



Didsbury Point Apartments & PCT Energy and Environmental Standards Statement.

Prepared for Southway Housing Trust

02/09/2022

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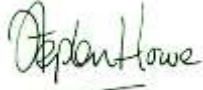
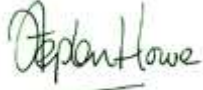
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2 Introduction

2.1 Site Description

The site is located in Didsbury, Manchester; Near Didsbury High school. The site currently is waste ground adjacent to an office on the west side, residential apartments to the North, dwellings to the east and a carpark to the south.

The site has been developed as part of Withington Hospital in two separate phases, between the 1920's and 1930's and more recently between the 1970's and the 2000's. In 2006 the site was cleared of all above ground structures.



Figure 1: Site Location Plan

2.2 Site Description

The building will comprise of a shell for Manchester Health and Care Commissioning (MHCC) to occupy on the ground floor, along with an entrance to 'The Boulevard' for the residential apartments above, bike store and plant rooms. First to seventh floors will contain 1no and 2no bedroom apartments and duplexes.

3 Terms of Reference

This Environmental Standards Statement seeks to demonstrate that the design intent for the scheme as well as the commitment to aligning with Manchester City Council's aspirations and wishes to deliver sustainable developments. The environmental and energy strategy for the scheme has been developed using the following regulations and planning policies:

3.1 Building Regulations

The Building Regulations Approved Document Part L (Conservation of Fuel and Power) 2021 outline the requirements for reductions in carbon emissions required for new developments.

The domestic / residential elements of the scheme will be assessed against the requirements of Building Regulations Part L Vol 1 'Dwellings' SAP assessment software.

The Manchester Health & Care Commissioning (MHCC) part of the building will be assessed against the requirements of Building Regulations Part L Vol 2 'Buildings other than dwellings' utilising the SBEM assessment software or dynamic thermal modelling software.

3.2 Manchester City Council Core Strategy

The Manchester City Council, Manchester Core Strategy 2012 to 2027 document and planning policies have been utilised for assessment as follows. The following policies are extracted from the Manchester Core Strategy Document:

3.2.1 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.

3.2.2 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

Where the CO₂ emissions reduction required under any future revision to Part L of the building regulations becomes greater than the '% Minimum requirement', the reduction required under building regulations would apply.

Where the Council identifies an 'allowable solution', for example within an energy proposals plan, that would produce higher carbon reductions at no extra cost than that of achieving the '% Minimum requirement' (or required under building regulations if greater) the higher percentage reduction will be required. The cost comparison is based on the cost of incorporating the 'allowable solution' at design stage.

The energy statement will be required to be submitted at the outset of any proposed development (outline application or before). 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, subject to the energy statement incorporating evidence such as modelling to demonstrate compliance.

Guidance on what the energy statement should contain and how to decide which target applies to a development proposal is given in Appendix A of the policy.

3.2.3 Policy DM 1 - Development Management

All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:-

- Appropriate siting, layout, scale, form, massing, materials and detail.
- Impact on the surrounding areas in terms of the design, scale and appearance of the proposed development. Development should have regard to the character of the surrounding area.
- Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise.
- Accessibility: buildings and neighbourhoods fully accessible to disabled people, access to new development by sustainable transport modes.
- Community safety and crime prevention.
- Design for health.
- Adequacy of internal accommodation and external amenity space.
- Refuse storage and collection.
- Vehicular access and car parking.
- Effects relating to biodiversity, landscape, archaeological or built heritage.
- Green Infrastructure including open space, both public and private.
- The use of alternatives to peat-based products in landscaping/gardens within development schemes.
- Flood risk and drainage.
- Existing or proposed hazardous installations.
- 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):-
 - a) For new residential development (note that the requirement to meet Code for Sustainable homes targets has been removed from planning policy)
 - b) For new commercial developments to demonstrate best practice which will include the application of the BREEAM (Building Research Establishment Environmental Assessment Method) standards. By 2019 provisions similar to the Code for Sustainable Homes will also apply to all new non-domestic buildings.

