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Cornbrook

Manchester

Environmental Standards Statement including Energy Strategy

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QA

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Section 1 – Executive Summary

This Environmental Standards Statement and Energy Strategy addresses the planning requirements of Manchester City Council as set out in Manchester's Local Development Framework Core Strategy, in which the new development falls, adopted July 2012.

This Environmental Standards Statement and Energy Strategy has been prepared to illustrate the environmental aspects of the proposed development highlighting the Energy/Carbon emission profile, to assess the options available for reducing energy consumption and associated CO₂ emissions in accordance with Manchester City Council's policies and guidelines.

This statement will also demonstrate how the proposals have been brought forward in the context of a strong commitment to sustainability and will not only show achievement of policy compliance as per the Guide to Development in Manchester SPD, but also that sustainability objectives form an integral part of the Applicant's aspirations for this development.

A number of planning policies, both national and local that apply to the proposed development, have been reviewed together with the Building Regulations Approved document part L1A & L2A. The policies advise that a carbon emissions reduction of 15% greater than Part L of the Building Regulations (2010) shall be achieved.

The baseline energy emissions have been developed, producing a preliminary SAP calculation for the building. The fabric first approach has been prioritised with these passive measures being adopted across the building including vast improvements to the thermal performance and air tightness.

The improvements made beyond current Building Regulations Part L1a are identified in the adjacent table indicating a 28.6% improvement on U-values and a 62.5% improvement on air permeability.

Construction Element	Building Regulation Specification	Development Specification
Floor	0.18 W/m ² K	0.11 W/m ² K
External Wall	0.26 W/m ² K	0.15 W/m ² K
Roof	0.16 W/m ² K	0.11 W/m ² K
Window	1.6 W/m ² K	1.2 W/m ² K
Air Permeability	8 m ³ /h/m ²	3 m ³ /h/m ²

In addition to the fabric first passive design measures, active building services are to be designed to minimise direct energy consumption and CO₂ emissions, with particular emphasis on the following;

- Increased hot water generating efficiencies
- Reduced standing losses from pipes and cylinders
- Energy efficient LED lighting
- Improved lighting controls
- Low energy motors in pumps and fans
- Efficient heat recovery in relevant systems
- Enhanced heating controls – Wi-Fi enabled
- Combined natural and mechanical ventilation systems

The carbon emissions on this proposed development have been calculated to be compliant with the 15% reduction below Part L 2010 which is therefore in line with the local Manchester energy policy (Manchester Core Strategy).

The initial results indicate non-domestic areas of this development are compliant with the new 2021 Building Regulations Part L1, achieving a 14.2% reduction in target carbon emissions, which equates to a 32.4% reduction over Part L2 2010 and a 14.7% reduction in primary energy on day one.

Residential areas of this development also perform well and show potential for a reduction in emissions with 2021 Building Regulations Part L1, by achieving a reduction of 61.2%. This equates to a 72.1% reduction over PartL1A 2010 and is well in excess of the improvement as required by the planning policy documents.

This will improve over time as the UK electricity grid continues to decarbonise.

Section 2 – Introduction

Futureserv Ltd have been appointed by Artal to produce an Environmental Standards Statement including Energy Strategy to support the planning application for a proposed development Cornbrook, Manchester. Planning permission is sought for a Erection of a 24-storey mixed use building incorporating 224 residential apartments (Use Class C3), 87 apart-hotel studios (Use Class C1), amenity space, flexible commercial space (Use Class E), and café (Use Class E(b)), together with infrastructure, landscaping, and other associated works.

This Environmental Standards Statement and Energy Strategy addresses the planning requirements of Manchester Council as set out in Manchester's Local Development Framework Core Strategy, adopted July 2012.

The strategy proposed for this development is to utilise VRF heating and cooling in non- residential areas, 100% efficient electric panel heaters, electric cylinders with a number having an air source heat pump integral for hot water, combined with MVHR to meet Manchester City Council's desire for carbon reduction using Low or Zero Carbon Technology. The scheme will also benefit from a PV array to offset grid dependence.

The strategy is essentially based on the reduction of energy consumption by use of passive construction measures, fabric first approach alongside active energy efficient equipment in conjunction with renewable energy generation such as a Photovoltaic array.

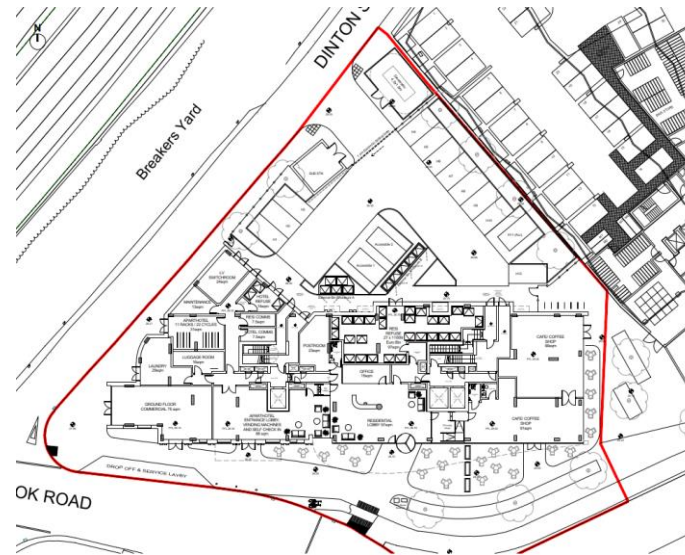


Figure 1 –Ground floor site plan

Section 3 – Development Proposals

Futureserv Ltd have been appointed by Artal to produce an Environmental Standards Statement including an Energy Strategy in support of a planning application for the construction of a high-quality new residential development at Cornbrook.

The development shall consist of a 24-storey mixed use building incorporating 224 residential apartments (Use Class C3), 87 apart-hotel studios (Use Class C1), amenity space, flexible commercial space (Use Class E), and café (Use Class E(b)), together with infrastructure, landscaping, and other associated works.



Figure 2 – Typical residential floor plan

This Environmental Standards Statement and Energy Strategy has been prepared to illustrate the environmental aspects of the proposed development highlighting the Energy/Carbon emission profile and to assess the options available for reducing energy consumption and associated CO₂ emissions, in accordance with Manchester City Council’s policies and guidelines.

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

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

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

Section 4 – 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 within Manchester City Centre. This means that Manchester's Local Development Framework Core Strategy Development Plan Document applies to this development.

In addition to Building Regulations compliance the performance of the buildings will be such as to provide additional carbon savings in line with Policy EN 4 & EN 6 of the Core Strategy.

Within these documents, specific policies highlight carbon emissions reductions and the impacts of climate change. These are as follows;

Manchester

Policy EN 4: Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development

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

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

Non-domestic CO₂ emissions reduction targets

Table 12.2

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 (Applies to commercial uses with a high proportion of emissions from electricity use (>45 kg CO ₂ /m ²))	+10% increase on Part L 2010
Target 3: Micro generation area	+15% increase on Part L 2010

The development must aim to meet the requirements of the Manchester core development strategy and follow the guidelines set above.

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

- to reduce the need for energy through design features;
- to reduce the need for energy through energy efficient features; and
- to meet residual energy requirements through the use of low or zero carbon energy generating technologies.

The project will aim to provide 15% of predicted energy needs from decentralised renewable energy sources.

New residential development are required to achieve **a minimum of 15% reduction in carbon emissions under Part L 2010** depending on the type and location of the scheme, unless this can be shown not to be viable

Building Standards

1. New development should be designed and constructed to meet the relevant Building Regulations, as a minimum, with a view to:
 - a) Maximising energy efficiency and the use of low carbon energy
2. In meeting the carbon reduction targets set out in Building Regulations, the Council will expect development to be designed in accordance with the following energy hierarchy:
 - a) Reduce energy demand through energy efficiency measures
 - b) Supply energy through efficient means (i.e. low carbon technologies)
 - c) Utilise renewable energy generation

To reduce a **building's carbon footprint**, it is important that a **simple energy hierarchy** is used.



