



ENERGY & SUSTAINABILITY STATEMENT

(To Accompany Planning Application)

Site

309 DICKENSON ROAD, MANCHESTER M13 0NR

Proposal

ERECTION OF 2-NO. DWELLINGS FRONTING HONOR STREET, CREATION OF NEW ACCESS ONTO HONOR STREET, RE-INSTATEMENT OF ACCESS ONTO BIRCH LANE, CAR PARKING, LANDSCAPING AND ASSOCIATED FACILITIES ON LAND TO REAR OF 309 DICKENSON ROAD

Client

ABBAYWAY COMMERCIAL LIMITED

30th JULY 2024

Ref. E1439-ESS-00

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1.0 INTRODUCTION

- a) Doherty Energy Limited have been instructed by Abbeyway Commercial Limited to prepare an Energy and Sustainability Statement to help discharge the planning condition 11 of the Manchester City Council planning approval 130197/FO/2021, dated 9th February 2022.
- b) The Application is for the erection of 2-No. dwellings fronting Honor Street, creation of new access onto Honor Street, re-instatement of access onto Birch Lane, car parking, landscaping and associated facilities on land to rear of 309 Dickenson Road.
- c) This report must be read in conjunction with the application forms, certificates, detailed plans and other supporting documents submitted to the Local Authority as part of the application.
- d) Planning Condition 11 states that within 3 months of the development commencing, an expanded Environmental Standards Statement shall be submitted to, and approved in writing by, the City Council, as Local Planning Authority. The statement shall demonstrate measures to be incorporated into the development to achieve energy efficiency and approved measures shall be implemented in the construction of the approved development.
- a) The objectives of this Energy and Sustainability Statement are to outline the measures that are being incorporated into the development during detailed design, to make an appraisal of the carbon dioxide emissions of the proposed development, assess the potential fabric and building services efficiencies to reduce the carbon dioxide emission and to suggest the most appropriate means by which the development can contribute towards the aspiration of policy relating to reducing carbon dioxide emissions and energy consumption.

2.0 POLICY CONTEXT

- a) Manchester City Council, through their Local Development Framework Core Strategy Development Plan Document, Adopted 11th July 2012, expect proposals to show how they contribute to decentralised low and zero carbon infrastructure and have set out their Policies EN4 – EN7.
- b) In Policy EN4 – Reducing Emissions by Enabling Low and Zero Carbon Development, the Council seek to reduce fuel poverty and decouple growth in the economy, growth in carbon dioxide 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
- c) Reduction in carbon dioxide emissions is seen as a major component in mitigating climate change. In this regard, areas of Government policy give rise to the following three national and regional targets:
 - A national reduction in carbon dioxide emissions by 34% in 2020 and by 80% in 2050, (from a 1990 baseline) to which buildings will need to make a proportionately higher contribution, as set out in the Climate Change Act 2008.
 - 'Zero' carbon targets for all new housing by 2016 and for all new non-residential development by 2019, for which preparation will be required.
 - A national increase in renewable energy capacity by 15% by 2020 as set out in the UK Renewable Energy Strategy, which will require an uplift in current levels.
- d) Policy EN5 sets out strategic areas for low and zero carbon decentralised energy infrastructure.

- e) Policy EN 6 - Target Framework for CO2 reductions from low or zero carbon energy supplies requires residential developments of 10 or more units to achieve minimum targets for carbon dioxide emission reductions. These targets can be found in the Core Strategy document and are applicable for developments of 10 or more units.

- f) Policy EN 7 - Energy Infrastructure opportunities states that there will be a general presumption in favour of low and zero carbon decentralised energy schemes, subject to the following considerations and any new generating plant capable of producing heat and cooling as well as electricity should be located in a way that facilitates future connection to a local distributed energy system.

3.0 SUSTAINABLE DESIGN AND CONSTRUCTION ASSESSMENT

- a) The building fabric, the building services and the management of the building broadly determines its energy usage. The detailed design of a building is an iterative process, often requiring the involvement of different professional disciplines to establish the fundamental objectives of the design. An overall design philosophy in this respect has been established at an early stage.
- b) As a result of central Government objectives, followed through at local level the general design philosophy for this site has a strong emphasis on sustainable design. This is not only in terms of the location and suitability of the site but also in relation to the way in which the building is constructed and will be used by its future occupants.
- c) The first step in developing an integrated design is to establish the function of the buildings envelope and how it interacts with the usage patterns of the building and the technology used to condition the individual spaces.
- d) Good fabric design can minimize the need for services. Where appropriate, designs should avoid simply excluding the environment, but should respond to factors like weather and occupancy and make good use of natural light, ventilation, solar gains and shading, where they are beneficial.
- e) This section of the report will look at the ways in which energy is used within the proposed building and how the design can encourage efficient levels of energy consumption.