3.3 Greater Manchester Spatial Framework Revised Draft 2019

Greater Manchester Spatial Framework Revised Draft 2019 supports the council's strategies which include underpinning the ambition to become a carbon neutral city 2038.

Objective 7 of the document ensures Greater Manchester is a more resilient and carbon neutral city region which will:

- Promote carbon neutrality of new development by 2028
- Promote sustainable patterns of development that minimise the need to travel and contribute to cleaner air
- Locate and design development to reduce car dependency
- Facilitate provision of infrastructure for cleaner vehicles
- Improve energy efficiency and the generation of renewable and low carbon energy.

Policy GM-S2 is a policy that supports objective 7 and has the aim of delivering a carbon neutral Greater Manchester no later than 2038. Part of this policy is to take a positive approach to renewable and low carbon energy schemes. Keeping fossil fuels in the ground. It also provides an energy hierarchy as follows:

- i. Minimise energy demand;
- ii. Maximise energy efficiency;
- iii. Utilise renewable energy;
- iv. Utilise low carbon energy; and
- v. Utilise other energy sources.

The policy has an interim requirement that all new dwellings should seek a 19% carbon reduction against Part L of the 2013 Building Regulations, along with a minimum 20% reduction in carbon emissions (based on the dwelling emission or building emissions rates) through the use of on site or nearby renewable and / or low carbon technologies

Policy GM-S4 considers increasing resilience so that development of Greater Manchester will be managed so as to increase considerably the capacity of its citizens, communities, businesses and infrastructure to survive, adapt and grow in the face of physical, social, economic and environmental challenges.

One of the measures includes designing indoor and outdoor environments to provide a reduction and respite from more extreme temperatures and winds associated with climate change and greater urbanisation.

Policy GM-S6 tackles air pollution and improving air quality focusing particularly on locations where people live, where children learn and play, and where air quality targets are not being met.

One of the measures includes restricting and carefully regulating developments that would generate significant point source pollution such as some types of industrial activity and energy generation.

3.4 Manchester City Councils Climate Emergency Declaration 10th July 2019

The declaration looks to deliver the zero-carbon target by 2038 and determine if an earlier target can be possible. To become carbon neutral at the earliest possible date.

3.5 Manchester City Council Climate Change Framework

Manchester Climate Change Framework for 2020-2025, builds on the Draft Manchester Zero Carbon Framework 2020-38, which was published in February 2019 and Manchester City Council's declaration of a climate emergency in July 2019. This give a target for the 2020-25 period to reduce direct CO2 emissions by at least 50% to stay within carbon budget targets. This is to support Objective 1 of the document which includes staying within our 15 million tonne carbon budget for 2018-2100,

The Framework recognises that the UK gas supply will take a long time for decarbonisation with biogas and / or hydrogen and that to stop using gas will promote decarbonisation because of the opportunity available for reducing carbon emissions associated with grid electricity. Therefore, moving buildings to electric heating, air source heat pumps and zero carbon district heating provide a more immediate carbon reduction benefit.

The Framework wants to ensure new developments in the city don't eat into our limited carbon budgets and add to the already significant retrofit challenge. This means that we need them to be built and operated to zero carbon standards as soon as possible.

3.6 Places for Everyone (August 2021)

The overarching requirements to achieve carbon commitments are:

- Be carbon neutral by 2038
- Hold cumulative carbon dioxide emissions to within our carbon budget
- Initiate a programme of mitigation to reduce emissions including by:
 - Significantly upscaling solar photovoltaic energy;
 - Reducing heat demand in homes;
 - Moving away from carbon intensive gas as the primary source of heat;
 - Reducing heating and cooling demand for public and commercial buildings;
 - Increasing biofuel use;
 - Enable sustainable choices for travel and decarbonise transport;
 - Significantly upscaling building retrofit; and
 - Increase the delivery of nature based solutions and biodiversity net gain.

Within Policy JP-S 2 has the following requirements:

An interim requirement that all new dwellings should seek a minimum 19% carbon reduction against Part L of the 2013 Building Regulations.

Incorporate adequate electric vehicle charging points to future proof for the likely long-term demand, taking account of the potential maximum energy demand for the site

Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date.

