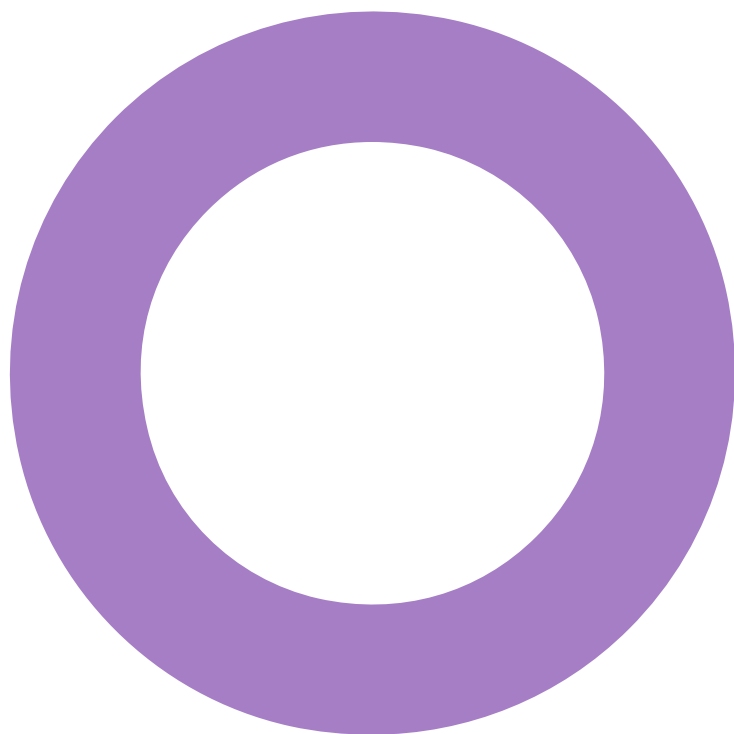


St John's Campus. Manchester. HBD.

SUSTAINABILITY
SUSTAINABILITY STATEMENT

REVISION P03 – 25 SEPTEMBER 2023



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
P00	14/06/2022	Stage 2 Issue	VW	BE	JF
P01	04/04/2023	Planning issue	VW	EG	JF
P02	19/04/2023	Update to embodied carbon	VW	JR	JN
P03	25/09/2023	Updated description of development	VW	JR	JN

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Executive summary

This report presents the sustainability strategy for the proposed development at St John's Campus, Manchester.

Planning Policy relating to sustainability

Key national and local policy documents are summarised in section 3 and include the following :

- Approved Document L 2021
- Future Homes and Buildings Standard 2025
- National Planning Policy Framework
- Manchester Core Strategy
- Places for Everyone Joint Development Plan (noting that this is an emerging document that carries limited weight at the time of writing)

Specific sustainability themes have been discussed against the policies outlined in Manchester's Core Strategy to provide a holistic overview of the proposals. In many cases, these themes overlap with BREEAM and WELL.

Core sustainability strategies

The core sustainability strategies and targets applied to this project include:

- BREEAM "Excellent" rating under New Construction 2018 (version 6) Shell and Core - Offices
- WELL "Platinum" enabled for the core/base build
- Upfront embodied carbon <600kgCO₂e/m² (Lifecycle modules A1-A5) to align with Manchester's Roadmap to Net Zero Carbon
- NABERS (Design for Performance) 5.5* rating

Approach to energy efficiency

In line with national and local policy, the energy hierarchy has been adopted to support the project sustainability ambitions. This includes passive design measures, such as improved building fabric performance and optimised glazing, energy efficient building services and provision of low carbon and renewable energy i.e. air source heat pumps and photovoltaic panels.

Adopted sustainability measures

Operational energy performance is discussed in section 4 of this report, outlining how the building design responds to the industry-leading criteria set out by NABERS. A bespoke simulation model has been developed to more accurately predict operational energy use and optimise the design to reduce this as far as possible in support of net zero ambitions for the project and the region.

An assessment of embodied carbon has been completed to supplement the operational carbon (energy) assessment and inform the design with respect to selection of construction materials with lower embodied carbon where technically feasible. The results relating to the current stage of design are outlined in section 0.

The above analyses secure credits in the BREEAM assessment which is being used to provide a holistic framework for the assessment of multiple sustainability themes. The target rating of "Excellent" requires a minimum score of 70% and a scoring strategy has been developed to achieve this, as summarised in section 6.

Finally, the WELL criteria is being adopted for the base build to ensure that any future tenant is not constrained from achieving a WELL Platinum rating in the future. The scoring strategy is summarised in section 6.

1. Introduction

This Sustainability Statement has been prepared by Hoare Lea on behalf of St Johns Manchester Ltd, a subsidiary of HBD, and is submitted in support of an application for full planning permission at land bound by New College Street, New Quay Street, NCP car park and Gartside Street, otherwise known as “St John’s Campus”. The description of development is as follows:

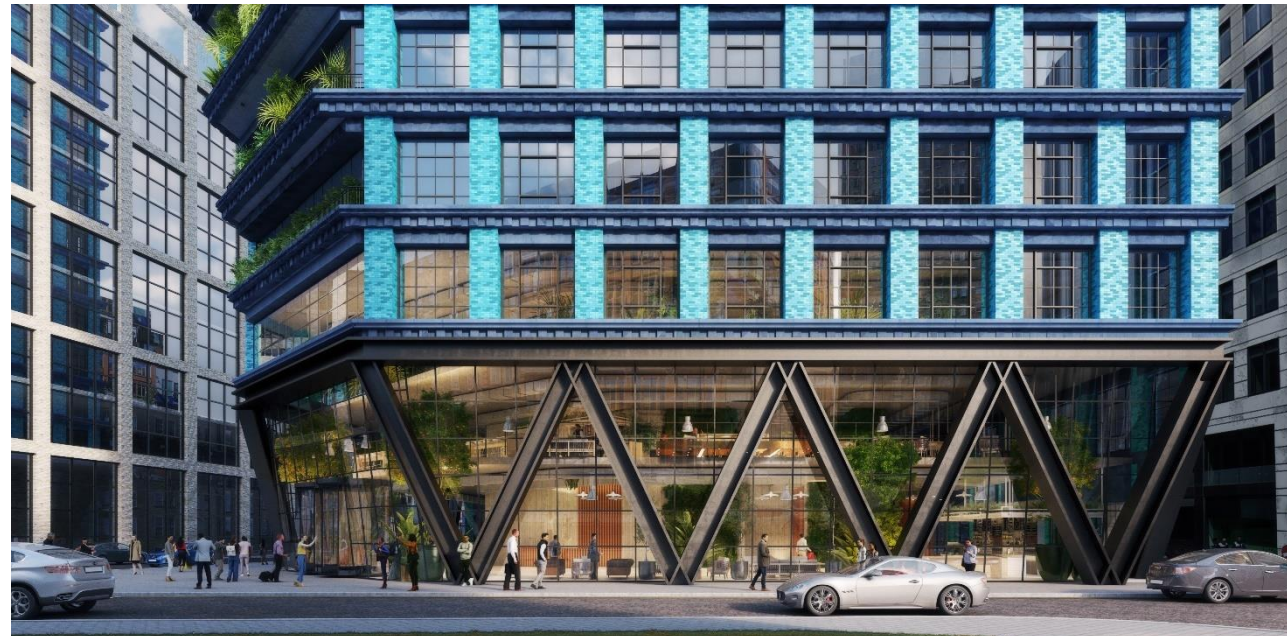
“Demolition of the existing buildings and structures and the erection of a 16-storey office building (Use Class E(g)), with flexible ground floor uses (Use Class E), rooftop amenity space and works to facilitate public realm improvements.”

The proposals seek to demolish the existing on-site buildings and structures to deliver a 16 storey office building plus rooftop amenity space of sustainable construction and high quality design. The building will offer flexible office accommodation which will meet the needs of a range of tenants and also provide ground floor commercial uses which will activate the ground floor frontage creating a unique arrival experience.

The proposed development is described fully in the Design and Access Statement prepared by EPR Architects and presented on the application drawings. The application proposals have been developed in consultation with Manchester City Council (“MCC”) Officers and other key stakeholders.

The site comprises a 4-storey building formerly occupied by The Manchester College. The building is of red brick construction with areas of glazing and panelling. The building is bound by Gartside Street to the south east, New College Street to the north east, New Quay Street to the south west and an existing NCP car park to the north west. Vacant possession of the building is anticipated in December 2022.

Figure 1 Visual of main entrance (EPR)



The development is targeting the following sustainability ratings:

- NABERS 5.5*
- BREEAM New Construction 2018 “Excellent” rating, with the aspiration for “Outstanding”
- WELL Enabled Platinum, with the aspiration for a certified ‘Core’ building

Additionally, an assessment of embodied carbon has been completed to benchmark performance. Optioneering will be developed during the next stage to inform the design and support the BREEAM target.

2. Sustainability Policy

2.1 National Policy

Key policy documents relating to sustainable development are summarised below.

2.1.1 Approved Document Part L 2021: Conservation of fuel and power

Part L of the Building Regulations is the mechanism by which government is driving reductions in the regulated CO₂ emissions from new buildings. The commercial demise will need to comply with Part L2A of Approved Document Part L 2021 (ADL 2021) which was enforced on 15th June 2022.