Renewable Energy Generation

1. Proposals for the installation of renewable and low carbon energy technologies, including both building-integrated and standalone schemes will be promoted and encouraged, provided that:
 - a) any significant adverse impacts can be mitigated;
 - b) where biofuels are to be utilised, they should be obtained from sustainable sources and transportation distances are minimised;
 - c) any energy centre is suitably located and designed to a high quality such that it is sympathetically integrated with its surroundings; and
 - d) all proposals are consistent with any relevant Policies in this Plan.

Renewable energy can be supplied at a national level from sources such as large offshore wind farms, solar farms or hydroelectric schemes. Although not a source of renewable energy, nuclear power is a major low carbon source. Locally, smaller and on-site renewable energy schemes include solar photovoltaic, solar thermal, ground source and air source heat pumps and, where fuelled by biomass or biogas, district energy schemes and combined heat and power plants (CHP). Due to the lack of large areas of open space within the city, on-site and neighbourhood-scale renewable energy schemes are the most effective way for Manchester to contribute to renewable energy targets set out by the Government.

Although wind turbines are a good example of a renewable energy source, around 90% of Manchester is unsuitable for wind turbines due to the density of development.

The indications from the evidence base identify there will be a greater need to encourage and support a wider spectrum of renewable energy technologies to help deliver the energy supply that would be placed on the grid as a result of the levels of growth planned for the city. Therefore, as part of the strategic sites detailed in this Plan, any proposed development schemes will be expected to consider and incorporate, where viable, renewable energy generation technologies as part of the overall suite of energy supply.

Building Regulations Part L (2021) Compliance

The proposed development is being designed to comply with the Building regulations approved document Part L1A & L2A, 2021 edition. These approved documents took effect from 15th June 2022.

The scheme will comply with the criteria of Building Regulations (2021) Part L1A for residential and Part L2A (2021) for the non - residential units.

The main changes in these approved documents from the previous revisions are that;

- The notional building used to determine carbon dioxide targets is the same size and shape as the actual building, constructed to a concurrent specification. The Part L2a 2021 specifications have been strengthened to deliver **27%** carbon dioxide savings across the new non-domestic building mix relative to part L 2010. The Part L1a 2021 specifications have been strengthened to deliver **39%** carbon dioxide savings across the new domestic buildings relative to part L 2010.

The improvements to Part L demonstrate the already significant improvement. Our baseline assessment will be to meet these targets, as a result the initial assessment will be a vast improvement on the regulations that Manchester's core plan aims for.

The goal will be to further improve upon current regulations.



Section 5 – Energy Strategy

5.1 - Baseline Energy Assessment

Futureserv Ltd have conducted analysis for this stage of the development on the current design of the building, to show compliance with the Building Regulations Part L1A & L2A:2021, therefore setting a reference baseline. This was carried out in order to understand the development's Carbon emissions without any Carbon Emission mitigation measures.

This baseline energy assessment has been developed, producing a preliminary Simplified Building Energy Model (SBEM) calculation & SAP calculations (Standard Assessment Procedure) for the building. The baseline models have been created to provide Target Emission rates (TER). The calculations then in turn produce Building Emission rates (BER) & Dwelling Emission rates (DER) which are equal to or lower than that of the TER.

SBEM & SAP are the standard assessment methods for the carbon emission levels of a building. This considers the fabric properties of the building, the method of heating/cooling/ventilating/hot water etc and produces an estimate of carbon emissions.

If the building does not pass the Part L criteria, then it is an iterative process to add renewable/low carbon technologies, to lower the overall carbon emissions.

5.2 - 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.

Passive fabric measures across all 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.

5.2.1 – Fabric First Approach

A 'fabric first' approach to building design involves maximising the performance of the components and materials that make up the building fabric itself, before considering the use of mechanical or electrical building services systems. This can help reduce capital and operational costs, improve energy efficiency and reduce carbon emissions. A fabric first method can also reduce the need for maintenance during the building's life.

Buildings designed and constructed using the fabric first approach aim to minimise the need for energy consumption through methods such as:

- Maximising air-tightness.
- Using Super-high resistance insulation.
- Optimising solar gain through the provision of openings and shading.
- Optimising natural ventilation.

Focussing on the building fabric first, is generally considered to be more sustainable than relying on energy saving technology, or renewable energy generation, which can be expensive, can have a high embodied energy and may or may not be used efficiently by the consumer.

Having energy efficiency integrated into the building envelope can mean occupants are required to do less to operate their building and not have

to adjust their habits or learn about new technologies. This can result in less reliance on the end user regarding the buildings energy efficiency.

Fabric first building systems can be constructed off site, resulting in higher quality and so better performance, reduced labour costs and an increased speed of build.

5.2.2 - Fabric Values

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

An airtightness of 3 m³/hr/m² @50Pa is targeted for this development in order to minimise uncontrolled ventilation. An improved air tightness reduces heat losses and energy demand of the development.

Construction Element	Building Regulation Specification	Development Specification	Improvement over Part L1a Building Regulations
Floor	0.25 W/m ² K	0.11 W/m ² K	56% improved
External Wall	0.30 W/m ² K	0.15 W/m ² K	50% improved
Roof	0.20 W/m ² K	0.11 W/m ² K	45% improved
Window	2.0 W/m ² K	1.2 W/m ² K	40% improved
Air	10 m ³ /h/m ²	3 m ³ /h/m ²	70% improved

These values comply with the requirements of Part L and also provides a significant improvement.

5.3 - Energy Efficiency Improvements

In addition to the Passive design measures described in the preceding Section 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;

- Increased hot water generating efficiencies
- Reduced standing losses from pipes and cylinders
- Energy efficient LED lighting
- Improved lighting controls
- Low energy motors in pumps and fans
- Efficient heat recovery in relevant systems
- Enhanced heating controls with Wi-Fi enabled

All internal lighting installations will make use of low energy technologies combined with presence and absence detection in conjunction with timed setbacks. 100% low energy lighting provision will be included within the development. Photo switching and automatic dimming will be specified to the communal areas of the building in order to improve the efficiency of the lighting system.

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

Apartments –

Apartments are suggested to have pressurised hot water cylinders with integral heat pumps to meet demand.

The space heating will be via electric panel heaters or similar in all residential areas of the building. These will be complete with thermostatic and time controllers. These units will also have enhanced central Wi-Fi enabled controls.

The ventilation will be via whole dwelling Mechanical Heat Recovery Ventilation (MVHR) units in each apartment. These will provide extract ventilation to kitchens and bathrooms, and balanced supply ventilation to all occupied rooms. Purge ventilation will be via openable windows, giving the occupants the final control over the environment in their homes.

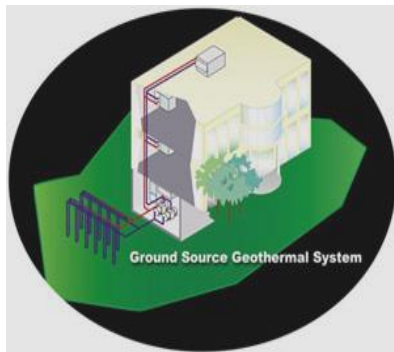
Construction Element	Specification
Ventilation	Natural Ventilation supplemented with MVHR
Lighting	100% low energy fittings
Space Heating	Electric Panel Heaters
Heating Control	Thermostatic and time controlled with Wi-Fi enabled
Water Heating	Electric cylinders with some air source heat pumps

5.4 - Renewable Energy Improvements

In order to comply with Manchester's Local Plan, which aims to utilise renewable or low carbon technologies, there are a number of options to consider. All currently acknowledged and commercially available technologies have been considered and assessed with the conclusions summarised below.

Ground Source Heat Pumps

The ground below buildings remains at a constant temperature of around 10°C to 12°C offering the ability to extract energy in the winter and discharge energy in the summer from cooling with the energy exchange being achieved via open or closed loop systems linked to heat pumps.