Achieve energy demand reductions for residential development in terms of space heat demand, hot water energy demand and the delivery of on-site renewable energy generation.

For non-residential developments, achieve at least BREEAM excellent standard for the 'Ene 01 – reduction of energy use and carbon emissions' category.

Policy JP-S 3 covers Heat and Energy Networks, however, the requirements apply to building located within "Heat and Energy Network Opportunity areas". As Didsbury point is situated outside these areas and the proposed allocation areas for 2021 then the policy requirements are not mentioned further.

4 Confirmation of Scope and Route to Compliance

4.1 Energy Hierarchy

This development follows the principles to make the fullest contribution to minimising carbon dioxide emissions in accordance with the following energy hierarchy:

- **Be lean:** use less energy
- **Be clean:** supply energy efficiently
- **Be green:** use renewable energy

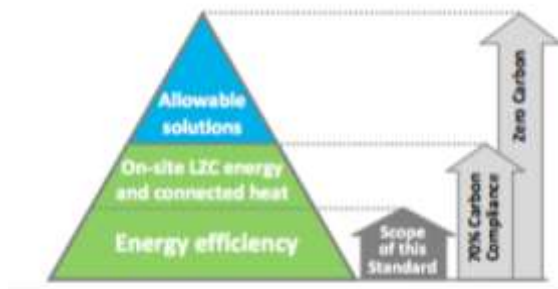


Fig 1

4.2 New Residential Building

The intention is to adopt an enhanced building fabric based on values which are better than the minimum required for compliance with Building Regulations AD Part L 2021 as outlined in Table A below. This will minimise the building energy demand and contribute towards Building Regulations compliance.

Description	Part L minimum 2021 (Part L 2006)	Minimum requirement for this building	Performance Relative to Part L Requirement
External Wall U-Value	0.26 W/m ² .K area-weighted average	0.18 W/m².K	31% Improvement
Sheltered Wall (onto unheated circulation areas)	0.26 W/m ² .K area-weighted average	0.23 W/m².K	11% Improvement
Party Wall	0.20 W/m ² .K area-weighted average	0.00 W/m².K	100% Improvement
Ground Floor U-Value	0.18 W/m ² .K area-weighted average	0.16 W/m².K	11% Improvement
Roof U-Value	0.16 W/m ² .K area-weighted average	0.12 W/m².K	12% Improvement
Window / Door U-Value	1.6 W/m ² .K area-weighted average	1.4 W/m².K	12% Improvement
Rooflight U-value	2.2 W/m ² .K area-weighted average	N/A	
Building Air Permeability	8 m ³ /(h.m ²) @ 50 Pa	3.0 m³/(h.m²) @ 50 Pa	62% Improvement
Thermal Bridging (Y-Value)	0.2 W/m ² (Default)	Construction Details as Appendix B	

Table A – Proposed fabric performance

4.3 Building Services Proposals

4.3.1 Heating, Domestic Hot Water, Ventilation and Lighting

It is proposed to heat the building via direct electric radiators and utilise a centralised air source heat pump from a community heating system. Each dwelling will include a Heat Interface Units (HIU) to hydraulically separate the dwelling system from the community heating system (See Figure 2). This will make the system a potential for connection to future district heating networks should the area be redeveloped into a more heat density area.

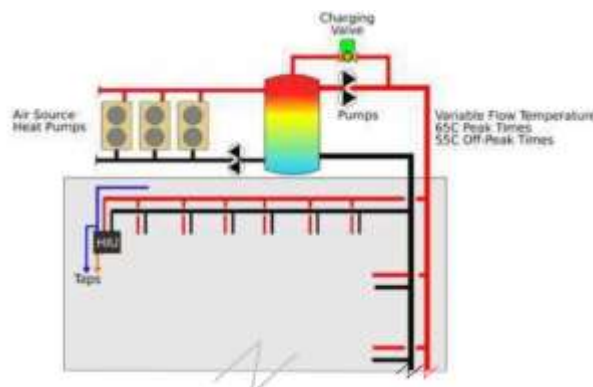


Fig 2 Community ASHP DHW

Domestic hot water will be provided by the HIU and will be instantaneous, which will minimise storage losses.