3.1 Management

- a) Although improvements can be made to the fabric and services of a building, often the biggest impact on the day-to-day energy consumption is influenced by the way in which the building is managed. It is common to find well-designed buildings operating badly due to poor management. Conversely, poorly designed buildings can be optimised to their maximum efficiency through good management practices.

- b) It is recommended that due consideration is given to the management strategy of the building. It is understood that the dwelling will be within private ownership. However, there is still an opportunity to provide for the most efficient management system and to encourage the future occupants to manage their homes efficiently.
- c) This may include the use of movement sensor switched lighting systems, the installation of energy efficient electrical appliances, efficient lighting and fittings that do not permit the use of non-efficient lamps, tightly controlled heating and ventilation specific to the location within the dwelling, installation of efficient hot water systems and the provision of recycling facilities.
- d) The EU energy efficiency labelling scheme rates products from A (the most efficient) to G (the least efficient). For refrigeration, the scale now extends to A++. The occupants of the dwelling shall be provided with information on the EU Energy Efficiency Labelling Scheme so that they are informed of the benefits of the scheme.

3.2 Ventilation

- a) Natural ventilation is the most energy efficient form of ventilating any space. The proposed use and traditional architectural design of this building enables it to make best use of natural ventilation via openable windows.
- b) Horizontal pivoted windows produce the most effective ventilation because of their inherent characteristic to develop large openings, where air will tend to enter at the lower level and exit via the top. They are easily adjustable to provide control and reduce the amount of energy required to run and maintain artificial ventilation systems. Normal casement windows can provide a degree of natural ventilation and with the layout of the dwelling; it is possible to obtain good cross ventilation.
- c) Given the historical records for the British Isles, the weather permits a possible energy saving with the use of windows to provide cooling and ventilation. When the outside temperature ranges between 14 °C through to

24 °C, people are able to moderate the heat build-up in the space with the use of an openable window systems.

- d) In addition to allowing direct and flexible control of heat through the use of openable windows they, also provide for the natural provision of fresh air to the occupants eliminating the need for artificially produced fresh air supply.
- e) At other times of the year, mechanical ventilation with heat recovery can conserve energy in each dwelling by recovering heat from the warm moist extracted air and transferring it to the incoming fresh air. This works both ways so if the outside temperature is higher than inside the exchanger helps to maintain a comfortable internal environment. The mechanical ventilation with heat recovery system ensures high air quality whilst maintaining a balance between extraction and supply.

3.3 Heating System

- a) The method of heating for the dwellings will be mains gas fired highly efficient condensing boilers, with weather compensation. It shall be appropriately designed to provide suitable conditions for the occupants and to offset the heat losses through the fabric for the dwelling.
- b) The heating systems will be provided with time and temperature zone control to control the heating in the spaces.
- c) Weather compensation will be used to help control the heating system. It uses an outdoor temperature sensor to adjust the system controls to compensate for changes in outdoor temperature automatically. As the weather gets colder the system works harder and produces more heat to the space. However, the weather warms up the system reduces the temperature of the heating system thereby reducing the energy consumption and carbon dioxide emissions.
- d) Due to the high level of insulation standards required under the current building regulations and the associated heat gains of the building, the level of artificially produced heat required to the internal spaces is envisaged to be low.

3.4 Lighting (Natural / Artificial)

- a) The proposed design makes best use of natural daylight to reduce the amount of electrical energy used to provide the minimum luminance for the required conditions. It is envisaged that all the habitable rooms within the dwelling are to be provided with natural light via windows. The number of windows proposed and the use of dimming controls on the lighting scheme where appropriate may assist in achieving the maximum reduction of electrical consumption.
- b) The dwellings are orientated so that the large windows do not face south or are shaded, thus avoiding excessive solar gains during the summer.
- c) When selecting luminaries, consideration should be given to their inherent local power consumption and luminance levels. This together with the use of energy saving lamps will reduce the consumption of energy through lighting to a minimum. It is suggested that a development of this kind could reduce the energy usage further by installing luminaries that only allow the use of energy saving lamps.
- d) Any lighting in the external areas shall be fitted with automatic control systems, like passive infrared sensors, time switches or “dawn to dusk” day light sensors. These luminaires shall be fitted with low energy lamps.