Although the initial notice for this development was submitted on 27th April 2022, ahead of the launch of ADL 2021, work on site is unlikely to commence before the deadline of 15th June 2023 so the scheme must be (designed and) built in line with 2021 Part L standards. The main updates under ADL 2021 are as follows:

- It is now significantly more challenging to achieve compliance with fossil fuel heating, therefore an all-electric heat pump strategy is likely to be the preferred solution
- A varying carbon factor associated with grid electricity is 73% lower on average than ADL 2013
- A new non-domestic building will deliver a 27% reduction in CO₂ emissions on average across the new-build non-domestic building mix relative to ADL 2013
- A primary energy target has been introduced and the Fabric Energy Efficiency target retained

2.1.2 Approved Document F (England), 2021: Ventilation

Approved Document F was last fully updated in 2010, with amendments in 2013. Volume 1 applies to dwellings only, therefore the main updates for Volume 2 (non-domestic buildings) are provided below:

- New guidance on performance-based ventilation standards will allow designers to assess ventilation strategies against individual volatile organic compounds as an alternative route to using a total VOC limit
- Air quality monitors (e.g. CO₂ monitors) are required to be installed in offices; in rooms where “singing, loud speech or aerobic exercise or other aerosol generating activities” take place; in rooms “where members of the public are likely to gather”; and in rooms that are maintained at both low temperatures and humidities
- Occupiable rooms in offices require outdoor air to be supplied at the greater of 10 l/s per person or 1 l/s.m²
- Common spaces in offices (including circulation spaces) require either natural ventilation openings of at least 1/50th of the floor area, or a mechanical supply of outdoor air at a minimum rate of 0.5 l/s.m²
- Amended guidance on recirculating systems states that systems should be capable of operating in a mode that prevents the recirculation of air between different spaces, rooms, or zones, unless suitable filtering or cleaning systems are in place

2.1.3 Future Homes and Buildings Standard 2025

The Government consulted on the forthcoming changes to the Building Regulations for non-domestic buildings between January and April 2021; a similar consultation for homes was held between October 2019 and February 2020. Together, these consultations have shaped the 2021 changes which provide an interim step prior to the full Future Homes and Buildings Standards which will be consulted on in 2023 and implemented in 2025. The Future Buildings Standard 2025¹ is expected to deliver the following for new non-domestic buildings:

- Highly efficient new non-domestic buildings which use low-carbon heat and have the best fabric standards possible; no further energy retrofit work will be necessary to enable these buildings to become zero-carbon ready as the electricity grid continues to decarbonise

2.1.4 Heat and Buildings Strategy

Released in October 2021 as a stepping stone to the Future Homes and Buildings Standard 2025, the Government's Heat and Buildings Strategy outlines the mechanisms required to reduce the cost of low-carbon heating technologies to support transition away from fossil fuels.

All privately rented commercial buildings are required to have minimum EPC band B by 2030 in England and Wales. Further, all commercial buildings >1,000 m² will require an operational energy assessment, completed as part of the Part L2a 2021 update. The building log book should include a forecast of the building's actual energy use (kWh/year) broken down by fuel type, including all metered energy uses and unregulated loads. The forecast may be determined using design calculations, energy benchmarks, an energy forecasting methodology such as CIBSE's TM54 or any other building modelling or spreadsheet tools.

2.1.5 National Planning Policy Framework

The updated National Planning Policy Framework (NPPF) was published in July 2021 and has superseded all Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) documents, with the exception of PPS10 (Waste). The NPPF sets out the Government's strategy on the delivery of sustainable development.

The NPPF places responsibility for policy making with the Local Planning Authority, who shall communicate their policies through Local Plans and facilitate the creation of Neighbourhood Plans. The NPPF states that there is a presumption in favour of sustainable development. The following is extracted from paragraph 11 of the NPPF:

“Plans and decisions should apply a presumption in favour of sustainable development. For plan-making this means that:

- plans should positively seek opportunities to meet the development needs of their area, and be sufficiently flexible to adapt to rapid change;
- 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, 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; 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, 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; 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.”

In respect of energy policy contained within the NPPF, paragraph 155 sets out that:

“To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);

¹ <https://www.gov.uk/government/consultations/the-future-buildings-standard>

- b. consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and
- c. identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.”

2.2 Local Policy

2.2.1 Manchester Core Strategy 2021-2027²

Manchester's Core Strategy outlines the adopted Manchester City Council policies for selected sustainability themes including:

- Energy and CO₂
- Water and flood risk
- Materials
- Waste
- Transport
- Pollution
- Ecology and biodiversity
- Community

While these topics are discussed in turn in section –, they are expected to be replaced by the Joint Development Plan (Places for Everyone – see section 2.2.2) when it is approved later in 2023.

2.2.2 Places for Everyone

Nine of the ten councils in Greater Manchester have submitted the Places for Everyone³ Joint Development Plan to the Secretary of State for Levelling Up, Housing and Communities for independent review. Assuming the plan is approved, it sets out a framework for sustainable, inclusive growth across the nine districts. Of particular reference to the proposed development, the plan sets out the following strategic objectives:

- Objective 2: Prioritise the use of brownfield land
- Objective 4: Focus development in the Core Growth Area (Manchester city centre) and improve sustainable and active travel access
- Objective 6: Focus new development within 800m of sustainable transport hubs and ensure it is designed to encourage and enable active and sustainable travel
- Objective 7: Promote carbon neutrality of new development by 2028, reduce car dependency, facilitate provision of infrastructure for cleaner vehicles and improve energy efficiency and generation of renewable and low carbon energy
- Objective 8: Enhance special landscapes, green infrastructure, biodiversity and geodiversity. Promote the role of green space in climate resilience and reducing flood risk

Policy JP-S 2 Carbon and Energy includes an expectation that, up to 2028, new development will follow the energy hierarchy to achieve operational net zero carbon. From 2028 onwards, the development will seek to achieve net zero carbon 'in construction' too.

Note: At the time of writing, the Places for Everyone plan carries limited weight in the decision making process.

2.2.3 5-Year Environment Plan for Greater Manchester

The Greater Manchester Combined Authority (GMCA) set an ambitious target to be a zero-carbon city by 2038. As part of this plan, the Greater Manchester Spatial Framework sets out plans for all new development to be zero carbon by 2028.

Included in the five-year plan are a number of key items, including, but not limited to; increasing local renewable electricity generation, increasing the diversity and flexibility of energy supply and decarbonising how

buildings are heated (serviced). These items encourage passive design and a shift away from fossil fuels to service buildings. The five-year plan also notes that new developments should seek to generate 20% onsite / renewable energy generation.

Additionally, the strategy includes a clean air plan to help tackle poor air quality – safeguarding Manchester residents from high levels of Nitrogen Dioxide (NO₂).

2.3 Local Ambition

2.3.1 Manchester Climate Change Agency – A Roadmap to Net Zero Carbon New Buildings in Manchester

The Manchester Climate Change Partnership, including Manchester City Council, has agreed the Manchester Climate Change Framework 2020-25⁴ which includes a recommendation for all new development to be zero carbon from 2023. A Task Group, supported by the UK Green Building Council, has developed, “A Roadmap to Net Zero Carbon New Buildings in Manchester⁵” to provide guidance on how zero carbon should be defined for new buildings in Manchester and how this ambition could be implemented. This paper outlines the following key recommendations:

- A 'Manchester Standard' for Net Zero Carbon New Buildings should be adopted by the Manchester Climate Change Partnership, which is considered by Manchester City Council for application in planning policy, public procurement and by developers and clients who wish to demonstrate voluntary leadership ahead of policy requirements.
- All new development should be net zero carbon in operation from 2023, without use of offsetting or a Carbon Tax.
- All new development should deliver a significant reduction in embodied carbon in construction from 2023, with more stringent requirements introduced in future.

The focus of the Roadmap is to detail the Manchester Standard and the steps to implement it. The following targets are proposed for non-domestic buildings:

- Reducing energy demand:
 - New office development should target an Energy Use Intensity of <75kWh/m²/yr GIA from 2023, with future uplift set out in advance e.g. <55kWh/m²/yr from 2028.
 - At the design stage, demonstrate adherence to a design-for-performance methodology e.g. NABERS UK.
- Reducing embodied carbon:
 - Calculate whole life carbon emissions through a nationally recognised methodology and demonstrate actions taken to reduce lifecycle carbon.
 - New office developments should target <600kgCO₂e/m² upfront embodied carbon (RICS Modules A1-A5) with future uplift set out in advance e.g. <350kgCO₂e/m² from 2028 excluding sequestration.
- Measuring in-use performance:
 - Principles of soft landings to be followed and a recognised performance gap/ assured performance tool used to minimise gap between design aspiration and the completed development. The effectiveness of measures will be reviewed and ratified as part of the post-completion discharge of conditions. For office buildings, Display Energy Certificates and/or NABERS UK can be used to demonstrate the differing responsibilities and performance of landlord and tenant.
 - All developments shall put in place a recognised monitoring regime to allow the assessment of energy use, indoor air quality and overheating risk.
- Low-carbon energy supply:
 - New development should not have any onsite combustion of fossil fuel.

² https://www.manchester.gov.uk/downloads/download/4964/core_strategy_development_plan

³ <https://www.greatermanchester-ca.gov.uk/media/4838/places-for-everyone.pdf>

⁴ <https://www.manchesterclimate.com/sites/default/files/Manchester%20Climate%20Change%20Framework%202020-25.pdf>

⁵ <https://www.manchesterclimate.com/sites/default/files/Roadmap%20to%20Net%20Zero%20Carbon%20-%20Report.pdf>

- All developments shall assess the viability for onsite renewable generation. For developments with SE/SW facing roof(s), a minimum 40% solar technologies installation as a percentage of building footprint area shall be met unless it can be clearly demonstrated that this is not practically viable.
- All developments shall match their total annual energy demand through a combination of investment in renewable generation capacity or a 15-year minimum renewable energy PPA, energy storage and smart controls.

3. Sustainability Proposals aligned to Greater Manchester Policy

In addition to specific project targets relating to ADL 2021, NABERS, BREEAM and WELL, the proposed development will align with the local policies that are outlined below.