Ventilation will be provided by continuous mechanical ventilation with heat recovery (MVHR) units to each cluster. This will provide best practice ventilation and minimise heat lost via the ventilation system.

All new lighting will be low energy LED with appropriate controls to minimise energy.

Efficient systems will be adopted as outlined in Table B below to minimise the building energy consumption and contribute further towards a passive and sustainable building which is compliant with Building Regulations.

Description	System
Ventilation	Mechanical Ventilation with Heat Recovery (MVHR) with Heat recovery efficiency > 80%
Main Heating	Electric
Emitters	Direct Electric Panel Heaters
Controls	Time, Temperature Control
Hot Water	Central air source heat pump serving heat interface units (HIU) (central ASHP SCOP @ 3.0)
Showers	1No shower at 9 l/min
Secondary Heating	None
Renewable Energy	Air source heat pump (ASHP) for domestic hot water generation. At least 20% of the roof area to be covered with Photovoltaic panels (Anticipated to be greater than 34kWp)

Lighting
95 lm/W (Assumed 128 – 160W per dwelling)

Table B – Proposed efficient building services system inputs

4.3.2 Renewables

The ground floor space is approximately 1670m². To achieve the proposed renewable energy target contained within 'Places for Everyone (2021)' then 20% of this area should be covered with photovoltaic panels (334m² area). This is likely to be approximately 34kWp photovoltaic system based on a panel with an efficiency of at least 20% at a pitch of 15°.

The hot water will be instantaneous via heat interface units (HIU) and therefore there will be no storage losses. Also, the location of the HIU will minimise 'dead leg' runs to sanitary fittings. The hot water generation will be from air source heat pump to maximise efficiency.

The domestic part of the building should achieve a 19% carbon reduction against Part L 2013 proposed by 'Places for Everyone (2021)' because compliance with Part L 2021 should achieve a 31% improvement on Part L 2013 according to the Government.

4.4 Manchester Health & Care Commissioning (MHCC) Building

Approximately 1200m² of the ground floor area of the building will be used by MHCC. This part of the building will target a BREEAM excellent standard for the 'Ene 01 credit. Therefore at least 4No credits will be achieved with an Energy Performance Ratio greater than 0.4 for the non-domestic part of the building.

4.5 Water Management – Taken from a Report Provided by CIVIC Engineers Ltd dated 17th January 2022

4.5.1 Surface Water Management Strategy

4.5.1.2 Existing Site Drainage

The site was previously occupied by Withington Community Hospital until 2003 when the hospital buildings were demolished. The site has been undeveloped since and is now covered mostly by vegetation with small areas of broken tarmac to the south of the site. The site is currently classed as greenfield.

4.5.1.3 Combined Sewer

There are no combined water public sewers near to the site.

4.5.1.4 Summary

The surface water discharge options are summarised below in Fig 3.

Surface Water Disposal Method	Potential	Description
Infiltration	X	Made ground is present due to historic use and site layout does not allow for infiltration.
Water Body	X	There are no waterbodies within the vicinity of the site.
Surface Water Sewer	✓	There is a public surface water sewers adjacent to the site

Combined Water Sewer	X	There are no combined public sewers within the vicinity of the site. This connection would be the least sustainable and there is an alternative higher in the NPPF Drainage Hierarchy,
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Fig 3

4.5.2 Existing Site/Pre-development Runoff

The site is considered as greenfield and as such greenfield run-off rates have been calculated for the site using Microdrainage software. The greenfield run-off rate has been calculated to be 3.4l/s. In order to avoid throttle sizes becoming too small and thus creating a risk of blockages, a greenfield run-off flow rate of 5l/s will be applied.

4.5.2.1 Proposed Surface Water Drainage Design

It is proposed to discharge surface water to the existing 675mm diameter public surface water sewer in The Boulevard at a rate restricted to 5l/s.

Based on the nature of the development, a lifespan in excess of 60 years is anticipated. The potential climate change allowance for 2070-2115 ranges between 20% for the central allowance and 40% for the upper end allowance. As such, the design has considered an allowance of 40% climate change on peak rainfall intensity for all calculations.