3.5 Hot Water Systems

- a) The hot water demand for the dwellings shall be generated using the mains gas fired highly efficient condensing boilers, with very well insulated hot water storage cylinders being provided.
- b) The hot water system shall be designed to appropriate standards required by the current building regulations. This will ensure the minimum amount of heat loss from hot water pipe work by applying a high standard of thermal insulation and ensuring the correct circulation throughout the system.
- c) It is possible, with the ever-increasing demand on the limited supply of the natural resource of water, to suitably restrict the flow of water outlets. Flow

restrictors can be installed on outlets where a reduced flow is acceptable, for example on showers and basins. This system allows for a uniform maximum flow to be provided regardless of natural water pressures throughout the dwelling.

3.6 Cold Water Systems

- a) Cold water consumption can be kept to a minimum by the installation of a numbers of facilities.
- b) Modern water efficient dual flush WC cisterns should be fitted as standard and as with the hot water system flow restrictors can be fitted to provide a uniform maximum flow rate throughout the dwelling.
- c) Simple water butts can be provided in appropriate locations, allowing for the collection of rain water for the direct use on external landscaped areas. Water butts are the cheapest and easiest way of reducing the use of drinking water for this purpose. There are many products on the market ranging in price and size and some local authorities offer their own option at a subsidised price to the consumer.
- d) It is not possible to estimate the total water saving from the installation and use of such a device as this is very much dependant on the landscaping design for the dwelling, the annual rain fall and the required usage of this water within the domestic setting. However, an average storage device can produce up to 5000 litres of usable rainwater per year.

3.7 Sustainable methods of construction

- a) Sustainable methods of construction can range from the simplest of solutions, such as construction in locations with access to sustainable modes of transport to the more complex solutions including passive solar design and rainwater harvesting.
- b) The following paragraphs will briefly discuss some of the additional options available for incorporation into the scheme at this early stage or later during the detailed design process.

3.8 Passive Solar Design

- a) Passive solar gain can be experienced in both a positive and negative manner. South facing facades can often benefit from solar passive gain during the winter months but this is counteracted by the increased requirement for cooling during the summer.
- b) In a scheme like that proposed, it is important to recognise where solar passive gains will be experienced and to design the scheme to enhance the effect during the winter and protect from it during the summer.

3.9 Building Envelope

- a) All facades of the dwellings shall be designed to ensure that the minimum standards required by the Approved Document L of the Building Regulations are exceeded and that care shall be exercised to ensure flexibility and good shading systems are installed where necessary.
- b) Any insulation that is used in this development shall have global warming potential of less than 5. This shall include not only the thermal insulation, but any acoustic insulation.

3.10 Enhanced Construction Details

- a) The dwellings envelope shall be designed using the Enhanced Construction Details to limit recurring thermal bridging. This exceeds the requirement of the Building Regulations and helps lower the carbon emissions of the dwelling by reducing the heat losses by cold bridging.

3.11 Rainwater Harvesting

- a) The harvesting and recycling of rainwater can considerably reduce mains water consumption for toilets and other uses that do not need a sanitized water supply.
- b) However, the plant space requirement for treatment and storage is often difficult to incorporate into a scheme. It also requires additional public health and water system risers to be installed to serve the facilities able to utilise

such a water supply. If this system were to be considered then early design allowances would be required.

- c) An alternative option would be to install a water butt system as discussed above, that allows the collection of rainwater from the roof to be used in the amenity space provided.

3.12 Sustainable Material Choices

- a) A high percentage of carbon dioxide emissions are generated by unsustainable modes of transport. This is not only made up of the use of the private car but is substantially increased by the use of road as the popular way of transporting materials and goods needed during the construction purposes.
- b) Many opportunities are now available to Architects wishing to make more sustainable choices when specifying building materials. The consideration can include where the materials come from, its' travel distance, mode of transport, and the nature in which the material resource is manufactured and managed.
- c) Throughout the design process consideration will be given to not only the quality of materials to be specified, but also to the quantities. Additional consideration will be given to building material selection that maximises the life expectancy of the building by selecting materials build-ups from the Green Guide to Specification published by the Building Research Establishment (BRE).
- d) The proposed development will be constructed of materials with a low environmental impact, achieving a Green Guide rating of between A+ and D for all five elements of construction, as follows:
 - Roof.
 - External walls.
 - Internal walls.
 - Upper and ground floors.
 - Windows.