3.1 Energy and CO₂ emissions

3.1.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for materials.

Table 1 MCC policies relating to energy

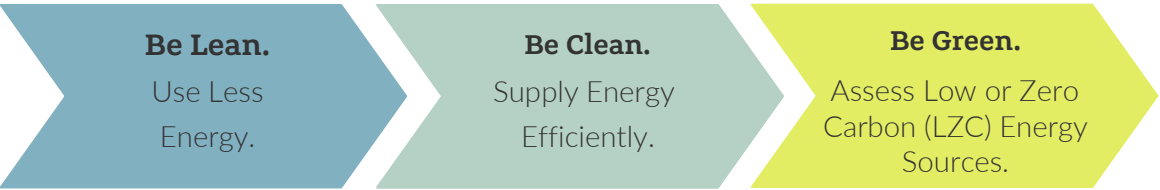
Policy Reference	Target
Energy and CO ₂	CS Policy EN4 All development must follow the principle of the Energy Hierarchy, being designed: – to reduce the need for energy through design features that provide passive heating, natural lighting and cooling – to reduce the need for energy through energy efficient features such as improved insulation and glazing – to meet residual energy requirements through the use of low or zero carbon energy generating technologies In addition: – 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
	CS Policy EN5 The proposed development is located within the Regional Centre, a strategic area indicated on the key diagram, which is expected to have a major role to play in achieving an increase in the level of decentralised, low and zero carbon energy supplies available. Where investment or development is being undertaken into or adjacent to a public building/asset or district heating network, full consideration shall be given to the potential role that these can have in providing an anchor load within a decentralised energy network or in creating opportunities for CO₂ reduction funded by contributions.
	CS Policy EN6 An Energy Statement is required to demonstrate compliance with Part L in line with the energy hierarchy and, for electricity intense buildings i.e. commercial buildings with a high proportion of emissions from electricity use (>45kgCO₂/m²), a minimum +10% 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 10%, the reduction under building regulations would apply.
	CS Policy EN7 – Proposals must take account of potential opportunities to source heat from adjoining developments or nearby heating networks. – Heating and cooling systems will have capability of connecting to the decentralised heating network.

3.1.2 Approach

The Energy Strategy [REP-2324605-05-KK-20230317-SJC-Energy-P01] details how energy and CO₂ emissions have been assessed in accordance with the policies listed above.

St John's Campus will have a reduced impact on climate change by reducing CO₂ emissions associated with energy use. The energy and CO₂ emissions appraisal has been based on the following approach.

Figure 2 Energy Hierarchy



Policy EN6 states that applications for commercial developments exceeding 1,000m² will be expected to achieve a minimum +10% increase on Part L 2010. Since the publication of the Core Strategy document, Approved Document Part L has since been updated in 2013, and again in 2021. Broadly speaking, compliance with Part L 2013 required a 9% reduction in carbon emissions compared to Part L 2010. A new non-domestic building built to ADL 2021 standards will deliver a 27% reduction in CO₂ emissions on average across the new non-domestic building mix relative to ADL 2013, therefore compliance with ADL 2021 will automatically achieve the required improvement over ADL 2010.

The energy strategy indicates that the proposed development achieves a 22% reduction over the Part L2021 baseline, far exceeding this policy.

The decarbonisation of the grid has resulted in the carbon intensity of mains gas being higher than for electricity, and therefore strengthening the argument that building services strategies moving forward should be electric led.

3.2 Water and flood risk

3.2.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for water and flood risk.

Table 2 MCC policies relating to water and flood risk

Policy Reference		Target
Water	CS Policy EN14	– Limit the risk and impact of flooding. – Limit increases in surface water runoff.
	CS Policy EN17	– Ensure no decreases to water quality. – Minimise surface water runoff. – Open any culverted watercourses.
Flood Risk	CS Policy EN14	– Limit the risk and impact of flooding. – Limit increases in surface water runoff
	CS Policy EN17	– Ensure no decreases to water quality. – Minimise surface water runoff. – Open any culverted watercourses.

3.2.2 Approach

The main priorities of the MCC policies do not relate to water conservation issues, but instead encourage no increase in surface water runoff and relate to preventing pollution from entering watercourses. The proposed development will aim to reduce the overall consumption of water within the building, in order to limit the resource requirements and ensure that any future impact of water scarcity is limited by the features within the scheme.

The proposed strategy will be water efficient, incorporating measures to reduce potable water consumption through efficient fixtures, and careful management strategies.

The following measures for water have been identified and will be implemented:



Water Efficiency Measures

Consideration has been given to water efficiency in order to meet the requirements of the Building Regulations Part G as a minimum. The following water consumption levels will be achieved in order to reduce consumption and align with BREEAM targets:

- Dual flush WC cistern with an effective flush volume of 4.5 litres or less with appropriate guidance or symbols to instruct the user on the operation;
- Best practice flow rate taps in both kitchen and sanitary areas; and,
- Showers with flow rates: 9-12 litres/min



Major Leak Detection Systems (landlord)

A leak detection system capable of detecting a major water leak on the main water supply will be included within the building and between the building and the utilities water meter.



Metering

Water meters will be installed on the mains water supply for each dwelling with a pulsed output to enable connection to a 'Building Management System' (BMS) for the monitoring of water consumption. Each retail unit will have separate sub-meter.

Unregulated water uses are assessed in BREEAM and include irrigation for planting which is expected to be water-efficient.

Sustainable Urban Drainage systems (SUDs) will comprise an attenuation tank in the basement as detailed in the separate drainage assessment. Further information about flood risk can be found in the separate Flood Risk Assessment.

3.3 Materials

3.3.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for materials.

Table 3 MCC policies relating to materials

Policy Reference		Target
Materials	CS EN19	– Require all developers to identify consistency with the waste hierarchy. – Provide a project waste management plan. – Promote innovation in order to make progress towards a closed loop waste management system. – Provide accessible facilities.
	CS EN20	– Encourage the efficient use of minerals and promote the use of secondary/recycled aggregates, wherever possible as an alternative to primary extraction and identify and safe guard sites for its storage, processing and transfer. (See also Waste Policy EN19.) – Encourage and safeguard the sustainable transport of minerals, including by use of rail, wherever possible. – Ensure that any adverse environmental impacts of storage, processing and transfer on neighbouring uses are minimised.
	CS EN19	– Require all developers to identify consistency with the waste hierarchy. – Provide a project waste management plan. – Promote innovation in order to make progress towards a closed loop waste management system. – Provide accessible facilities.

3.3.2 Approach

A steel frame solution has been selected (instead of concrete) to reduce material volumes and realise the design intent. An overview of the embodied carbon analysis completed to date is provided in section 0.

During the next stage, this assessment will be further refined and consideration given to minimising material quantities and selecting materials with low embodied energy potentially through reclamation or high levels of recycled content.

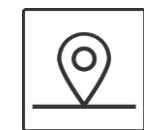
All materials, where viable, will additionally be procured through sustainable sources and products will be preferred with environmental certification such as BES6001 and ISO14001 certified supply chains.

The proposed development will achieve the following:

- Timber to be sourced from sustainable sources accredited by the FSC
- Materials specified highly from the Green Guide to Specification and products certified with ISO14001 and BES6001.

Robust materials will also be specified to enable a long life with low maintenance.

The following opportunities to improve the sustainability of material selection have been identified and will be implemented:



Material Sourcing
Where feasible, the proposed development will endeavour to source materials locally. This will assist in reducing the embodied carbon of the materials by limiting transportation related emissions and would support the local economy.



Maximise Recycled Content of Materials
A number of materials used commercially in the UK construction industry are manufactured using materials recycled from post-consumer waste. A detailed analysis of the materials available in the UK is outlined on the WRAP website and the 'National Building Specification' (NBS) 'Greenspec' website. The design will endeavour to utilise materials with low embodied impacts.



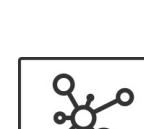
The Green Guide to Specification
Materials used will be reviewed using the BRE's online 'Green Guide to Specification' (www.bre.co.uk/greenguide) in order to maximise the proportion of materials which are A rated, and minimise materials with the lowest ratings (E).



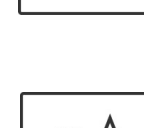
Responsibly Sourced, Certified Timber
The buildings will only use timber from a temperate, well managed source or manufactured from recycled timber waste. Timber certified by the 'Forest Stewardship Council' (FSC) contains a product-specific chain of custody number confirming that the timber used in the manufacture of the product originates from a sustainably managed source. 100% of the timber used to be FSC/PEFC certified.



Zero ODP and GWP Insulation
Preference will be given to insulation materials such as rock wool and mineral wool, which are manufactured to have an 'Ozone Depletion Potential' (ODP) of zero, and low 'Global Warming Potential' (GWP), while still giving consideration to thermal performance and fitness for purpose.



Low solvent / low VOC paints
Paints and other materials with high levels of Volatile Organic Compounds (VOCs) can emit organic compounds long after the building has been completed. These chemicals which are inhaled by the building occupants are considered to be a contributing factor in sick building syndrome, leading to nausea and headaches. The scheme will, as far as possible, use internal materials that have a low solvent / low VOC content.



Zero Formaldehyde MDF
'Medium Density Fibreboard' (MDF) is a timber panel product that can be manufactured with new or recycled timber. Typically MDF is manufactured using Formaldehyde, which is hazardous to health. However, MDF can be manufactured without the use of Formaldehyde and the development will use zero Formaldehyde MDF as far as practically possible.

3.4 Waste

3.4.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for waste.