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

Fig 4: (Extract Environment Agency Guidance) Peak Rainfall Intensity Allowance in small and urban catchments

The drainage strategy is to collect surface water from the roof and external areas and direct it to a new below ground drainage network prior to it being discharged to the existing 675mm diameter public surface water sewer in The Boulevard. The discharge rate will be restricted to 5l/s by the use of a vortex flow control device and attenuation will be provided by the use of a geo-cellular attenuation tank to be located below the car park. Raingardens are also proposed to provide additional attenuation. The run-off from the car park will pass through a Class 1 Bypass Separator to remove pollutants prior to discharge to the surface water sewer.

United Utilities have confirmed their acceptance in principle that surface water may discharge into this sewer at a rate restricted to 5l/s, subject to agreement with the LLFA, if discharge to ground via infiltration or to a waterbody are discounted.

4.6 Waste Management - An extract from the OMI Architects Waste Management Statement is below, this document is extracted from their Design and Access Statement

5.2 Waste management

An urban store for residential waste is located to the west of the building on the ground floor and can be accessed internally for residents & externally for management.

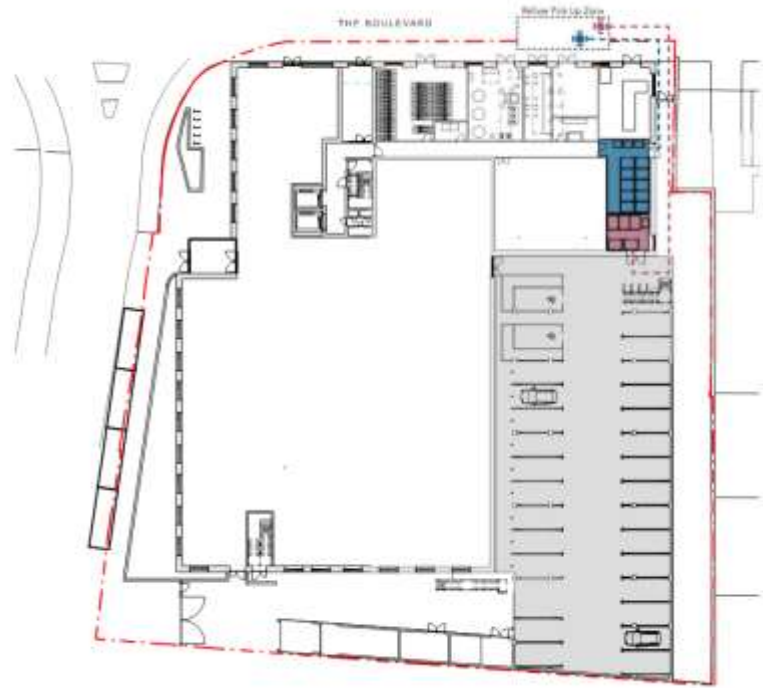
A separate refuse store for MHCC waste is included; employees will be required to access externally via the secondary entrance.

Management will need to transfer the bins to the collection point on collection day. Refuse will be collected from the pick-up point on the Boulevard via the side gate with refuse loaded towards the back of the building.

Short stay bins will need to be collected for the refuse vehicle and to provide 24hr access to the site area.

Key

- Residential Refuse Store
- MHCC Refuse Store
- Residential Refuse route
- MHCC Refuse route
- Residential Refuse collection point
- MHCC Refuse collection point



4.7 Building Life Statement

There is evidence that the climate is changing, which can have an impact on the indoor environment. This means that robustness must be considered for the building form, fabric and building services so that the indoor environment still performs in the future for either the life of the building or life of the element in question.

Also, construction material resistance to extreme conditions and behaviour of material should be considered along with managing water in terms of flooding and minimising usage during shortages.

As the climate changes, it is expected that heating energy requirements will reduce possibly by 30-35% by 2080, therefore heating capacity for the proposed building should be adequate for future climate scenarios. Cooling demand on the other hand is expected to increase along with cooling capacity requirements. Where cooling is deemed necessary in the building, adequate capacity should be included to account for climate change so that it is sized correctly for up to the end of its life. One way of demonstrating adequate capacity is by carrying out a thermal comfort analysis against future weather scenarios.