- e) Consideration will also be given to the use of materials and products manufactured in the UK and Europe. Once a contractor is appointed, the opportunities for the use of local suppliers for their supply chain will also be explored.
- f) All timber, including that used in the construction processes, will be required to be legally sourced. The definition of legally sourced timber follows the UK Government's definition of legally sourced timber, according to the CPET 2nd Edition report on UK Government timber procurement policy.

3.13 Recycling Facilities

- a) In order to encourage the homeowners to recycle household waste, the dwelling can be provided with recycling bins, both within the dwelling and in the external waste storage area.
- b) The recycling bins could be in the form of three internal in a dedicated non obstructive location in the kitchen. The bins shall be in a variety of sizes and a total capacity of 30 litres and no individual bins shall have a capacity of less than 7 litres.
- c) External bins shall be provided for the Local Authority collection scheme. These shall be located in a dedicated location.

4.0 ENERGY ASSESSMENT

4.1 Introduction

- a) This section of the Energy and Sustainability Statement shall make an appraisal of the carbon dioxide emissions of the proposed development, assess the implications of fabric and building services enhancements, the various methods of generating and using renewable energy at source, and to suggest the most appropriate means by which the development can contribute towards the aspiration of policy relating to reducing energy consumption and renewable energy provision.
- b) In order to assess the impact of the improved building envelope and the fixed building services, the initial Standard Assessment Procedure (SAP) Assessments, using SAP2012, have been carried out on the proposed dwellings as if they were constructed simply to comply with the requirements of the current Building Regulations. Further SAP calculations have been undertaken to demonstrate an improvement in the carbon emissions by incorporating better fabric constructions, better windows and doors, improved ventilation systems and efficient building services.

4.2 Baseline Carbon Dioxide Emissions

- a) In order to assess the carbon dioxide emissions of the development, the delivered energy demand needs to be estimated. At this stage in the design of the dwellings, the detailed construction drawings have not been prepared and therefore detailed carbon emission calculations cannot be undertaken to produce the carbon dioxide emissions.
- b) Based on the current design and using construction information, the proposed dwellings comply with the current Building Regulations. The building services information is based on standard building services to meet the requirements of the Building Regulations.
- c) Table 1 below summarises the results from the Basic Compliance Report documents that can be found in Appendix A.

Dwelling	TER (kg/m ² /yr)	Area (m ²)	Quantity	Part L 2021 CO ₂ Emissions (kgCO ₂ /yr)
1	14.63	163	1	2,384.7
2	14.84	163	1	2,418.9
Baseline Carbon Dioxide Emissions (kg/yr)				4,803.6

Table 1 – Baseline Carbon Dioxide Emissions

4.3 Improved Baseline Carbon Dioxide Emissions

- a) Following the principles set out in the Core Strategy, the proposed design has been improved to use less energy and lower the carbon dioxide emissions.
- b) This has been achieved by improving the thermal performance of the various constructions, like the walls, roof, floors, windows, doors etc and improving the air tightness of the dwellings.
- c) The floor U Values can be improved by incorporating insulation under the screed, or by using insulation blocks instead of concrete blocks between the beams. For the purposes of these calculations, the U Values of the current floor constructions have been calculated as $0.15 \text{ W/m}^2\text{K}$. The maximum allowed under Approved Document L1A:2013 is $0.24 \text{ W/m}^2\text{K}$.
- d) The wall U Values can be improved by improving the thermal performance of the insulation, either by increased thickness or lower thermal conductivity. In addition, insulated plasterboard will be used in place of standard plasterboard. For the purposes of these calculations, the U Values of the current wall constructions have been calculated as $0.20 \text{ W/m}^2\text{K}$. The maximum allowed under Approved Document L1A:2013 is $0.30 \text{ W/m}^2\text{K}$.
- e) The roof areas offer excellent opportunity to enhance the insulation levels and for the purposes of these calculations, the U Value of $0.08 \text{ W/m}^2\text{K}$ has been used. The maximum allowed under Approved Document L1A:2013 is $0.20 \text{ W/m}^2\text{K}$.
- f) The thermal performance of the windows can be improved by adding coatings to the panes or adding an inert gas to the cavities. For the purposes of these calculations, a U Value for the windows of $1.28 \text{ W/m}^2\text{K}$ has been used, which uses double glazed planitherm glass, argon gas and warm edge spacer bars. The maximum allowed under Approved Document L1A:2013 is $2.0 \text{ W/m}^2\text{K}$.