Table 4 MCC policies relating to waste

Policy Reference		Target
Waste	CS EN19	– Require all developers to identify consistency with the waste hierarchy. – Provide a project waste management plan. – Promote innovation in order to make progress towards a closed loop waste management system. – Provide accessible facilities.
	CS EN20	– Encourage the efficient use of minerals and promote the use of secondary/recycled aggregates, wherever possible as an alternative to primary extraction and identify and safe guard sites for its storage, processing and transfer. (See also Waste Policy EN19.) – Encourage and safeguard the sustainable transport of minerals, including by use of rail, wherever possible. – Ensure that any adverse environmental impacts of storage, processing and transfer on neighbouring uses are minimised.
	CS EN19	– Require all developers to identify consistency with the waste hierarchy. – Provide a project waste management plan. – Promote innovation in order to make progress towards a closed loop waste management system. – Provide accessible facilities.

3.4.2 Approach

A pre-demolition audit of the existing building will be conducted prior to its demolition to identify any materials that could be salvaged for re-use on site or elsewhere and reduce the requirement for virgin materials to be used for aggregates and other such applications. Waste that can be reused will be processed through an approved waste management contractor and reused and recycled where possible. A Resource Management Plan will be developed early on in the project development in order to identify the most appropriate way to reduce waste and encourage recycling through construction.

During construction, careful waste management procedures will be put in place during construction and on into operation to reduce the amount (volume and mass) of waste sent to landfill during the lifetime of the building. The principles of the waste hierarchy will be applied at each stage.

The development itself will be likely to produce moderate waste volumes through operation due to the users of the offices. However, to encourage or move towards closed loop waste management, suitable waste storage and facilities will be provided for the tenants. This will allow for segregation of recyclable and non-recyclable general waste.

The selection of materials will also consider end of life and recyclability. Materials that can be salvaged at the end of life will be incorporated wherever possible to reduce the instances of waste produced in the future.

The following opportunities to reduce waste have been identified and will be implemented at the proposed development.



Re-Use of Materials

The material use strategy for the proposed development will minimise the environmental impact. A key component of this strategy is the re-use of existing materials. It is intended that material will be recovered during any demolition process and reused during construction. A pre-demolition audit will identify those elements that are applicable for reuse or recycling.



Minimisation of Demolition & Construction Waste

The contractor will be required to produce a 'Site Waste Management Plan' (SWMP) to define measures for how to minimise the volume of waste arising from any demolition and all construction activities sent to landfill. Performance of the contractor waste reduction and their environmental impact in this regard will make up an element of tender process.



Off-site Construction

Off-site modular construction will be considered where possible, which would allow less waste to be produced on-site as the construction method takes on a form of an assembly of components. Features may include bathroom pods, stair-core components or upper floor elements although further opportunities will be sought through design and construction.



Operational Waste

The buildings will be provided with sufficient bin storage capacity to allow for storage of recyclable and non-recyclable waste streams.

The building users will manually transfer waste to a central waste storage area that is in an appropriate location for collection by MCC or another waste management contractor. The waste store will be designed in accordance with BS5906 (waste management in buildings), generally using 1,100 litre bins.

3.5 Transport

3.5.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for transport.

Table 5 MCC policies relating to transport

Policy Reference		Target
Transport	CS CC5	– Provide access to public transport and sustainable modes of accessing the proposed development. – Promote sustainable modes of transport including walking and cycling. – Provide storage and facilities for cyclists/walkers.
	CS SP1	– Encourage sustainable transport and facilitate sustainable transport.
	CS T1	– Provide suitable alternative to car transportation. – Promote regeneration and access to jobs. – Improve access to transportation services. – Improve pedestrian routes. – Improve access to cycle facilities. – Facilitate modes of transport that are low carbon.

3.5.2 Approach

Most building users are anticipated to arrive at the building on foot, by bike or via public transport given the excellent local and national public transportation links close by and the facilities proposed within the building itself. Car parking is not provided.

The basement level has been designed to provide secure cycle storage and cyclist facilities to encourage active travel and the site's city-centre location offers easy access to extensive public transport links via bus, tram and train.

The following measures for sustainable transport have been identified and will be implemented:



Public Transport

The proposed development benefits from excellent access to local bus, train and tramline routes. There is good access to local and national transport destinations that will allow sustainable transport for visitor and commuter transport, from and to the site.



Cyclist and pedestrian Facilities

The proposed development will be provided with secure cycle storage for tenants.

3.6 Pollution

3.6.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for pollution.

Table 6 MCC policies relating to pollution

Policy Reference		Target
Pollution	CS DM1	– 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.
	CS Policy EN14	– Limit the risk and impact of flooding. – Limit increases in surface water runoff.
	CS Policy EN17	– Ensure no decreases to water quality. – Minimise surface water runoff. – Open any culverted watercourses.
	SPDPG Section 4.9 (Superseded)	– Provide SUDS to management surface water runoff. – Minimise increases in impermeable surfaces. – Prepare FRA for areas at risk of flooding.

3.6.2 Approach

Any remediation strategy that may be required is subject to a ground investigation survey. Internal air pollution will be minimised internally through careful selection of finishing products.

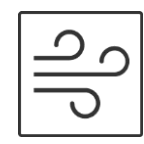
The building services design will be carefully considered to enable the indoor environment to be free of pollutants. Building services plant will be selected based on efficient and ultra-low emissions of NO_x SO_x and CO_x (where applicable), and will not substantially contribute to local air pollution. No gas combustion devices will be installed on site thereby contributing significantly towards the aims of the Greater Manchester Clean Air Plan. Life-safety requirements include provision of a back-up diesel generator and sprinkler pumps.

Noise pollution from the fixed building services plant has been assessed by an acoustic consultant [REP-1014190-05-SG-20230316-Noise assessment report]. Noise likely to cause complaint will be mitigated to ensure no increase the overall background noise levels. The following measures to control pollution have been identified and will be implemented:



Light Pollution

Potential sources of light pollution as a result of the new build will be mitigated through measures such as night-time dimming of lights (where appropriate), and selection of luminaires to distribute light downwards.



NO_x Emissions & Air Quality

To minimise potential air quality effects, the scheme will utilise a strategy which mitigates the need for onsite combustion plant and will help to minimise emissions of Nitrous Oxide (NO_x) and Particulate Matter (PM).



Waste Storage

Adequate waste storage facilities will be provided with capacity to allow storage of non-recyclable and recyclable waste, preventing odour pollution from the site.



Noise impacts

Noise impacts have been assessed. Noise levels likely to cause complaint will be mitigated through the incorporation of acoustic barriers or other insulation.

3.7 Ecology and Biodiversity

3.7.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for ecology and biodiversity.

Table 7 MCC policies relating to ecology and biodiversity

Policy Reference		Target
Ecology & Biodiversity	CS EN9	– Encourage green infrastructure where possible.
	CS EN10 / EN11 / EN12	– Maintain levels of open, sports and recreation spaces.
	CS EN13	– No impact on the Green Belt.
	CS EN15	– Encourage features to ensure no loss of biodiversity. – Maintain or enhance sites with specific designations or value. – Justify any adverse effects on ecology. – Provide suitable mitigation and compensation.

3.7.2 Approach

The existing site is of low ecological value and an ecologist has been appointed to advise on opportunities for improvement.

The building design incorporates balconies on every floor running up the nose of the building and a roof top amenity space. All of these outside areas are being considered for planting that could improve local biodiversity and user well-being.

The appointed ecologist will provide further advice on site ecology and biodiversity including recommended planting species to encourage local wildlife.

The following measures relate to ecology and biodiversity have been included in the project:



Native Planting

Native and non-native plants and species of benefit to local biodiversity will be selected to create and restore native ecosystems. This will also involve the selection of plants that don't require irrigation and that thrive on available rainwater.



Environmental Effects

The scheme will aim to record no environmental incidents on-site. Examples of environmental incidents include pollution or contamination of ground and water sources through paint, oil or cement powder spillage.



Tree Planting

The development will aim to introduce planting where space permits. Two locations for climbers will be provided within the roof garden to maximise linear habitat.

3.8 Community

3.8.1 MCC Adopted Policy Summary

The following table summarises the adopted MCC policies for community.

Table 8 MCC policies relating to community

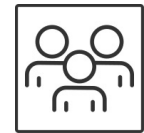
Policy Reference		Target
Community	CS EN1	– Design facilities that will fit the local character of the development site.
	CS EN10 / EN11 / EN12	– Maintain levels of open, sports and recreation space.
	CS EN13	– No impact on the Green Belt.

3.8.2 Approach

The project team aims to engage with the local community throughout design, construction and operation to deliver a sustainable development, built for purpose.

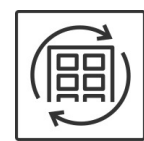
By engaging with communities and stakeholders in a meaningful and transparent manner as early in the development life cycle as possible, the developer aims to be a 'good neighbour' and a positive influence in the community.

The following measures for community engagement and facilities have been identified for further consideration:



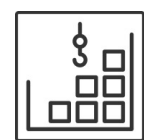
Local Employment

The scheme will seek to boost the local economy by using local business and suppliers wherever possible. The team has been encouraged to prepare a sustainable procurement plan for the development that will identify ways to sustainably, responsibly and locally procure.



Improving Existing Sites

The development will re-vitalise the area and improve the quality of both townscape and public realm, making efficient use of land in this location. The development will provide new office space to support the growing demand in Spinningfields.



Considerate Construction Scheme

The contractor will be required to operate under the Considerate Constructors Scheme to ensure good neighbourliness and environmental awareness during construction. The contractor will be required to achieve a best practice score under the assessment.

4. Operational Energy Performance

4.1 NABERS and Design for Performance

The Better Buildings Partnership have recently introduced the 'Design for Performance' (DfP) initiative to the UK. Based on the highly successful National Australian Built Environment Rating System (NABERS), this scheme has succeeded in allowing office developments in Australia to achieve highly energy efficient system design, with increasingly aspirational benchmarks for Landlord energy consumption in office buildings being set.