Ground Source Heat Pump Installation

The inclusion of Ground Source Heat Pumps is not applicable for the site selected and has been discounted for this development.

Air Source Heat Pumps

Air source heat pumps provide an accepted solution for using renewable energy taken from ambient air to heat a building in the winter and discharge heat from cooling in the summer.



Typical External Condenser Unit

The use of air source heat pumps in order to provide heating to the development would be a feasible solution.

The main ground floor communal area of the development, refrigerant based air source heat pumps will be utilised in the form of a VRF system to heat and cool the areas, due to the higher concentration of occupancy.

The apartments will use pressurised water cylinders with integral heat pumps.

Solar Photovoltaic Panels

The option to utilise roof mounted or Building Integrated Photovoltaic panels to generate electrical energy is a renewable energy method of generating Carbon free electrical power.

Due to the density in occupancy within the development, there is likely to be a fairly constant base electrical load prevalent on the building which may be mitigated in part by the use of Solar PV.

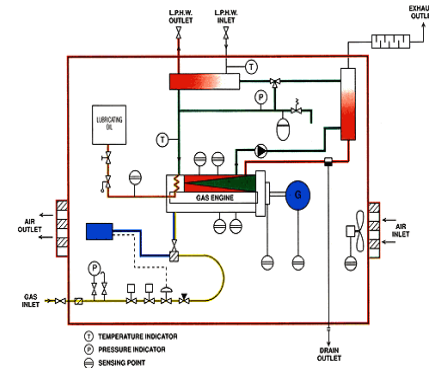


PV System components

The system would help reduce carbon emissions from grid electricity and feed into the grid in low demand periods contributing to the decarbonisation of the grid through grid export capability. This technology has been selected as an option and is being considered.

Combined Heat and Power (CHP)

On-site generation of electricity and the utilisation of waste heat from this process within a building can create a beneficial arrangement whereby the transmission losses of grid supplied electricity can be omitted. The use of CHP tends to require a steady and continuous heat demand therefore the large quantities of domestic hot water associated with residential studio accommodation would satisfy this requirement.



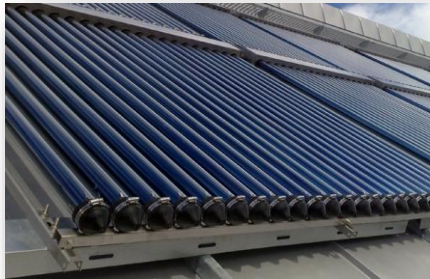
Diagrammatic layout of CHP unit

However, the integration of Combined Heat and Power technology has been discounted due to the city centre location and clean air act implications with the flue discharge alongside the movement to utilise decarbonised grid electricity over traditional fossil fuel heating systems.

Solar Thermal Collectors

The use of flat plate & evacuated tube thermal panels has been identified as a potential method of harnessing renewable solar energy by pre-heating domestic hot water provision.

The introduction of the renewable Heat Incentive may further improve the financial viability for the technology.



Example of Solar Thermal unit

However, there is a conflict between the use of local independent water heaters within each apartment and a central solar thermal collector array. Interconnecting solar thermal panels with remote apartment cylinders is not conducive or efficient due to extended distribution losses. Furthermore, the restricted flat roof areas available negate the inclusion of a panel system offering any significant contributions. Therefore, without being able to offer a good contribution of renewable energy alongside the logistic and strategy issues, the installation of solar thermal panels has been discounted for the development.

Wind Turbines

Wind energy can be a cost-effective method of renewable power generation and turbines can produce Carbon neutral electricity with outputs ranging from watts to megawatts.

The most common design is for three blades mounted on a horizontal axis, which is free to rotate into the wind on a tall tower. The blades drive a generator either directly or via a gearbox (generally for larger machines) to produce electricity.

The electricity can either link to the grid or charge batteries. An inverter is required to convert the electricity from direct current (DC) to alternating current (AC) for feeding into the grid.

There are a variety of wind turbines on the market ranging from smaller turbines that can be attached directly to a buildings structure to larger stand-alone turbines. City centre and sub-urban locations generally experience poorer yields for electricity output from small and medium scale wind turbines, due to obstructions and variations in local topography.



Wind Turbine Installation

Also considering the visual impact and unwanted noise in an environment with sleeping accommodation the use of wind turbines is discounted from inclusion at this development.

Biomass

Some success on other projects has been made with the implementation of wood fuelled energy equipment forming a Carbon Neutral heat source however these projects have tended to be light density Sub-Urban or even rural in their location. The relatively constrained nature of this site, together with limited storage space and potential delivery issues, due to the city centre location, reduces the opportunity to take advantage of a Biomass solution for this development.

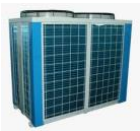
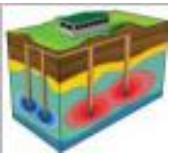


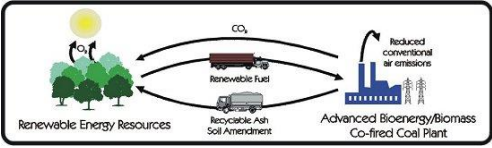
Plantroom Biomass Installation

In addition, flue emissions and the requirements the Clean Air Act has led to a dismissal of this technology for this particular scheme.

Summary of Systems

The following table provides an overview of the systems and their suitability for this project:

Proposed Technology	Image	Comments
Air Source Heat Pumps SELECTED		<p>Refrigerant Air Source Heat Pumps will be utilised for the main ground floor commercial areas and amenity areas of the development, where cooling as well as heating will be required due to the higher occupancy concentration.</p> <p>Hot water for apartments will utilise heat pumps to meet demand, each apartment will have a pressurised hot water cylinder with integral heat pumps.</p>
Solar Photovoltaic SELECTED		<p>The flat roof areas of the building which could be used to accommodate such a system. Therefore, being able to offer a good contribution of renewable energy the installation of photovoltaics has been considered for the development. This will help to offset emissions from grid electricity.</p>
Ground Source Heat Pump DISCOUNTED		<p>The inclusion of Ground Source Heat Pumps is not an option for the site selected and has been discounted for this development.</p>
Solar Thermal DISCOUNTED		<p>There is a conflict between the use of local independent water heaters within each apartment and a central solar thermal collector array. Interconnecting solar thermal panels with remote apartment cylinders is not conducive or efficient due to extended distribution losses. Furthermore, the view is taken that the roof space would better be utilised to offset electricity emissions through the use of a photovoltaic system.</p>

<p>Biomass Boilers DISCOUNTED</p>		<p>Biomass boiler solutions have been discounted at this location due to potential clean air issues, deliverability logistics and the lack of available storage space for the required quantity of fuel.</p>
<p>Wind Turbines DISCOUNTED</p>		<p>Wind turbines have been discounted due to the resulting visual/noise impact from the equipment, and relatively poor performance of the solution when used within Urban and Sub-Urban locations.</p>
<p>Combined Heat and Power DISCOUNTED</p>		<p>The integration of Combined Heat and Power technology has been discounted due to the city centre location and clean air act implications with the flue discharge alongside the movement to utilise decarbonised grid electricity over traditional fossil fuel heating systems.</p>

5.5 - Energy Generation and Distribution Systems

As a consultant, Futureserv has an over-arching philosophy delivering design of a truly sustainable nature, employing widely recognised methods.

- Be Lean – **Fabric First Approach** - Reduce demand wherever possible utilising passive measures.
- Be Clean - Where energy is used, then it should be optimised to operate at the highest efficiencies practical.
- Be Green - Take advantage of renewable options to reduce fossil fuel energy sources.

The proposed development will be designed to be served by electric heating throughout the apartments, utilising the ever-increasing clean electricity provided from the UK grid and the electricity produced from the PV array.

All plant and equipment would be equipped with energy control measures incorporating variable speed drives, with low energy motors provided on ventilation fans and hydraulic pumps.

The development will equip all sanitary appliances with low water flow devices.