Spaces and rooms which do not have comfort cooling could also become increasing less comfortable in summer. Ideally retrofitting cooling should be avoided and passive measures should be included now or the building to be easily adapted in the future to mitigate increase external temperatures.

Wind driven rain is expected to increase and therefore the building should be designed to resist water ingress from horizontal rain. This is particularly important where full fill cavity walls are being considered so an increase in site exposure might be considered when making an assessment.

It is recognised that the UK face prospects of increased water shortages and therefore water consumption should be reduced where possible by the use of lower usage water fittings. Ideally this can be achieved by using water fittings that have a 'green' rating to the European Water Label (EWL)

(<http://www.europeanwaterlabel.eu/>) . Also domestic hot water should be designed to limit dead leg lengths to 1 litre volume.

The building design has where practical considered the potential benefit to mitigate solar gain through building orientation and façade design where this can be achieved without compromising good urban design or creating issues associated with overheating.

Where new materials are used, they shall be selected so their waste impact is considered. Also, where possible be of low embedded energy, we will work with the Main Contractor to support this where practical. Also, we will further consider the sustainability measures of this project further as we progress through the more detailed design stages.

4.8 Sustainability and Embedded Carbon Statement

A Whole Life Carbon Analysis will be undertaken to establish the carbon emissions and a more detailed Analysis will be carried as part of detailed design development and prior to commencement. The proposals aim to go beyond the requirements of the current Core Strategy to contribute towards the City's 2038 Net Zero Carbon target.

For the development of the project there will be several material initiatives across their operations to reduce their impact on the environment, including, water-consumption, sourcing low materials, energy monitoring and efficiency, limiting use of plastic, second -life consumables, environmental clean-ups, protection of wildlife and habitats etc.

We fully support the economic, social, and environmental imperative to improve the energy efficiency of domestic and commercial building and that larger buildings should attain high standards of sustainability because of their high profile and impact.

This Environmental Standards Statement (ESS) and Energy Statement (ES) has assessed the physical, social, economic, and other environmental effects of the proposal and how it relates to sustainability objectives.

This ESS sets out measures that could be incorporated across the lifecycle of the development to ensure high levels of performance and long-term viability and ensure compliance with planning policy. The development will be designed and specified in accordance with the principles of the energy hierarchy in line with the adopted Core Strategy Policy EN 4. The requirements for CO2 reductions set out within the Core Strategy would be met through minimising energy demand and meeting any demand efficiently through adopting the lean, clean and green energy hierarchy. The sites highly sustainable location should reduce its impact on the environment.

The new build energy strategy incorporates an enhanced 'fabric led' material specification, an element of renewable energy generation plus high-quality design and construction standards to improve the energy efficiency of the building. The apartments use electric air source heat pumps to serve radiators which can follow the decarbonisation of the grid and support the 2025 Future Homes and Future Building requirement that all homes constructed post 2025 shall not require any retrofitting to achieve Zero Carbon, this also follows MCC's Climate Emergency declaration to be Zero Carbon by 2038.

The new building would be thermally tight, with low energy systems such as LED lighting and high efficiency heat recovery.

The design incorporates features that reduce energy demand and carbon emissions:

The lighting in common areas would include active sensors, time, temperature and zone controls on the space heating, high efficiency DHW generation and a large PV array.

Water efficiency measures such as dual flush toilets, flow restrictors on taps and reduced volume baths (where provided) and extensive use of low volume showers would limit potable water demand. This would reduce water heating energy loads and also cut the process energy required to supply clean drinking water.