- g) A composite front door can be used instead of a timber door. Modern composite doors have good thermal, fire, acoustic and security properties. These types of door can have U Values as low as 1.0 W/m²K.
- h) The air leakage rate for the dwelling can be improved. The maximum allowed under the current Building Regulations Approved Document L1A:2013 is 10 m³/hr/m² at 50 Pascal's. With careful detailing, this can be easily improved to 5 m³/hr/m² at 50 Pascal's.
- i) The use of Accredited Construction Details in the development means that the thermal bridging coefficient can be greatly improved thus a lower γ Value can be used.
- j) With regard to the heating, local highly efficient gas fired condensing boilers have been used. These provided excellent control for the dwelling occupants and avoid heat distribution losses by installing a central system.
- k) More efficient controls can be installed to control the heating, which can include weather compensation on the boiler control and the use of time and temperature zone control to improve the efficiency of the heating system.
- l) Instead of simply installing 75% of the light fittings as low energy efficient light fittings, as required by the current Building Regulations, 100% of the light fitting could be low energy fittings.
- m) The use of natural lighting has been considered and although its use is not measured in the SAP calculations, it can help lower the energy use and therefore carbon dioxide emissions. This is carefully assessed against any unwanted solar overheating. Whilst a degree of solar gain can be beneficial for the occupants and helps lower the carbon dioxide emissions, it must be controlled to minimise the risk of solar overheating. The calculations show that the risk of overheating is not significant.
- n) The development shall be designed to ensure that the Dwelling Emission Rates are better than the Target Emission Rates and the Fabric Energy Efficiency is better than the Target Fabric Energy Efficiency. These are the

requirements from Criterion 1 of the current Building Regulations Approved Document L (2013).

- o) By incorporating items like those stated above, the SAP calculations have been updated to demonstrate the effect of these improvements and the results are listed in Table 2 below.
- p) Full details can be found in the Basic Compliance Report documents in Appendix A.

Dwelling	DER (kg/m ² /yr)	Area (m ²)	Quantity	Part L 2021 CO ₂ Emissions (kgCO ₂ /yr)
1	14.53	163	1	2,368.4
2	14.81	163	1	2,414.0
Improved Carbon Dioxide Emissions (kg/yr)				4,782.4
Percentage Improvement Over Building Regulations				1%

Table 2 – Actual Carbon Dioxide Emissions

- q) As demonstrated in Table 2 above, the improvements in the thermal performance and fixed building services, a reduction of 1% can be achieved in the carbon emissions of the development.

5.0 CONCLUSION

- a) The Manchester City Council Core Strategy Policies requires new residential developments to minimise and exhibit the highest standards of sustainable design and construction.
- b) The Application is for the erection of 2-No. dwellings fronting Honor Street, creation of new access onto Honor Street, re-instatement of access onto Birch Lane, car parking, landscaping and associated facilities on land to rear of 309 Dickenson Road.
- c) It is proposed that in order to meet the requirements of policy this development will adopt a high standard of design with regard to energy efficiency principles. It has been calculated that the proposed development will achieve a reduction of at least 1% in the carbon dioxide emissions through fabric and services efficiencies. It is envisaged during the construction of the development, these figures can be improved.
- d) This Energy and Sustainability Statement demonstrates that the proposed development exceed the minimum requirements of the Building Regulations and provides a reduction on carbon emissions in line with the aspirations set out by planning policy. This is achieved by incorporating fabric and energy efficiency measures. It is for these reasons it is considered that this application should be viewed favorably by the Manchester City Council.

Appendix A – Basic Compliance Report Documents

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

zero3

Property Reference	Plot 1 (DR)	Issued on Date	02/10/2023
Assessment Reference	R2	Prop Type Ref	
Property			