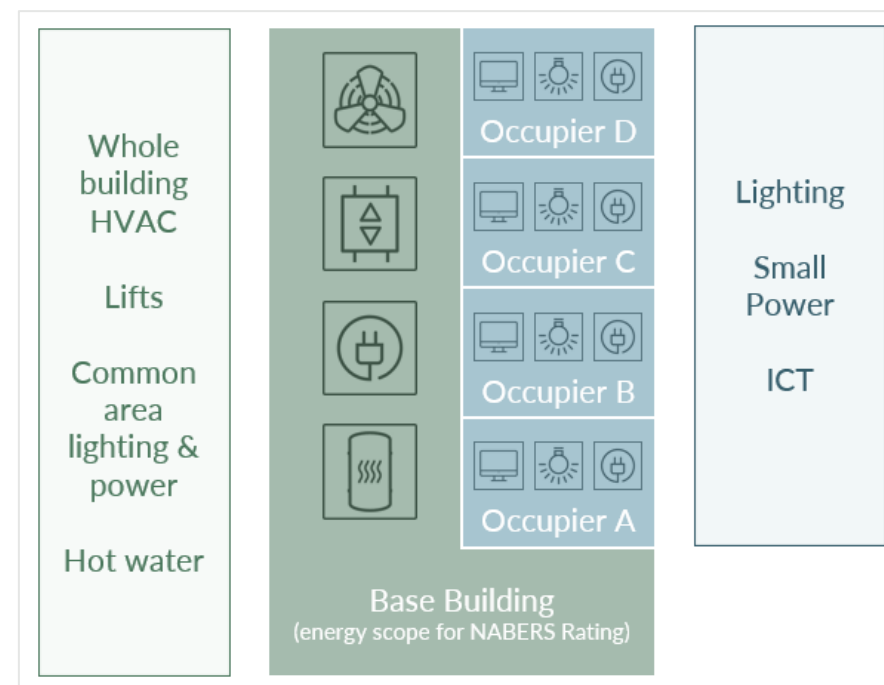
The Design for Performance, or NABERS, rating system uses operational energy modelling from early design stages to assess the intended output of the proposed development's Landlord energy consumption and how this can be modified to allow for a more energy efficient design.

The building is then assessed in operation, i.e. annual energy consumption is measured and reported, to determine how close to the intended design the development performs and whether or not the ratings target has been achieved.

Design for Performance is intended to drive market leading performance through optimisation of the building façade/fabric and low energy HVAC solutions which may include onsite energy generation.

Figure 3 details the scope of the assessment, demonstrating how important it is to scrutinise the Landlord energy consumption to ensure the base-build allows for the most energy efficient design before the Tenant loads are added on top.

Figure 3 Scope of energy demands included in NABERS assessment for the base building



4.1.1 Proposed development Target

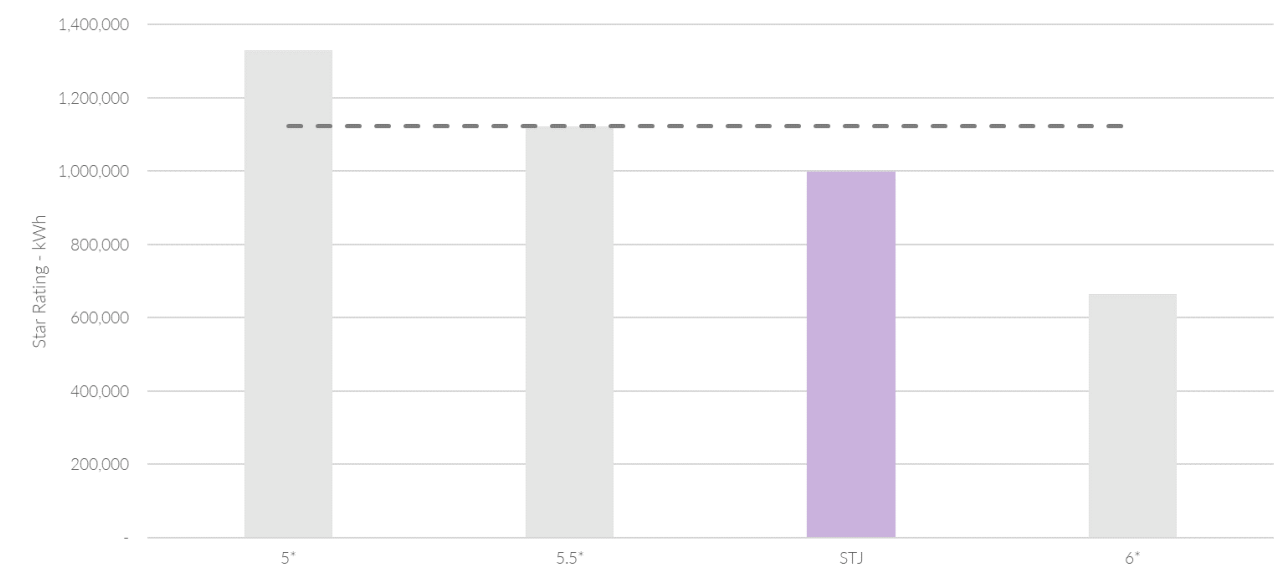
The proposed development is targeting a NABERS 5.5* which, when using an initial approximate Net Internal Area (NIA) of 19,136m², in the Design for Performance/NABERS reverse calculator, means reducing the operational energy consumption of the Landlord areas to approximately 51kWh/m²/yr.

4.1.2 Proposed development Initial Outputs

The latest round of modelling against the DfP/NABERS criteria shows that a 5.5* rating is achieved for the latest simulation model for St John's Campus including a 25% modelling margin in line with the methodology.

Figure 4 demonstrates that the current performance exceeds the standard, as the predicted energy consumption is less than the threshold indicated for a 5.5* rating.

Figure 4 NABERS performance for St John's Campus

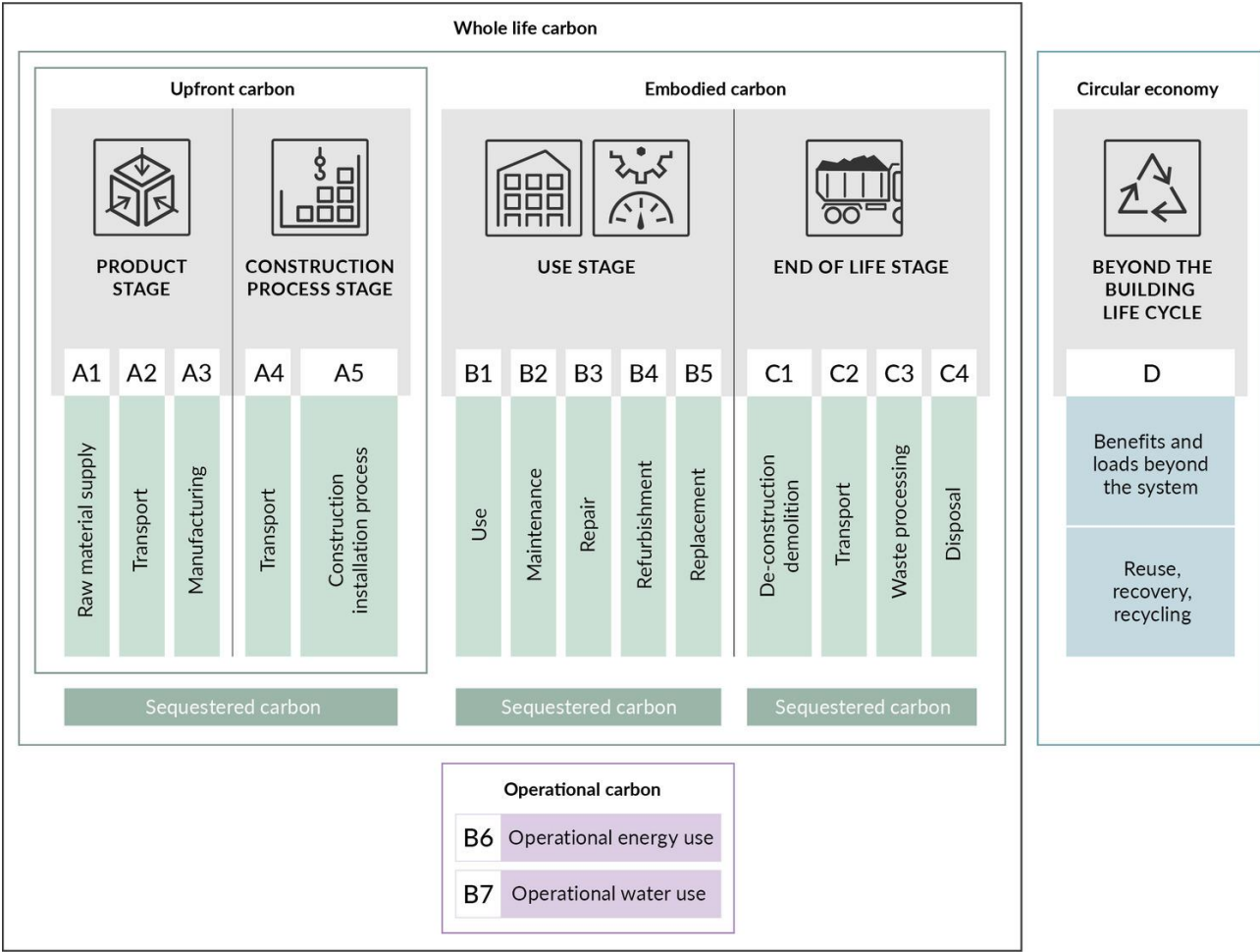


The simulation results indicate that the project is currently on track to achieve its target rating as the predicted energy demand is less than the maximum permissible for a 5.5* rated building in this location.