A materials review will be carried out pre commencement regarding embodied carbon aimed at reducing the environmental and social impact of the material to compare the life cycle impact of different façade options

and undertaking material efficiency appraisal to explore opportunities to design out waste through the life of building. Materials would be selected which have a low environmental impact throughout their life cycle through conducting a life cycle assessment and integrating its outcomes in the design decision-making process. An IMPACT compliant Life Cycle Analysis (LCA) tool would be utilised, and an assessment carried out to measure the environmental impact of the building. The design team will use this tool to measure reductions in the lifecycle impact of materials used in construction would be achieved through the following:

- Selection of materials which have a low environmental impact throughout their life cycle for the main building elements.
- Responsible Sourcing of Materials – All timber used on the project would be responsibly sourced in accordance with the UK Government's Timber Procurement Policy (FSC sourced timber, for example); Materials will be selected which have a low environmental impact throughout their life cycle; Suppliers and manufacturers who operate Environmental Management Systems would be prioritised; Consideration will be given to local sourcing of construction materials where feasible; The use of thermal insulation which has a low embodied environmental impact relative to its thermal properties would be specified throughout the development to reduce the construction phase impact of this scheme upon climate change.
- Material Efficiency – At the Preparation, Brief and Concept Design RIBA stages; targets would be set, opportunities identified, and methods put in place to optimise the use of materials. This is to avoid unnecessary materials use arising from over specification without compromising structural stability, durability or the service life of the building.

A Construction Resource Management Plan would be produced to limit on and off-site environmental impacts of construction. The waste management strategy would also include the following: Pre-demolition/Pre-refurbishment audit of all existing buildings, structures or hard surfaces to promote resource efficiency via the effective management and reduction of construction waste; Procedures to reduce construction waste related to on-site construction and off-site manufacture/ fabrication; Diverting non-hazardous construction (on-site and dedicated off-site manufacture/ fabrication), demolition and excavation waste from landfill.

A building specific adaptation strategy would be undertaken to encourage consideration of Design for Disassembly and Adaptability and implementation of measures to accommodate future changes to the use of the building and its systems over its lifespan. This strategy would ensure that there is unnecessary materials use, cost and disruption arising from the need adaptation owing to changing functional demands and maximise the reclamation and reuse of materials at final demolition as part of a circular economy.

5 Conclusion

20% of the roof area will be covered with photovoltaic panels (approx. 334m² area). This will likely equate to approximately 34kWp photovoltaic system based on a panel with an efficiency of at least 20% at a pitch of 15°.

The hot water will be instantaneous via heat interface units (HIU) and therefore there will be no storage losses. Also, the location of the HIU will minimise 'dead leg' runs to sanitary fittings. The hot water generation will be from air source heat pump to maximise efficiency.

The domestic part of the building should achieve a 19% carbon reduction against Part L 2013 proposed by 'Places for Everyone (2021)' because compliance with Part L 2021 should achieve a 31% improvement on Part L 2013 according to the Government.

The non-domestic part of the building which is for the Manchester Health and Care Commissioning (MHCC) will achieve the BREEAM excellent standard for Ene01 credit. The actual Energy Performance Ratio achieved for ENE01 will be confirmed at the next stage of design. It is not, however, intended to carry out a full BREEAM assessment for the building.

It is proposed to discharge surface water to the existing 675mm diameter public surface water sewer in the Boulevard at a rate restricted to 5l/s.