5.6 – Carbon & Energy Performance Calculations

To demonstrate the environmental benefits associated with the energy hierarchy, approved SAP software has been used to generate the proposed carbon reductions for the development.

The table below indicates the carbon emissions for the development following the Be Lean, Be Clean, Be Green design approach in the form of Target Emission Rates and Building Emission Rates (Kg CO₂/m²/annum).

Residential Average Target Emissions Rate	12.53 kg/CO₂/m²
Average Dwelling Emission Rate	4.86 kg/CO₂/m²
Carbon Reduction from Target Emission Rates Part L 2021	61.2% reduction = 72.1% reduction over Part L 2010 emissions

Therefore, the CO₂ reduction due to utilising the energy hierarchy on this development has been calculated to be **61.2%** over Part L 2021 and in line with Manchester's City Council Local Plan Document.

The Part L 2021 specifications have been strengthened to deliver 39 per cent carbon dioxide savings relative to part L 2010 therefore the development emissions rate is a **72.1% improvement** on the Part L 2010.

5.6.1 TM59 / PART O REGULATIONS

In addition to the carbon calculations completed under the current Building Regulations, an overheating assessment has been undertaken.

The assessment indicates that if the windows can be opened during the day (7am to 11pm) then overheating may be controlled by means of MVHR and enhanced ventilation rates for the majority of the development.

To achieve this the openings must meet the requirements of Part F and Part O of the building regulations, in relation to the purge ventilation.

The façade glazing will require a g value of 0.4 on South and East elevations, and 0.6 on North and West elevations.

Section 6 – Conclusions

This Environmental Standards Statement and Energy Strategy has summarised the energy hierarchy requirements for Cornbrook, Manchester to respond to emission reduction aspirations set out within the Manchester's Core Strategy Plan, in particular policies EN 4, EN 6, to implement the use of low carbon and/or renewable technologies.

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

The proposed development will incorporate energy efficiency measures in its Building Services to reduce the carbon footprint of the site below the passive improvement stage, using highly efficient heat generation plant, heat recovery systems and energy efficient and highly controllable lighting.

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

Net-zero energy is an ambitious goal for any building, however like the related goal of creating a carbon-neutral building, any net-zero carbon building must first achieve significant load reductions and system efficiencies. This is the "lean", "clean", "green" approach as mentioned earlier in the document. The measures adopted by this development do follow this principle. The regulated energy sources are targeted for reduction by means of both passive and active measures in terms of highly improved u-values, reduced air tightness, and energy efficiency MEP systems.

Overall, the Carbon emissions from the proposed development indicate compliance with the 2021 Building Regulations Part L2 by achieving a 14.2% reduction in target carbon emissions, and a 14.7% reduction in primary energy on day one in non- domestic areas.

It has also demonstrated potential for a total reduction in emissions from baseline set by current Building Regulations Part L1 2021, by 61.2% in the residential areas.

This equates to an 72.1% increase over Part L1a 2010 and is well in excess of the improvement as required by the planning policy documents.

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 proposed development.

SAP calculations:

Block Compliance



Block Reference	Combrook No PV window U-1.3	Issued on Date	15/12/2023
Block Name			
Calculation Type	New Build (As Designed)		
Assessor Details	Mr. John Livingstone	Assessor ID	C092-0001
Client			

Block Compliance Report - DER				
Block Reference: Combrook No PV window U-1.3	Block Name:			
Property-Assessment Reference	Floor area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)	% DER/TER
06_APT 01_2B4P_Copy - 06_APT 01_2B4P_Copy_Copy	72.00	4.08	13.45	69.67 %
06_APT 02_2B3P_Copy - 06_APT 02_2B3P_Copy_Copy	61.00	3.14	11.49	72.67 %
06_APT 03_2B3P_Copy - 06_APT 03_2B3P_Copy_Copy	62.00	3.20	11.34	71.78 %
06_APT 04_2B3P_Copy - 06_APT 04_2B3P_Copy_Copy	62.00	3.09	11.27	72.58 %
06_APT 05_2B3P_Copy - 06_APT 05_2B3P_Copy_Copy	61.00	3.20	11.57	72.34 %
06_APT 06_2B3P_Copy - 06_APT 06_2B3P_Copy_Copy	62.00	4.41	13.48	67.28 %
06_APT 07_2B3P_Copy - 06_APT 07_2B3P_Copy_Copy	64.00	4.05	13.06	68.99 %
06_APT 08_2B4P_Copy - 06_APT 07_2B3P_Copy_Copy	70.00	3.22	11.84	72.80 %
06_APT 09_1B1P_Copy - 06_APT 09_1B1P_Copy_Copy	44.00	8.82	14.85	40.61 %
06_APT 10_1B1P_Copy - 06_APT 10_1B1P_Copy_Copy	43.00	8.73	14.61	40.25 %
06_APT 11_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	41.00	8.99	14.93	39.79 %
06_APT 12_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	40.00	9.27	15.63	40.69 %
06_APT 13_2B3P_Copy - 06_APT 13_2B3P_Copy_Copy	62.00	3.56	12.99	72.59 %
13_APT 01_2B4P_Copy - 06_APT 01_2B4P_Copy_Copy	72.00	4.08	13.45	69.67 %
13_APT 02_2B3P_Copy - 06_APT 02_2B3P_Copy_Copy	61.00	3.14	11.49	72.67 %
13_APT 03_2B3P_Copy - 06_APT 03_2B3P_Copy_Copy	62.00	3.28	11.34	71.08 %
13_APT 04_2B3P_Copy - 06_APT 04_2B3P_Copy_Copy	62.00	3.09	11.27	72.58 %
13_APT 05_2B3P_Copy - 06_APT 05_2B3P_Copy_Copy	61.00	3.20	11.57	72.34 %
13_APT 06_2B3P_Copy - 06_APT 06_2B3P_Copy_Copy	62.00	4.41	13.48	67.28 %
13_APT 07_2B3P_Copy - 06_APT 07_2B3P_Copy_Copy	64.00	4.05	13.06	68.99 %
13_APT 08_2B4P_Copy - 06_APT 07_2B3P_Copy_Copy	70.00	3.27	11.84	72.38 %
13_APT 09_1B1P_Copy - 06_APT 09_1B1P_Copy_Copy	44.00	8.85	14.85	40.40 %

Block Compliance				
				
13_APT 10_1B1P_Copy - 06_APT 10_1B1P_Copy_Copy	43.00	8.73	14.61	40.25 %
13_APT 11_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	41.00	8.99	14.93	39.79 %
13_APT 12_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	40.00	9.27	15.63	40.69 %
13_APT 13_2B3P_Copy - 06_APT 13_2B3P_Copy_Copy	62.00	3.56	12.99	72.59 %
22_APT 01_3B6P_Copy - 22_APT 01_3B6P_Copy_Copy	109.00	4.78	13.22	63.84 %
22_APT 02_3B6P_Copy - 22_APT 02_3B6P_Copy_Copy	112.00	4.17	11.10	62.43 %
22_APT 03_2B4P_Copy - 22_APT 03_2B4P_Copy_Copy	109.00	3.61	10.29	64.92 %
22_APT 04_2B4P_Copy - 22_APT 04_2B4P_Copy_Copy	107.00	4.19	12.09	65.34 %
22_Penthouse_4B8P_Copy - 22_Penthouse_4B8P_Copy	290.00	6.31	11.90	46.97 %
Totals:	2215.00	158.74	399.62	
Average DER = 4.86 kgCO ₂ /m ²	% DER/TER	PASS		
Average TER = 12.53 kgCO ₂ /m ²	61.18 %			