5. Embodied Carbon

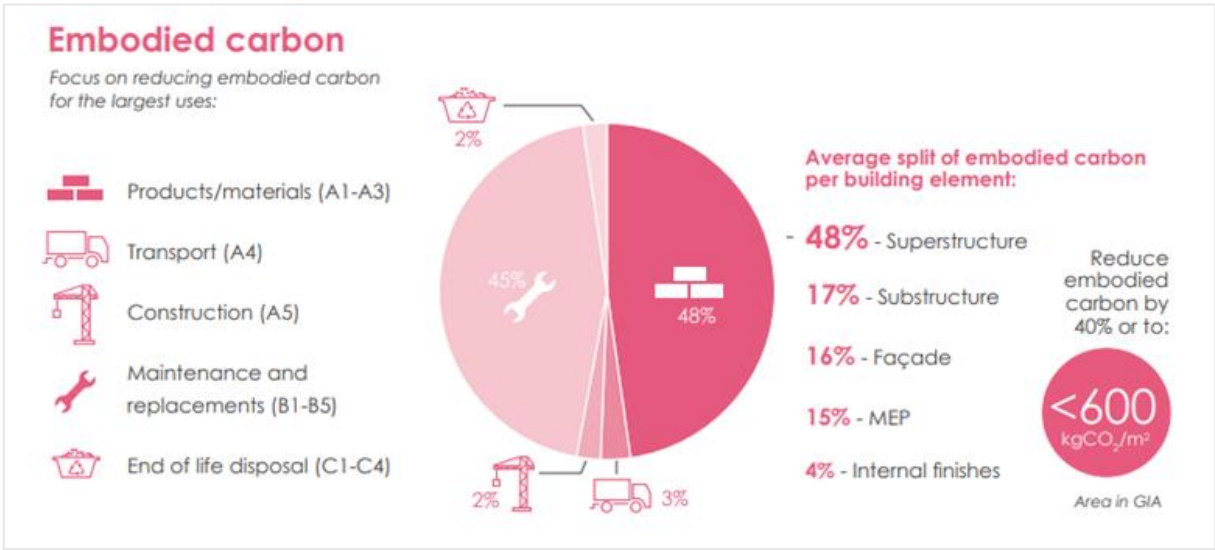
Embodied carbon emissions refer to the carbon contained within the building materials, through manufacture and transport. Embodied carbon typically accounts for over 50% of the total carbon emissions of a building, but this proportion is expected to increase as the national grid decarbonises resulting in reduced operational emissions. Figure 5 below details the different stages of assessment.

Figure 5 System Boundary: EN 15978:2011 Display of modular information for the different stages of the building assessment



To align with Manchester's Roadmap to Net Zero Carbon, the proposed development should target an upfront embodied carbon of <600kgCO_{2e}/m² (Lifecycle modules A1-A5). Figure 6 provides an indication as to how this might break down across the different building elements.

Figure 6 Embodied carbon emissions (LETI)



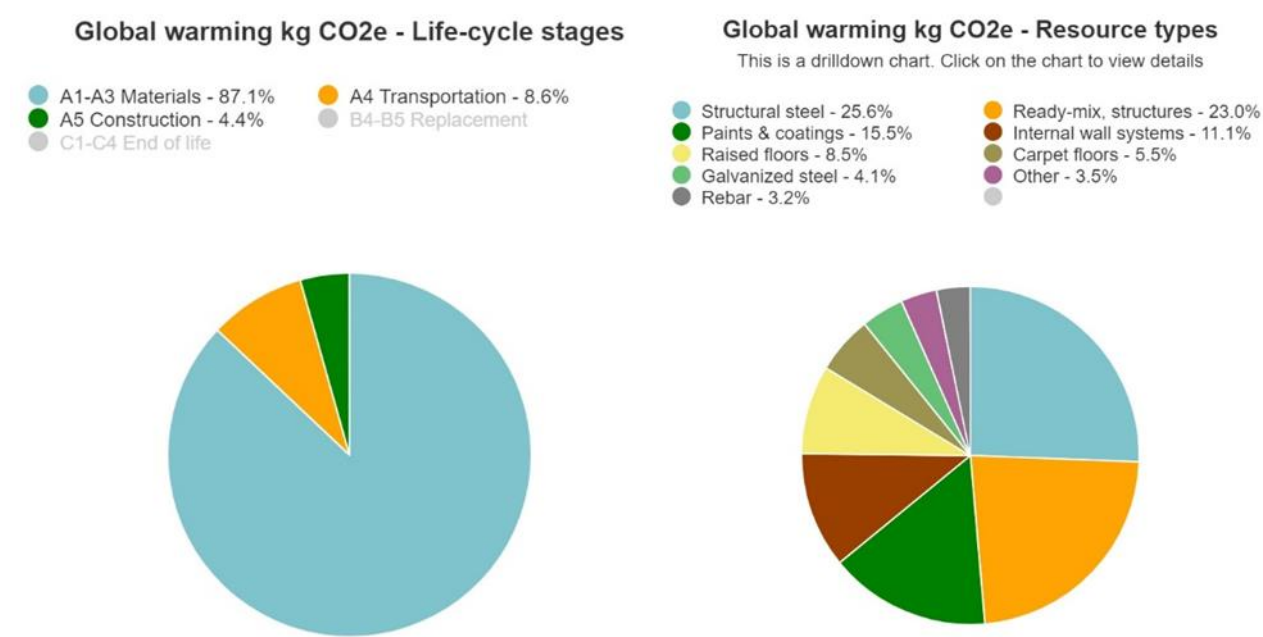
5.1 Results of preliminary life cycle analysis.

The Embodied Carbon footprint of the development was assessed during concept design, with results displayed below.

Table 9 Preliminary results from the first round of modelling

Lifecycle module(s)	Result category	Global warming kg CO2e
A1-A3	Construction Materials	15,357,218
A4	Transportation to site	1,514,508
A5	Construction/installation process	769,996
B4-B5a	Material replacement - materials	6,299,872
B4-B5b	Material replacement - transport	632,914
B4-B5c	Material replacement - waste	173,054
C1-C4	End of life	435,527

Figure 7 Embodied carbon by life cycle stages and resource types (60-year analysis)



The pie chart on the left in Figure 7 shows the difference in importance of carbon in the upfront carbon lifecycle modules. Modules A1-A3 can clearly be seen to be the major proportion of the carbon, with modules A4 and A5 of much lower importance.

- Total Upfront Carbon emissions (lifecycle modules A1-A5) were forecast to be 17,642 tCO₂e. This equates to a /m² rate of 695kgCO₂e/m².
- It should be noted that this is above the project target of <600kgCO₂e/m².

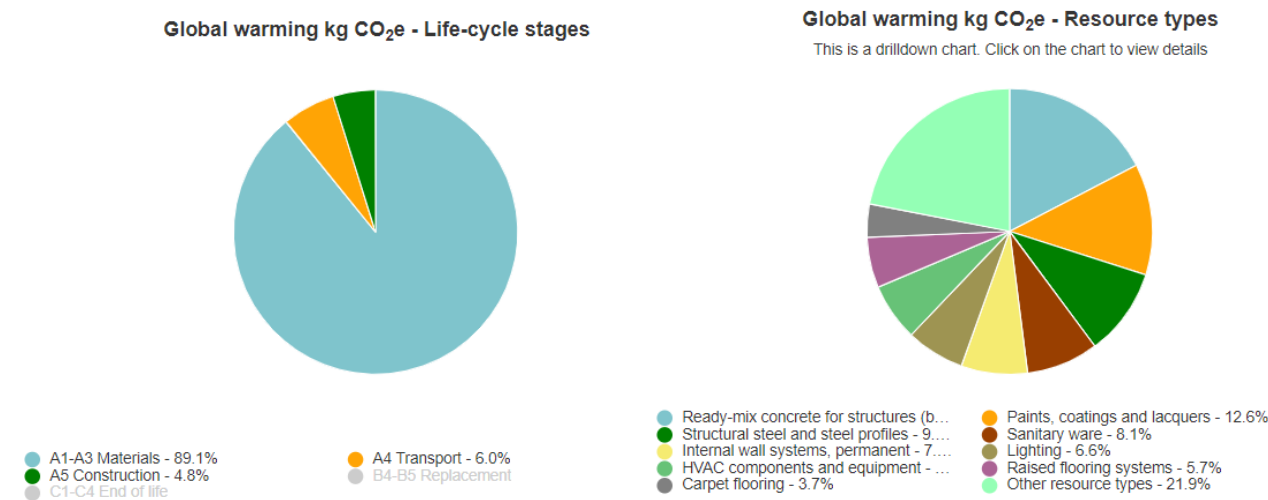
5.2 Results of life cycle analysis at RIBA Stage 3.

The Embodied Carbon footprint of the development was assessed during RIBA Stage 3, with results displayed below.

Table 10 RIBA Stage 3 preliminary results

Lifecycle module(s)	Result category	Global warming kg CO ₂ e
A1-A3	Construction Materials	16,680,753
A4	Transportation to site	1,130,905
A5	Construction/installation process	902,536
B4-B5a	Material replacement - materials	12,342,839
B4-B5b	Material replacement - transport	779,330
B4-B5c	Material replacement - waste	249,741
C1-C4	End of life	671,029

Figure 8 Figure 8 Stage 3 Embodied carbon by life cycle stages and resource types (60-year analysis)



Updates from the concept design stage include the following:

- Façade design change to UHPC (ultra-high-performance concrete) with brick slips, plus triple glazed windows.
- Updated services quantities to reflect a more developed design.
- Structural steel frame tonnage, recycled content, and source updates to reflect a more developed design.
- GIA updates.
- Reduced number of flights of stairs to reflect VE changes at the Pavilion.