SAP Rating	86 B	DER	14.53	TER	14.63
Environmental	86 B	% DER<TER	0.67		
CO ₂ Emissions (t/year)	2.09	DFEE	45.13	TFEE	52.41
General Requirements Compliance	Pass	% DFEE<TFEE	13.90		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Mains gas		
Fuel factor	1.00 (mains gas)		
Target Carbon Dioxide Emission Rate (TER)	14.63	kgCO ₂ /m ²	
Dwelling Carbon Dioxide Emission Rate (DER)	14.53	kgCO ₂ /m ²	Pass
	-0.10 (-0.7%)	kgCO ₂ /m ²	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	52.41	kWh/m ² /yr	
Dwelling Fabric Energy Efficiency (DFEE)	45.13	kWh/m ² /yr	
	-7.3 (-13.9%)	kWh/m ² /yr	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.20 (max. 0.30)	0.20 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.15 (max. 0.25)	0.15 (max. 0.70)	Pass
Roof	0.08 (max. 0.20)	0.18 (max. 0.35)	Pass
Openings	1.28 (max. 2.00)	1.30 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	5.00 (design value)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

zero3

Main heating system

Boiler system with radiators or underfloor - Mains gas
Data from manufacturer
2 1
Efficiency: 90%
Minimum: 88%

Pass

Secondary heating system

None

5 Cylinder insulation

Hot water storage

Nominal cylinder loss: 1.62 kWh/day
Permitted by DBSCG 2.10

Pass

Primary pipework insulated

Yes

Pass

6 Controls

Space heating controls

Time and temperature zone control

Pass

Hot water controls

Cylinderstat

Pass

Independent timer for DHW

Pass

Boiler interlock

Yes

Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings

100 %

Minimum

75 %

Pass

8 Mechanical ventilation

Not applicable

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))

Not significant

Pass

Based on:

Overshading

Average

Windows facing South East

15.49 m², No overhang

Windows facing South West

3.38 m², No overhang

Windows facing North West

12.61 m², No overhang

Air change rate

8.00 ach

Blinds/curtains

Dark-coloured curtain or roller blind, closed 100% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type

U-value

Filled Cavity with Edge Sealing

0.00

W/m²K

Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals

5.00 (design value)

Maximum

10.0

Pass

10 Key features

Party wall U-value

0.00

W/m²K

Roof U-value

0.08

W/m²K

Door U-value

1.00

W/m²K

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

zero3

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

zero3

Property Reference	Plot 2 (DR)	Issued on Date	02/10/2023
Assessment Reference	R2	Prop Type Ref	
Property			

SAP Rating	86 B	DER	14.81	TER	14.84
Environmental	86 B	% DER<TER	0.17		
CO ₂ Emissions (t/year)	2.13	DFEE	46.27	TFEE	53.46
General Requirements Compliance	Pass	% DFEE<TFEE	13.45		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Mains gas		
Fuel factor	1.00 (mains gas)		
Target Carbon Dioxide Emission Rate (TER)	14.84	kgCO ₂ /m ²	
Dwelling Carbon Dioxide Emission Rate (DER)	14.81	kgCO ₂ /m ²	Pass
	-0.03 (-0.2%)	kgCO ₂ /m ²	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	53.46	kWh/m ² /yr	
Dwelling Fabric Energy Efficiency (DFEE)	46.27	kWh/m ² /yr	
	-7.2 (-13.5%)	kWh/m ² /yr	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.20 (max. 0.30)	0.20 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.15 (max. 0.25)	0.15 (max. 0.70)	Pass
Roof	0.08 (max. 0.20)	0.18 (max. 0.35)	Pass
Openings	1.28 (max. 2.00)	1.30 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	5.00 (design value)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

zero3

Main heating system

Boiler system with radiators or underfloor - Mains gas
Data from manufacturer
2 1
Efficiency: 90%
Minimum: 88%

Pass

Secondary heating system

None

5 Cylinder insulation

Hot water storage

Nominal cylinder loss: 1.62 kWh/day
Permitted by DBSCG 2.10

Pass

Primary pipework insulated

Yes

Pass

6 Controls

Space heating controls

Time and temperature zone control

Pass

Hot water controls

Cylinderstat

Pass

Independent timer for DHW

Pass

Boiler interlock

Yes

Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings

100 %

Minimum

75 %

Pass

8 Mechanical ventilation

Not applicable

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))

Not significant

Pass

Based on:

Overshading

Average

Windows facing North East

3.38 m², No overhang

Windows facing South East

15.49 m², No overhang

Windows facing North West

12.61 m², No overhang

Air change rate

8.00 ach

Blinds/curtains

Dark-coloured curtain or roller blind, closed 100% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type

U-value

Filled Cavity with Edge Sealing

0.00

W/m²K

Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals

5.00 (design value)

Maximum

10.0

Pass

10 Key features

Party wall U-value

0.00

W/m²K

Roof U-value

0.08

W/m²K

Door U-value

1.00

W/m²K

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

zero3

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.