Block Compliance Report - DFEE				
Block Reference: Combrook No PV window U-1.3		Block Name:		
Property-Assessment Reference	Floor area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)	% DFEE/TFEE
06_APT 01_2B4P_Copy - 06_APT 01_2B4P_Copy_Copy	72.00	28.10	29.20	3.77 %
06_APT 02_2B3P_Copy - 06_APT 02_2B3P_Copy_Copy	61.00	17.02	16.48	-3.28 %
06_APT 03_2B3P_Copy - 06_APT 03_2B3P_Copy_Copy	62.00	18.02	16.38	-10.05 %
06_APT 04_2B3P_Copy - 06_APT 04_2B3P_Copy_Copy	62.00	16.61	15.77	-5.35 %
06_APT 05_2B3P_Copy - 06_APT 05_2B3P_Copy_Copy	61.00	17.66	16.89	-4.58 %
06_APT 06_2B3P_Copy - 06_APT 06_2B3P_Copy_Copy	62.00	28.82	28.38	-1.54 %
06_APT 07_2B3P_Copy - 06_APT 07_2B3P_Copy_Copy	64.00	26.59	26.37	-0.84 %
06_APT 08_2B4P_Copy - 06_APT 07_2B3P_Copy_Copy	70.00	20.54	21.68	5.29 %
06_APT 09_1B1P_Copy - 06_APT 09_1B1P_Copy_Copy	44.00	23.13	24.01	3.64 %
06_APT 10_1B1P_Copy - 06_APT 10_1B1P_Copy_Copy	43.00	20.32	21.74	6.56 %
06_APT 11_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	41.00	19.21	21.08	8.90 %
06_APT 12_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	40.00	22.46	24.17	7.09 %

Block Compliance



06_APT 13_2B3P_Copy - 06_APT 13_2B3P_Copy_Copy	62.00	21.86	24.19	9.65 %
13_APT 01_2B4P_Copy - 06_APT 01_2B4P_Copy_Copy	72.00	28.10	29.20	3.77 %
13_APT 02_2B3P_Copy - 06_APT 02_2B3P_Copy_Copy	61.00	17.02	16.48	-3.28 %
13_APT 03_2B3P_Copy - 06_APT 03_2B3P_Copy_Copy	62.00	19.29	16.38	-17.79 %
13_APT 04_2B3P_Copy - 06_APT 04_2B3P_Copy_Copy	62.00	16.61	15.77	-5.35 %
13_APT 05_2B3P_Copy - 06_APT 05_2B3P_Copy_Copy	61.00	17.66	16.89	-4.58 %
13_APT 06_2B3P_Copy - 06_APT 06_2B3P_Copy_Copy	62.00	28.82	28.38	-1.54 %
13_APT 07_2B3P_Copy - 06_APT 07_2B3P_Copy_Copy	64.00	26.59	26.37	-0.84 %
13_APT 08_2B4P_Copy - 06_APT 07_2B3P_Copy_Copy	70.00	21.13	21.68	2.56 %
13_APT 09_1B1P_Copy - 06_APT 09_1B1P_Copy_Copy	44.00	23.52	24.01	2.02 %
13_APT 10_1B1P_Copy - 06_APT 10_1B1P_Copy_Copy	43.00	20.32	21.74	6.56 %
13_APT 11_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	41.00	19.21	21.08	8.90 %
13_APT 12_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	40.00	22.46	24.17	7.09 %
13_APT 13_2B3P_Copy - 06_APT 13_2B3P_Copy_Copy	62.00	21.86	24.19	9.65 %
22_APT 01_3B6P_Copy - 22_APT 01_3B6P_Copy_Copy	109.00	36.05	38.17	5.57 %
22_APT 02_3B6P_Copy - 22_APT 02_3B6P_Copy_Copy	112.00	31.29	29.34	-6.64 %
22_APT 03_2B4P_Copy - 22_APT 03_2B4P_Copy_Copy	109.00	27.19	25.76	-5.56 %
22_APT 04_2B4P_Copy - 22_APT 04_2B4P_Copy_Copy	107.00	31.99	33.23	3.72 %
22_Penthouse_4B8P_Copy - 22_Penthouse_4B8P_Copy	290.00	46.70	46.74	0.08 %
Totals:	2215.00	736.16	745.95	
Average DFEE = 26.99 kgCO ₂ /m ²	% DFEE/TFEE	PASS		
Average TFEE = 27.18 kgCO ₂ /m ²	0.68 %			

Block Compliance Report - DPER				
Block Reference: Cornbrook No PV window U-1.3		Block Name:		
Property-Assessment Reference	Floor area (m ²)	DPER (kWh/m ² /yr)	TPER (kWh/m ² /yr)	% DPER/TPER
06_APT 01_2B4P_Copy - 06_APT 01_2B4P_Copy_Copy	72.00	42.78	74.07	42.24 %
06_APT 02_2B3P_Copy - 06_APT 02_2B3P_Copy_Copy	61.00	33.56	63.76	47.37 %

Block Compliance



06_APT 03_2B3P_Copy - 06_APT 03_2B3P_Copy_Copy	62.00	34.09	62.89	45.79 %
06_APT 04_2B3P_Copy - 06_APT 04_2B3P_Copy_Copy	62.00	33.03	62.54	47.19 %
06_APT 05_2B3P_Copy - 06_APT 05_2B3P_Copy_Copy	61.00	34.09	64.19	46.89 %
06_APT 06_2B3P_Copy - 06_APT 06_2B3P_Copy_Copy	62.00	46.21	74.26	37.77 %
06_APT 07_2B3P_Copy - 06_APT 07_2B3P_Copy_Copy	64.00	42.63	72.00	40.79 %
06_APT 08_2B4P_Copy - 06_APT 07_2B3P_Copy_Copy	70.00	34.24	65.50	47.73 %
06_APT 09_1B1P_Copy - 06_APT 09_1B1P_Copy_Copy	44.00	94.60	82.21	-15.07 %
06_APT 10_1B1P_Copy - 06_APT 10_1B1P_Copy_Copy	43.00	93.79	81.02	-15.76 %
06_APT 11_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	41.00	96.64	82.99	-16.45 %
06_APT 12_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	40.00	99.46	86.64	-14.80 %
06_APT 13_2B3P_Copy - 06_APT 13_2B3P_Copy_Copy	62.00	37.78	71.94	47.48 %
13_APT 01_2B4P_Copy - 06_APT 01_2B4P_Copy_Copy	72.00	42.78	74.07	42.24 %
13_APT 02_2B3P_Copy - 06_APT 02_2B3P_Copy_Copy	61.00	33.56	63.76	47.37 %
13_APT 03_2B3P_Copy - 06_APT 03_2B3P_Copy_Copy	62.00	34.93	62.89	44.46 %
13_APT 04_2B3P_Copy - 06_APT 04_2B3P_Copy_Copy	62.00	33.03	62.54	47.19 %
13_APT 05_2B3P_Copy - 06_APT 05_2B3P_Copy_Copy	61.00	34.09	64.19	46.89 %
13_APT 06_2B3P_Copy - 06_APT 06_2B3P_Copy_Copy	62.00	46.21	74.26	37.77 %
13_APT 07_2B3P_Copy - 06_APT 07_2B3P_Copy_Copy	64.00	42.63	72.00	40.79 %
13_APT 08_2B4P_Copy - 06_APT 07_2B3P_Copy_Copy	70.00	34.73	65.50	46.98 %
13_APT 09_1B1P_Copy - 06_APT 09_1B1P_Copy_Copy	44.00	94.88	82.21	-15.41 %
13_APT 10_1B1P_Copy - 06_APT 10_1B1P_Copy_Copy	43.00	93.79	81.02	-15.76 %
13_APT 11_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	41.00	96.64	82.99	-16.45 %
13_APT 12_1B1P_Copy - 06_APT 11_1B1P_Copy_Copy	40.00	99.46	86.64	-14.80 %
13_APT 13_2B3P_Copy - 06_APT 13_2B3P_Copy_Copy	62.00	37.78	71.94	47.48 %
22_APT 01_3B6P_Copy - 22_APT 01_3B6P_Copy_Copy	109.00	49.52	72.22	31.43 %
22_APT 02_3B6P_Copy - 22_APT 02_3B6P_Copy_Copy	112.00	43.32	60.74	28.68 %
22_APT 03_2B4P_Copy - 22_APT 03_2B4P_Copy_Copy	109.00	37.62	56.44	33.35 %
22_APT 04_2B4P_Copy - 22_APT 04_2B4P_Copy_Copy	107.00	43.50	66.13	34.22 %