The façade and steel frame quantities included at Stage 3 were assumed to be calculated post VE changes to the design. Therefore, to avoid double-counting, those VE items which were related to the façade and frame in the VE changes summary, were not considered.

Similar to the results at concept design, modules A1-A3 can clearly be seen to be the major proportion of the carbon, with modules A4 and A5 of much lower importance.

- Total Upfront Carbon emissions (lifecycle modules A1-A5) were forecast to be 18,714 tCO₂e. This equates to a /m² rate of 722kgCO₂e/m².
- This has slightly increased from Stage 2 and is above the project target of <600kgCO₂e/m².

The upfront carbon impact has increased since Stage 2. Although design development has reduced carbon in some areas (reduction in steel tonnage), others, such as moving to a façade design using higher quantities of higher-carbon concrete, and adoption of triple glazed external openings have negated this.

This overall increase in embodied carbon should be considered alongside the improvements to reduce operational energy demand and a balance should be sought between the two to deliver the best whole-life carbon solution.

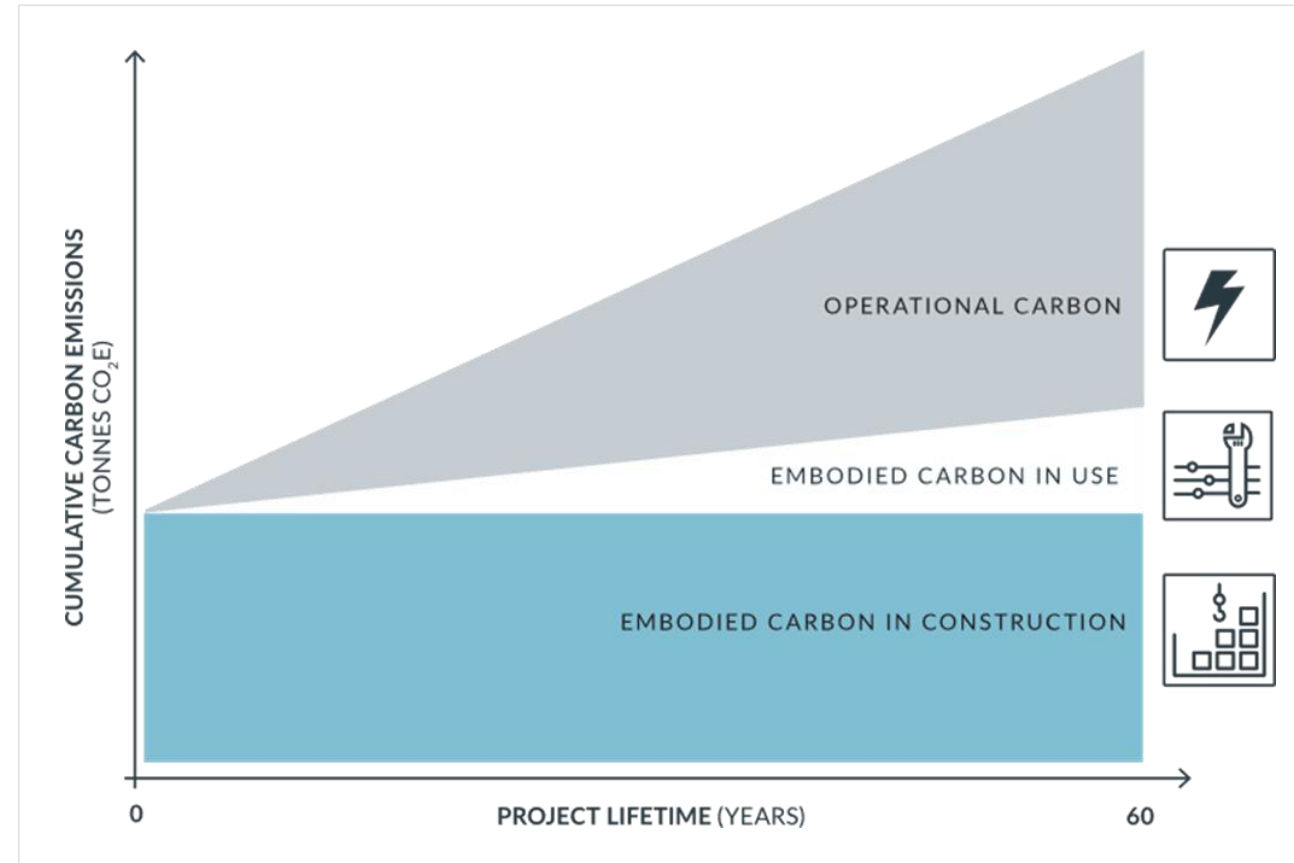
Note: These interim results reflect the known changes between Stages 2 and 3 as presented to the LCA practitioners and are subject to ongoing revision as the design develops.

The next step should be to challenge the whole team to find solutions which will bring the project in line with the target of <600kgCO₂e/m².

5.3 Whole Life Carbon.

Whole life carbon refers to the sum of the operational and embodied carbon emissions over the life of the building. With an aspiration to be net zero carbon, both operational and embodied emissions must be addressed during the concept stage and developed through design and construction. Following the guidance provided on the operational energy approach and targeting key elements of the structure will provide significant steps towards net zero carbon.

Figure 9 Whole life carbon



5.3.1 Carbon offsets

It will be difficult to achieve a totally zero whole life carbon development, therefore carbon offsets such as afforestation, creation of off-site solar/ wind farms should be considered. Reducing operational and embodied carbon will result in a lower investment in carbon offsets.

6. Environmental Assessment Methods

6.1 BREEAM

St John's Campus is targeting a minimum BREEAM rating of "Excellent" under the BREEAM 2018 New Construction scheme (shell and core), which requires a score of at least 70%. A buffer of ~5% is advisable to allow for changes during design development and/or performance targets being missed during the construction stage.

Several credits are time-linked to RIBA stages with early action, specialist appointments and studies required to secure the associated credits. All of the credits that are time-linked to RIBA stages 2 and 3 have been signed off.

