	2.17	2,851	2,789
Z35158	Plot 14 (Flat)	50.36	1	22.79	-6.99	130.67	1,148	-352
Z35159	Plot 15 (Flat)	59.37	1	21.68	-3.08	114.21	1,287	-183
Total			15			17.9%	22,782	18,705

Wiggett have adopted a more balanced approach by maximising the gains that can be achieved through a 'fabric first' approach (aligned with Core Strategy) and by adopting the best performing combination boiler available. Wiggett have also gone further than recommended in relation to thermal bridging adopting Plasmor Aglite Ultima Thermal Bridging Values and use of Hi-Therm Lintels throughout.

Comparison of Specifications:

	Energy Council	Wiggett Construction
U-Values		
External wall	0.2 W/m ² K	0.18 W/m ² K
Roof insulated at joist	0.11 W/m ² K	0.09 W/m ² K
Ground floor	0.14 W/m ² K	0.11 W/m ² K
Windows	1.4 W/m ² K	1.2 W/m ² K
Patio doors	1.4 W/m ² K	1.2 W/m ² K
Front/rear doors	2.0 W/m ² K	1.0 W/m ² K
Thermal Bridging		
Accredited Construction Details adopted?	Yes	Yes
Plasmor Aglite Ultima Thermal Bridging Values adopted?	No	Yes
Lintels:	Split lintels (Psi 0.01W/mK)	Hi-Therm Lintels throughout (Psi 0.05W/mK)
Ventilation		
Decentralised Mechanical Extract Ventilation dMEV	Greenwood Unity CV3 or equivalent	Vectaire Elegance EL1003 Plus
Design Air Permeability	5.0 m ³ /hm ²	4.0m ³ /hm ²
Primary Heating		
Condensing Combination boiler:	Baxi 624 Combi or equivalent	Worcester Greenstar 36CDi Compact ErP
Space heating controls:	Programmer and thermostat only	Time and temperature zone control by suitable arrangement of plumbing and electrical services
Special Features:	None	Boiler interlock Weather compensator
Flue Gas Heat Recovery System:	None	Bosch Thermotechnology Ltd Worcester Greenstar Xtra
Lighting:	100% low energy lighting	100% low energy lighting
Photovoltaic Panels:	8.4kWp facing southwest on the roof of the flats	None
Performance: DER / TER improvement	17.9%	20.17%