Block Compliance



22_Penthouse_4B8P_Copy - 22_Penthouse_4B8P_Copy	290.00	64.71	64.23	-0.75 %
Totals:	2215.00	1686.08	2207.78	
Average DPER = 51.26 kgCO ₂ /m ²	% DPER/TPER	PASS		
Average TPER = 68.99 kgCO ₂ /m ²	25.70 %			

Section 7 – Sustainability Headlines

The headline sustainability features of the Proposals are summarised in the table below:

Theme	Headline
Environmental Design	<ul style="list-style-type: none">▪ The Development, located on a city-centre site currently vacant, will be on 100% of previously developed land, there avoiding the use of virgin land.▪ The Site is located within the Cornbrook part of Manchester City Centre in close proximity to places of work, shops, bars and amenities. The site is also well served by the Metrolink network and local buses therefore the development benefits from non-car travel.▪ Wind microclimate, daylight and sunlight amenity have been assessed to inform the design and support the comfort and wellbeing of building end users.▪ Ground and first floor level provide amenity space for end users.
Energy	<ul style="list-style-type: none">▪ An Energy Strategy has been devised in line with the Core Strategy approach to good energy design and has set out the route to going beyond compliance with Building Regulations and providing a total CO₂ reduction across the development to provide well in excess of 15% reduction to 2010 regulations.▪ Reduction of carbon emissions will be achieved through design features such as improved fabric performance, highly efficient heat generation plant, heat recovery systems, energy efficient lighting, and Air Source Heat pumps.
Water Management	<ul style="list-style-type: none">▪ The Site is located in a low flood risk area (Zone 1).▪ New drainage will collect surface water runoff, and attenuation of storm water runoff will be provided. Silt will be prevented from entering the drainage system by the use of trapped gullies, channels with silt traps, and also by the use of sustainable urban drainage systems (SuDS). Highly efficient water saving fixtures, fittings and appliances will be used throughout the proposed development, to reduce water consumption.
Waste Management	<ul style="list-style-type: none">▪ A central refuse store with segregated recycling and waste bins will be provided to encourage and enable recycling of waste during use.
Biodiversity	<ul style="list-style-type: none">▪ Ecology surveys have been undertaken to ensure no adverse impact on biodiversity will be caused.



Sustainability Themes

Environmental Design

GtoDinM: Policy 4.7 & CS:
Policy DM1

CS: Policy EN16

CS: Policy EN16

GtoDinM: Policy 2.40 & CS:
Policy EN2

GtoDinM: Policy 4.7 & CS:
Policy DM1

CS: Policy C10 & DM1

- The Development is located on the city centre fringe currently used as light industrial on 100% of previously developed land, therefore avoiding the use of virgin land. The building footprint responds the road with defined edges, and provides a stepped line of frontage to Cornbrook, retaining views to the listed and noteworthy buildings. The scheme provides access to a shared private amenity at Ground and Level 1, providing a space of retreat for the residents.
- Cyclist facilities will be incorporated in the proposed development to encourage building users to use more sustainable forms of transport, which will contribute to MCC's aspiration to improve air quality in the City. Cycle parking will be provided within a secure store located on the ground floor of the building.
- An Interim Travel Plan has been prepared, which sets out the principal strategies that will be put in place once the development is open and residents are occupying the dwellings, to encourage sustainable travel to the development. The site is located within the cycle hire scheme zone, serviced by public buses and close to Deansgate station which not only connect to local and regional services but also national destinations. Pedestrian connectivity in the area is also excellent with good standard footways and safe pedestrian linkages, with controlled crossing points to the existing pedestrian infrastructure within Manchester city centre. While the site is car free there may be occasions when residents require the use of a car. The city centre sustainable transport strategy provides for these instances with a network of car club vehicles serving the city.
- The Applicant has appointed wind microclimate consultants to assess the potential impact of the proposed development on pedestrian comfort and safety from wind conditions in and around the site. The study, will consider the wind conditions in and around the Site in the context of the intended use. Where necessary, mitigation measures will be identified and will be incorporated into the design.
- A daylight/sunlight assessment has been carried out to assess the potential impact of the proposed development on neighbouring properties and within the development.
- The project is to designed in accordance with a Noise Assessment Report produced by Jameson Acoustics, which is based upon Manchester City Council: Planning & Noise Technical Guidance (October 2022), World Health Organisation (WHO) 'Guidelines for Community Noise', BS 8233: 2014 'Guidance on sound insulation and noise reduction for buildings' and BS 4142:2014+A1:2019' Methods for Rating and Assessing Industrial and Commercial Sound'.

Energy

GtoDinM: Policy 4.5 & 4.6
& CS: Policy EN4 & EN6 & EN8

GtoDinM: Policy 4.5 & 4.6
& CS: Policy EN4 & EN6 & EN8

GtoDinM: Policy 4.5 & 4.6
& CS: Policy EN4 & EN6 & EN8

GtoDinM: Policy 4.5 & 4.6 &
CS: Policy EN4 & EN6 & EN8

GtoDinM: Policy 4.5 & 4.6
& CS: Policy EN4 & EN6 & EN8

CS: Policy EN6

CS: Policy EN6

- The Energy Statement prepared by Futureserv (accompanying this Application) describes how the Proposed Development will follow the energy hierarchy approach supported in the Core Strategy to improve on the fundamental principles of the Building Regulations Part L, and make a significant contribution to reducing the annual CO₂ emissions of the development.
- The Proposals incorporate passive design measures to reduce the ongoing requirement to consume energy to heat, ventilate and light the building. This will be achieved through improved energy efficient fabric design in excess of the thermal properties set out within the Building Regulations.
- Energy efficient building services will be designed to further reduce the carbon footprint of the site, beyond the passive measures, using:
 - Increased Hot Water Generating Efficiencies.
 - Reduced Standing Losses from Pipes and Cylinders.
 - Energy Efficient LED Lighting.
 - Improved Lighting Controls.
 - Low Energy Motors in Pumps and Fans.
 - Efficient Heat Recovery in relevant systems and.
 - Enhanced heating controls – Wi-Fi enabled.
 - Combined natural and mechanical ventilation systems.
- The development will make use of low carbon energy in the form air source heat pumps.
- The average anticipated carbon emissions per apartments is 4.86 kgCO₂/m² annum. This is an average reduction per apartment of 7.67 kgCO₂/m² annum from the 2021 regulations baseline average target emissions per apartment of 12.53 kgCO₂/m² annum.
- The CO₂ reduction resulting from the above measures has been calculated to be over 40% beyond current Building Regulations Part L 2021 and therefore far in excess of the and 15% lower the 2010 regulations which is the energy requirements set out in the Manchester City Council Core Strategy
- As detailed within the Core Strategy Policy EN6 the average anticipated energy demand per apartment at this stage has also been calculated to be 51.26 (kWh/m²/year).

GtoDinM: Policy 4.9 & CS:
Policy EN8, EN14 & EN17

GtoDinM: Policy 4.9 & CS:
Policy EN14

GtoDinM: Policy 4.9 & CS:
Policy EN8, EN14 & EN17

GtoDinM: Policy 4.9 & CS:
Policy EN8, EN14 & EN17

GtoDinM: Policy 4.9 & CS:
Policy EN8, EN14 & EN17

GtoDinM: Policy 4.9 & CS:
Policy EN17

Water Management

- A Flood risk assessment to review and describe the risks of flooding is not required as the site is situated within Flood Zone 1. The drainage Strategy (accompanying this Application) describes the proposed drainage strategy to manage run-off from the Proposed Development.
- The Site falls entirely in the 1 in 1000 (0.1%) annual probability floodplain Flood Zone 1. The Site is therefore located in an area which is identified as being at low risk of flooding. Furthermore as the development is to consist of commercial units at ground floor with residential units above the development is considered 'Less Vulnerable' in accordance with NFFP. It is deemed the probability of flooding is low.
- The current site is brownfield and comprises 100% of impermeable hard paved areas. All areas currently drain to the combined public sewers around the site. The proposed development will therefore be managed to the existing brownfield run-off rate + 30% betterment on flow as a minimum.
- Subject to further consultation and feedback from United Utilities, the proposed surface water management plan for the site has been produced in accordance with the NPPF & NPPG which sets out the guidance for reducing flood risk in general using SuDS systems; ensuring that the site will be able to cope with up to the 1 in 30 year storm return period and extreme 1 in 100 year event, plus allowances for climate change, without flooding.
- New drainage will be constructed to collect the runoff from the roof and small area of hard paved external areas, attenuation of storm water runoff will be provided. Minimal Silt is expected to be produced from the site during storm event but all silt will be prevented from entering the drainage system by the use of trapped gullies, channels with silt traps, and also by the use of sustainable urban drainage systems (SuDS).
- Sanitaryware will be selected to minimise water use within the dwellings by the selection of low flow appliances.