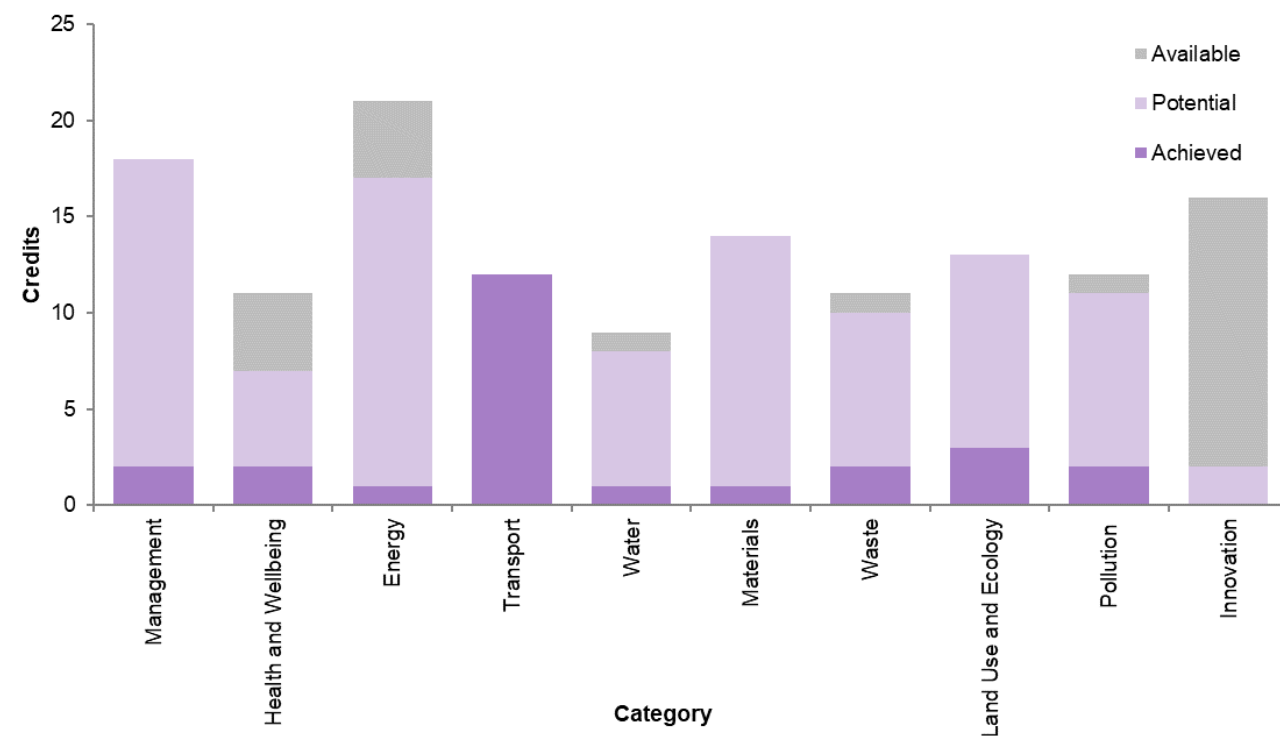


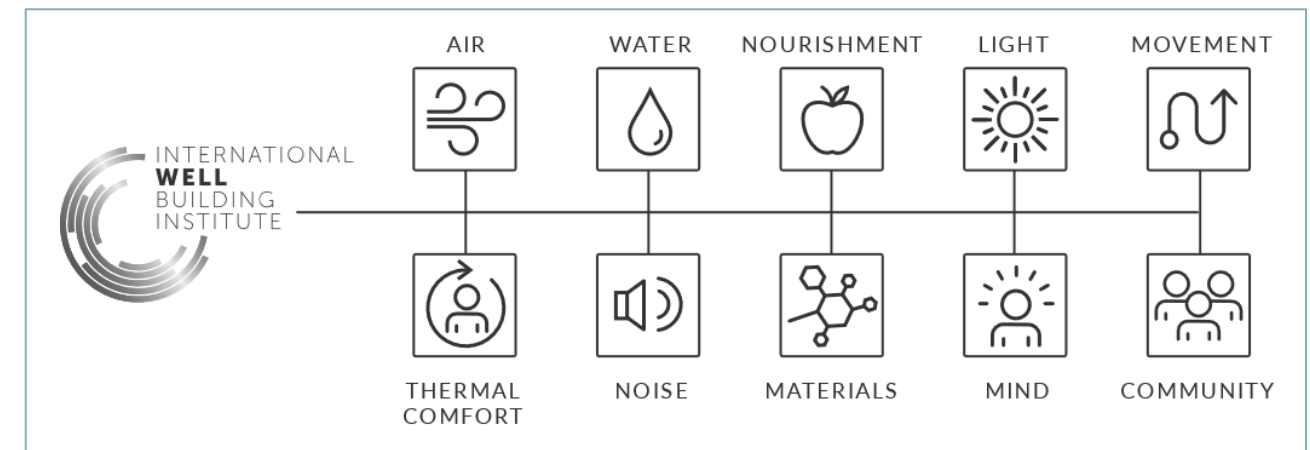
Figure 10 Summary score chart confirming status during RIBA Stage 3

The current scoring projections include a target score of 77.37% (exceeding the minimum 70% required for Excellent) and a potential score of 94.26% (exceeding the minimum 85% required for Outstanding). To date, evidence has been provided to close out 23.11% credits and the team is regularly reviewing progress and uploading evidence to the online assessment portal.

6.2 WELL Building Standard

WELL is the first standard of its kind to focus solely on the health and wellbeing of the building occupants. Established in 2014, and revised in May 2018, WELL v2 is structured around 10 concepts, based on a holistic view of health, not only a state of being free of disease, but also of the enjoyment of productive lives from which we derive happiness and satisfaction.

Figure 11 Ten WELL Concepts (International WELL Building Institute (IWBI))

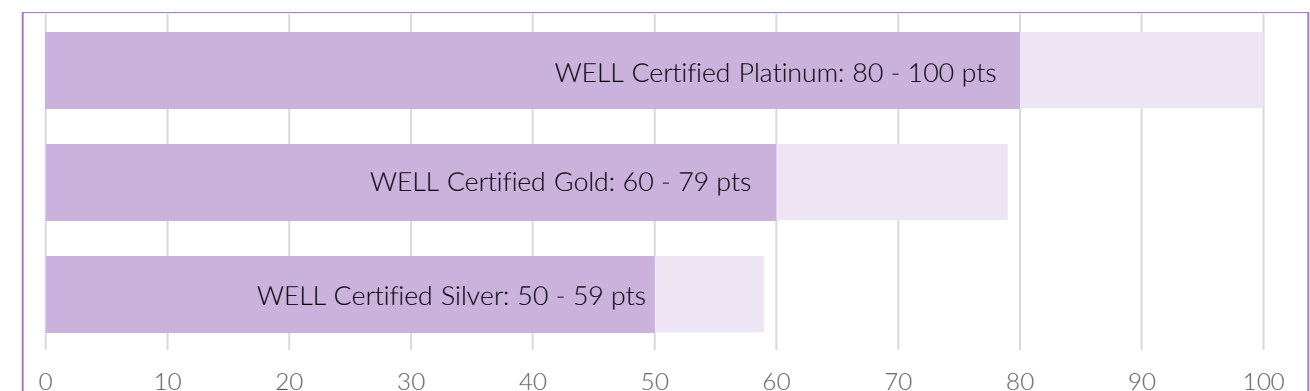


Over 100 features are included within the WELL Standard, categorised as either:

- Preconditions – necessary for 'baseline' WELL certification; OR
- Optimisations – optional additional enhancements

Together, these determine the level of certification above baseline certification. There are 24 Preconditions that need to be achieved, and 98 Optimisations to choose from. The required number of Optimisations depends on both the level of certification targeted and the project type, as outlined below in Figure 12.

Figure 12 WELL Core scoring and certification levels (IWBI)



6.2.1 BREEAM and WELL Crosswalk

BREEAM and WELL overlap in some assessment areas, meaning that the certain aspects of the building design can achieve credits under both schemes. Under WELL, criteria that is, 'equivalent' to BREEAM will automatically achieve points in both assessments; while criteria that is, 'aligned' will typically require minimal additional effort to secure the points. This overlap is referred to as the Crosswalk, discussed in the WELL pre-assessment.

6.2.2 WELL Scope: Base build vs Tenant Fit Out

The WELL Core methodology has been applied and the project is on track to achieve a 'Gold' rating with the potential to achieve 'Platinum'. Figure 13 below highlights the different aspects of the build that are covered by WELL depending on the approach taken.

Figure 13 WELL Base Build vs Tenant Fit Out

Shell & Core			Cat A		Cat B / Tenant	
AIR	MOVEMENT	MIND	As per Shell & Core but also:	As per Cat A but also:	AIR	MATERIALS
01 Fundamental Air Quality	01 Active Buildings and Communities	01 Mental Health Promotion	LIGHT	08 Air Quality Monitoring and Awareness	03 Outdoor Structures	04 Waste Management
02 Smoke-Free Environment	02 Visual and Physical Ergonomics	02 Access to Nature	03 Circadian Lighting Design			07 Pesticide Use
03 Ventilation Effectiveness	03 Movement Network and Circulation	09 Enhanced Access to Nature	04 Glare Control			
04 Construction Pollution	04 Active Commuter and Occupant Support	COMMUNITY	05 Enhanced Daylight Access			
05 Enhanced Air Quality	05 Site Planning and Selection	01 Health and Wellness Awareness	06 Visual Balance			
06 Enhanced Ventilation	09 Exterior Active Design	02 Integrative Design	07 Electric Light Quality			
07 Operable Windows		03 Occupant Survey	08 Occupant Control of Lighting Environments			
09 Pollution Infiltration Management		13 Accessibility & Universal Design				
10 Combustion Minimisation		14 Bathroom Accommodation				
11 Sources Separation						
12 Air Filtration						
13 Active VOC Control						
14 Microbe and Mould Control						
WATER	THERMAL COMFORT	INNOVATIONS	MOVEMENT	WATER	NOURISHMENT*	MIND
01 Fundamental Water Quality	01 Thermal Performance	01 Innovate WELL	07 Active Furnishings	06 Drinking Water Promotion	03 Refined Ingredients	03 Mental Health Support
02 Water Contaminants	02 Enhanced Thermal Performance	02 WELL Accredited Professional			04 Food Advertising	04 Mental Health Education
03 Legionella Control	05 Radiant Thermal Comfort	05 Green Building Rating Systems			05 Artificial Ingredients	05 Stress Support
04 Enhanced Water Quality	07 Humidity Control				06 Portion Sizes	06 Restorative Opportunities
05 Water Quality consistency					07 Nutrition Education	07 Restorative Spaces
07 Moisture Management					08 Mindful Eating	08 Restorative Programming
08 Handwashing					09 Special Diet	10 Focus Support
					10 Food Preparation	11 Sleep Support
					11 Responsible Food Sourcing	12 Business Travel
					12 Food Production	13 Tobacco Prevention and Cessation
						14 Opioid Emergency Response Plan
NOURISHMENT*	SOUND		THERMAL COMFORT	SOUND	LIGHT	COMMUNITY
01 Fruits & Vegetables	01 Sound Mapping		03 Thermal Zoning	03 Sound Barriers	08 Occupant Control of Lighting	04 Enhanced Occupant Survey
02 Nutritional Transparency	02 Maximum Noise Levels		04 Individual Thermal Comfort	04 Sound Absorption		05 Health Services & Benefits
13 Local Food Environment	05 Sound Masking		06 Thermal Comfort Monitoring			06 Health Promotion
						07 Community Immunity
						08 New Parent Support
						09 New Mother Support
						10 Family Support
						11 Civic Engagement
						12 Organizational Transparency
						15 Emergency Preparedness
						16 Community Access & Engagement
LIGHT	MATERIALS		MATERIALS	MOVEMENT	THERMAL COMFORT	INNOVATIONS
01 Light Exposure & Education	01 Fundamental Material Precautions		13 Enhanced Material Precaution	06 Physical Activity Opportunities	04 Individual Thermal Comfort	03 Educate WELL
02 Visual Lighting Design	02 Hazardous Material Abatement		14 Material Transparency	08 Physical Activity Spaces & Equipment	05 Radiant Thermal Comfort	04 Gateways to Wellness
	05 In-Place Management			10 Enhanced Ergonomics		
	06 Site Remediation			11 Physical Activity Promotion		
	08 Hazardous Material Reduction			12 Self-Monitoring		
	09 Cleaning Products and Protocol					
	10 Volatile Compound Reduction					
	11 Long-Term Emission Control					
	12 Short-Term Emission Control					
	13 Enhanced Material Precaution					
	14 Material Transparency					

*Where F&B provided

7. Conclusion

This report presents the sustainability strategy for the proposed development at St John's Campus, Manchester.

The development has been designed in accordance with all relevant national and local policy and is on track to achieve the following additional sustainability targets:

- BREEAM "Excellent" rating under New Construction 2018 (version 6) Shell and Core - Offices
- WELL "Platinum" enabled for the core/base build
- Upfront embodied carbon <600kgCO_{2e}/m² (Lifecycle modules A1-A5) to align with Manchester's Roadmap to Net Zero Carbon
- NABERS (Design for Performance) 5.5* rating



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