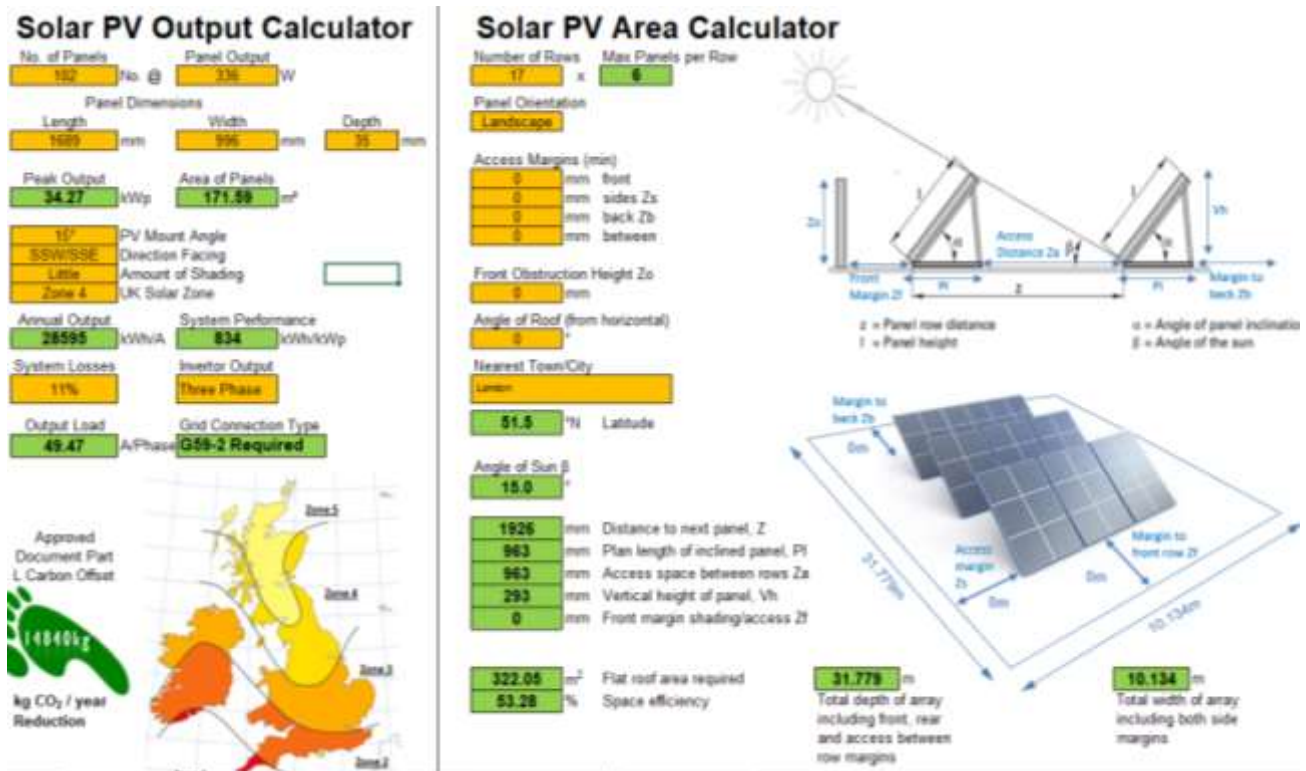
Based on the nature of the development, a lifespan in excess of 60 years is anticipated. The potential climate change allowance for 2070-2115 ranges between 20% for the central allowance and 40% for the upper end allowance. As such, the design has considered an allowance of 40% climate change on peak rainfall intensity for all calculations.

There are no combined water public sewers near to the site.

The Waste Management strategy is in accordance with the City Councils – “Waste Storage and Collection Guidance in New Developments”.

The building materials shall be selected so their waste impact is considered and be where possible be of low embedded energy, we will work with the Main Contractor to support this where practical.

6 Appendix A (Approximate PV area to roof area calculation).



7 APPENDIX B: (Assumed Psi Values)

SAP10 and the new (2021) Part L regulations require that drawings are provided for all construction junctions and that thermal losses are calculated using approved Psi values. In the absence of detailed thermal bridging at the SAP Design stage and in order to move assessments through the Design process we have assume that building will have thermal bridging design details, site check lists, photographic evidence at later stages of design and as built stages. At this concept stage it has been assumed that the design will be carried out using approved Psi values as the below table or better.

Failure to use approved junction designs and provide evidence will require the use of a default y-value of 0.20 W/m²k which is likely to cause significant compliance failure.

Assumed Psi values

Full Fill Cavity Masonry	SAP Ref	Psi value	Ref No
Lintel – perforated base	E1	0.400	CD0026
Lintel – independent	E2	0.050	CD0025
Sill	E3	0.034	CD0027
Jamb	E4	0.040	CD0028
Beam & Block floor	E5	0.060	CD0022
Floor slab	E5	0.090	CD0024
Intermediate timber floor	E6	0.000	CD0029
Intermediate concrete floor	E7	0.073	CD0030
Pitched roof eaves – loft ins	E10	0.123	CD0033
Pitched roof gable – loft ins	E12	0.063	CD0031
Pitched roof eaves – rafter ins	E11	0.037	CD0034
Pitched roof gable – rafter ins	E13	0.080	CD0032
Corner - normal	E16	0.058	CD0035
Corner - inverted	E17	-0.069	CD0036
Party wall between dwellings	E18	0.067	CD0037