GtoDinM: Policy 4.10 & 4.13
& CS: Policy EN19

GtoDinM: Policy 4.10 & 4.13
& CS: Policy EN19

GtoDinM: Policy 4.10 & 4.13
& CS: Policy EN19

Waste Management

- All new building element specifications will be assessed using the Building Research Establishment's Green Guide, which gives an environmental rating for alternative specifications of main building elements, with A+ rated materials having the lowest comparable impact. During the development of the detailed design and specifications, further reference will be made to the Green Guide to ensure that the specifications for the main building elements are appraised before being finalised and their embodied impact minimised.
- During construction the Site will be registered under the Considerate Constructors Scheme and the contractor will be encouraged to go significantly beyond best practice under the scheme. The Site will be monitored by an experienced industry professional to assess performance against the eight point Code of Considerate Practice.
- Once occupied, all recycling and waste material will be stored on site in secure waste bin storage areas accessible for refuse collections. Central refuse stores are located on the ground floor. Residents will be responsible for taking their refuse and recycling to the store, where segregated bins will be provided to encourage and enable recycling of waste during use. Waste and recycle bin containers will be rotated by the on-site team to ensure all bins are fully used, where they will be taken periodically to the refuse collection area on collection day. The frequency and timings of collections will be agreed with the local authority.

Biodiversity

GtoDinM: Policy 4.15 & CS:

GtoDinM: Policy 4.15 & CS:
Policy EN15

GtoDinM: Policy 4.15 & CS:
Policy EN15

GtoDinM: Policy 4.15 & CS:
Policy EN15

- The Applicant has appointed ecologists to assess the baseline ecological value of the site, identify any flora and fauna requiring protection and advise of measures to enhance local biodiversity.
- The Ecological survey assessment, including daylight licensed bat survey report, summarises the existing site conditions as being of low ecological value.
- The Extended Phase 1 habitat survey highlighted no trees, irreplaceable habitat, Priority Habitat, semi-natural habitat or rare plant species were detected. No invasive plant species as listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected.
- No evidence of the current or previous use of the building by roosting bats was detected. The existing building is well-sealed and no potential roost features were detected. The building is assessed to be of 'negligible' suitability for use by roosting bats. Habitats within the site and bordering the site area considered to be of very limited value to foraging and commuting bats.
- No evidence of use of the well-sealed building by nesting birds was found. The habitats at the site, have limited suitability for use by nesting birds.



Appendix A: National & Local Planning Policy

Legislation

The Planning Act (2008) is intended to create a more integrated, efficient planning system for major infrastructure, and produce a more transparent process. Within this remit, it sets out that the Secretary of State must exercise his/her functions with the objective of contributing to the achievement of sustainable development, in particular:

- Mitigating and adapting to climate change.
- Achieving good design.

The Climate Change Act received Royal Assent in November 2008, providing the world's first legally binding framework for tackling climate change. The Act introduces targets to reduce net UK greenhouse gas emissions by 80% by 2050 and 26% by 2020 against a 1990 baseline.

The Floods and Water Management Act 2010 received Royal Assent in April 2010. The Act takes forward a number of recommendations from the Pitt Review into the 2007 floods and places new responsibilities on the Environment Agency, local authorities and property developers (among others) to manage the risk of flooding. Recommendations include:

- A requirement to improve the flood resistance of buildings through amendments to the Building Act 1984.
- A requirement for property developers to construct Sustainable Drainage Systems (SuDs).
- A requirement on local authorities to adopt SuDs once completed.

The Localism Act 2011 received Royal Assent in November 2011. The Act sets out plans it says will give communities and local government greater powers and freedom from Whitehall. Many of the measures came into effect on 6th April 2012.

The five key measures in the Localism Act intended to decentralise power are:

- Community Rights
- Neighbourhood planning
- Housing
- General power of competence
- Empowering cities and other local areas.

According to Government, the effect of the Act will be to:

- Give more freedom and flexibility to local government.
- Give new rights and powers to local communities, making it easier for them to improve local services and save important local facilities.
- Reform the planning system, putting more power in local people's hands.
- Ensure that housing decisions are taken locally.

The Deregulation Act 2015 received Royal Assent in March 2015. The Bill makes provision for the reduction of burdens resulting from legislation for businesses or other organisations or for individual; makes provision for the repeal of legislation which no longer has practical use; makes provision about the exercise of regulatory functions; and for connected purposes.

One element the Government has introduced through the Deregulation Bill, is amendments to the Building Act 1984 to enable Building Regulations to set what are called "optional requirements". These are requirements set at a level above the basic minimum in the Building Regulations 2010, which can be applied by a planning authority as a planning condition, where justified by need and subject to viability. As a consequence of this the Government has elected to remove the Code for Sustainable Homes from March 2015 (see page 21 for further details).

National Planning Policy Framework (NPPF)

The **National Planning Policy Framework (NPPF)** was published in September 2023 with the policies within it applicable from this date.

Applications for planning permission must be determined in accordance with the development plan unless material considerations indicate otherwise. The NPPF must also be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions.

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

- **An economic objective:** to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.
- **A social objective:** to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
- **An environmental objective:** to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Presumption in favour of sustainable development

At the heart of the NPPF is a **presumption in favour of sustainable development**, which should be seen as a golden thread running through both plan-making and decision-taking. The NPPF states that Plans and decisions should apply a presumption in favour of sustainable development. For plan-making this means that:

- all plans should promote a sustainable pattern of development that seeks to: meet the development needs of their area; align growth and infrastructure; improve the environment; mitigate climate change (including by making effective use of land in urban areas) and adapt to its effects;
- strategic policies should, as a minimum, provide for objectively assessed needs for housing and other uses, as well as any needs that cannot be met within neighbouring areas 6 , unless: the application of policies in this Framework that protect areas or assets of particular importance provides a strong reason for restricting the overall scale, type or distribution of development in the plan area 7 ; or any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.

For decision-taking this means:

- approving development proposals that accord with an up-to-date development plan without delay; or
- where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date 8 , granting permission unless: the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed 7 ; or any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.

National Housing Standards Review

Government issued a **Ministerial Statement on 25 March 2015** setting out the conclusion of the Housing Standards Review. The statement sets out a new policy on the application of technical housing standards that applies immediately to all local planning authorities and qualifying bodies. This has a direct effect on the application of existing Code policies, and the setting of new Code policies.

Following consultation in 2014 the Government has elected to **remove the Code for Sustainable Homes** and incorporate new additional optional Building Regulations on water and access, and a new national space standard. The aim is to boost industry activity through reduced regulatory and financial burdens. The new national technical standards are expected to come into force in October 2015.

From 26 March 2015 until 30 September 2015, the Government's policy is that where there is an existing plan policy which references the Code, authorities may continue to only apply:

- a requirement for a water efficiency standard equivalent to the new national technical standard, of 110 litres per person per day, (aligned to Code Level 3), and/or,
- In the case of energy performance, set a standard equivalent to the (outgoing) Code Level 4 requirements, which state a 19% improvement above Building Regulations Approved Document L1A 2013 England.

In respect of cases such as where developments are legally contracted to apply a Code policy or where a case has been granted permission subject to condition stipulating discharge of a Code level prior to 26 March 2015, legacy arrangements will apply.

It is therefore inferred that the wider Code Level 4 requirements of the Manchester City Council Core Strategy are no longer a material consideration and cannot be stipulated as a planning condition.

Core Strategy Policy

Manchester City Council's **Core Strategy** sets out the strategic approach to development for the city up to 2027. The Core Strategy was adopted in July 2012 and forms part of Manchester's Local Development Framework. Although the Core Strategy takes precedent over the Development in Manchester Supplementary Planning Document adopted in April 2007, the Manchester City Council website confirms that the requirements in the Supplementary Planning Document must also be considered.

The following table summarises the policies relevant to sustainability within the Core Strategy.

Policy	Strategic Objective
Core Strategy Policy DM1 – Development Management	<p>Subject to scheme viability, developers will be required to demonstrate that new development incorporates sustainable construction techniques as follows (In terms of energy targets this policy should be read alongside policy EN6 and the higher target will apply):</p> <ul style="list-style-type: none">• For new residential development meet as a minimum the following Code for Sustainable Homes standards. This will apply until a higher national standard is required:<ul style="list-style-type: none">• Year 2010 – Code Level 3;• Year 2013 - Code Level 4;• Year 2016 - Code Level 6; and <p><i>In light of the conclusion to the Housing Standards Review published on 25 March 2015, it is assumed that the wider Code Level 4 requirements of the Core Strategy are no longer a material consideration; subject to further dialogue with Manchester City Council, to determine the most appropriate approach for this scheme.</i></p> <ul style="list-style-type: none">• For new commercial developments to demonstrate best practice which will include the application of the BREEA Establishment Environmental Assessment Method) standards.
Core Strategy Policies EN4 – Reducing CO ₂ Emissions by Enabling Low and Zero Carbon Development	<p>All development must follow the principle of the Energy Hierarchy, being designed:</p> <ul style="list-style-type: none">• 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 <p>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.</p> <p>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.</p>

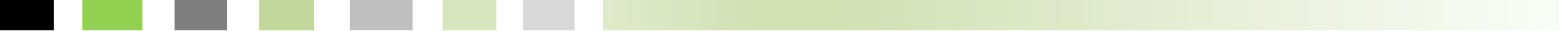
Core Strategy policies contd...

	<p>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 decent decentralised energy schemes.</p> <p>The use of building materials with low embodied carbon in new development and refurbishment schemes.</p>
Core Strategy Policies EN6 – Target Framework for CO ₂ reductions from low and zero carbon energy supplies	<p>A number of different targets exist in relation to carbon reduction against Part L (2010) of the Building Regulations.</p> <ul style="list-style-type: none"> • A requirement for a CHP/district heating anchor or connection or where not feasible a target of 15% betterment. This target applies to “Network Development Areas” (although these are not defined spatially and as such the policy is not considered to be enforceable); or, • 10% betterment for non-domestic buildings which have an electricity load exceeding 45kg CO₂/m²; or 15% betterment for electricity intense domestic buildings. <p>Compliance should be demonstrated through an Energy Statement.</p>
Core Strategy Policy EN8 – Adaptation to Climate Change	<p>All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:</p> <ul style="list-style-type: none"> • Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rain water permeability. • Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways. • The need to control overheating of buildings through passive design. • The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation. <p>Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO₂ mitigation under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance.</p>

Policy	Strategic Objective
Core Strategy Policy EN14- Flood Risk	<p>Development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).</p> <p>In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA.</p> <p>All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.</p> <p>The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure.</p>
Core Strategy Policy EN15 – Biodiversity & Geological Conservation	<p>The Council will seek to maintain or enhance sites of biodiversity and geological value throughout the City.</p> <p>Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on-site or adjacent to the site, contributing to linkages between valuable or potentially valuable habitat areas where appropriate.</p> <p>Any adverse impacts on biodiversity will need to be justified against the wider benefits of the proposal, assessed against other LDF policies. Where adverse impacts are unavoidable, developers will be required to provide appropriate mitigation and or compensation.</p> <p>Development should wherever possible seek to maintain, enhance or restore existing geology.</p>

Core Strategy policies contd...

Policy	Strategic Objective
Core Strategy Policy EN16 –Air Quality	Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.
Core Strategy Policy EN17–Water Quality	<p>Development should avoid any adverse impact on water quality, including during the construction phase, and whenever possible should seek to enhance water quality, both chemical and ecological.</p> <p>Development should minimise surface water run-off from development and associated roads, and maximise the use of appropriate sustainable drainage systems, to minimise groundwater contamination, and to avoid pollutants reaching watercourses.</p> <p>Development close to a watercourse should also ensure that waste or litter cannot enter the watercourse from the site.</p> <p>Development should, where feasible and appropriate, seek to open up any culverted or hidden watercourse beneath the site to improve the ecological status of that watercourse.</p>
Core Strategy Policy EN19 – Waste	<p>All developments should have a waste management strategy included in the Environmental Standards Statement.</p> <ul style="list-style-type: none">• Proposals need to be consistent with the principles of the waste hierarchy (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal).• The waste management plan needs to demonstrate how both construction and demolition waste will be minimised and recycled on site wherever possible and how the sustainable waste management needs of the end user will be met.• Encourage communities to take responsibility for the waste they create through the provision of accessible facilities.



Local Planning Policy

Manchester City Council 'Guide to Development in Manchester' SPD (2007) sets out the design principles and standards that the City Council expects new development to achieve. The advice that the Guide provides for developers applies to all development proposals, including conversions and extensions. It covers the following issues:

- Design
- Accessibility - Design for Access 2
- Environmental Standards
- Street Hierarchy
- Parking Guidelines
- Housing Density
- Promotion of a Safer Environment
- Design for Health
- Internal Design Principles

Key policies in relation to sustainability as outlined in MCC's Guide to Development SPD are illustrated in the table overleaf.

Manchester City Council 'Guide to Development in Manchester' SPD (2007): key sustainability policies

Environmental Standards	Description
Energy Efficiency Policy 4.5	Developers should aim to reduce CO ₂ emissions by at least 25% more than the requirements of the current Building Regulations.
Energy Efficiency Policy 4.6	Developers should aim for at least 20% of final site energy demand to be met by on-site renewable energy technologies. Developers should investigate energy generation opportunities before designing building envelopes or fixing their location, to optimise utilisation of wind, solar and geothermal resources.
Environmental Design Policy 4.7	For commercial buildings, developers should use the Building Research Establishment Assessment Method (BREEAM). Developments should be achieving a design and post-construction rating of "Very Good".
Water Management and Weather Resilience Policy 4.9	Sustainable urban drainage systems (SuDs) should be included, and the amount of hard surfacing minimised, for example by providing on site capture and soakaway of all rainwater on site. Developers should seek to use water efficiently through specification of water efficient devices and through the use of rainwater harvesting and grey water recycling.
Waterways Policy 4.16	Developers working in close proximity to the city's waterways should demonstrate how public access, environment and management will be enhanced. Developers should landscape to ensure that the site run-off and blown waste does not enter watercourses, even during extreme weather conditions.
Waste & Construction Management Policy 4.10, 4.13 & 4.14	All developments should have a waste management strategy included in the Environmental Standards Statement. Opportunities for reuse of existing structures should be explored, and where this is not appropriate, materials should be re-used on site materials that are environmentally friendly, of low embodied energy, locally sourced, and can be recycled or reclaimed, should be prioritised.

	Appropriate measures should be put in place to manage and control construction waste generated, the amount of water and energy used, and any potential releases to water, land and air. Use of the Considerate Constructor scheme is recommended.
Biodiversity Policy 4.15	Developments should result in no net loss in overall biodiversity value and maximise opportunities to meet and exceed our target to achieve a 10% net increase in tree cover across new developments.