

Built environment - Decarbonisation standards Policy

1.0 Introduction

In March 2022 Cabinet agreed the adoption of Newport City Council's Organisational Climate Change Plan (2022-27). The plan was developed in collaboration with staff and managers across the council and the involvement of the public. The aim of the plan was to:

- Reach net zero as an organisation by 2030.
- Review the services we provide to ensure they support the city's journey to net zero and adaptation to climate change.

The Welsh Government has augmented UK legislation for all Welsh public bodies, setting a target to attain Net Zero (NZ) status by 2030. NCC recognises that decarbonising our built environment is crucial for achieving these goals and tackling Scope 1 greenhouse gas emissions.

2.0 Aims

This document outlines NCC *minimum* expectations and performance measures for adoption, to enable the delivery of decarbonisation within our built estate.

3.0 Scope

The scope of this document covers undertakings, which commonly give rise to significant carbon emissions within our estate:

- [New builds](#), (commissioned by NCC).
- [Retrofits- non-domestic buildings](#).
- [Purchase of property assets](#).

4.0 To be read in conjunction with

Strategic Asset Management Plan
Climate Change Plan

5.0 New builds

The objective of this section is to outline NCC's expectations and performance criteria concerning the construction and operation of future buildings and dwellings. To ensure that our delivery partners are aligned with NCC's goal of achieving Net Zero (NZ) status, requirements and performance criteria must be addressed from the outset. It is the responsibility of our suppliers to identify health and safety, environmental, financial, and operational risks that adherence to this document may indirectly pose.

The incorporation of low-carbon and Net Zero principles must be woven throughout the design, construction, operational performance, and planned maintenance of any new building project. This approach should ensure that operational requirements are fully met, and most importantly, that the physical well-being of our building occupants takes precedence.

5.1 Design requirements

The UKGBC Framework details a 5-step approach that a building should undertake to achieve NZ. *Noting* point 5 of the framework ‘*Offset any remaining balance*’ should be collaboratively worked through with NCC to determine the most ethical and cost-effective solution. [See Appendix 1](#)

NCC will seek suppliers that actively engage and collaborate with us to ensure our new builds are constructed and operate to the highest environmental construction standards.



The table below highlights the overarching targets for all NCC commissioned new builds:





Table 5.1.1: New Build- Principal targets





Carbon Source	PRINCIPAL TARGETS
Construction	The amount of carbon emissions associated with a building’s product and construction stages up to practical completion should be zero or negative .
Operational Energy	Carbon emissions associated with a building’s operational energy on an annual basis will be zero or negative .





A suite of further overarching requirements NCC are committed to incorporating within our new builds, are included in table 5.1.2. In order to achieve these measures, where appropriate **acceptance testing, must be incorporated into our design and build contracts or equivalent.**

Table 5.1.2: NCC new build requirements

	REQUIREMENTS	PERFORMANCE INDICATOR
	<p>Scope</p> <ul style="list-style-type: none"> The new build will achieve as per the targets defined within this document or referenced elsewhere for both construction and operational energy. Construction: WLAM carbon assessment must be undertaken to determine the building’s carbon impact. Construction: Any net export of renewables/purchase of offsets audited by 3rd party with client agreement. Operation Energy: Defined as all areas under operational control that have been used to demonstrate NZ. The energy scope and related GIA should be disclosed. Operational Energy: Must be reported annually for carbon impacts as a total emission (tCO₂e) and intensity (kgCO₂e/m²). 	<ul style="list-style-type: none"> Applicable LETI emergency design guide compliance. See Appendix 2 NZ for OE is achieved when the building’s total annual net CO₂ emissions = 0.
	<p>Building envelope and orientation.</p> <ul style="list-style-type: none"> Building orientation and form should consider HVAC load, reduction/optimisation daylight savings and exposure to outdoor conditions. The design optimises benefits of passive solar and disbenefits are mitigated – Optimum balance to be sought. Design is considerate to <i>maximise</i> the installation of Solar PV. Roof structures are accessible and have appropriate design super loads. 	<ul style="list-style-type: none"> Inclusion within architectural design process. Applicable LETI emergency design guide compliance. See Appendix 2 Roof design super loads factor include Solar PV weight loads.

	REQUIREMENTS	PERFORMANCE INDICATOR
	<p>Building fabric</p> <ul style="list-style-type: none"> ○ The fabric of the building minimises winter heat loss and reduces heating system demand. ○ Overheating minimised and thermal mass maximised. ○ Air tightness target <3 ($m^3/h/m^2$ @50Pa). ○ The specification of appropriate fabric/glazing tones and coatings to be incorporated to minimise overheating. ○ Indirect consequences of moisture are assessed and mitigated in design. 	<ul style="list-style-type: none"> ○ <i>Inclusion within architectural design process.</i> ○ <i>Applicable LETI emergency design guide compliance.</i> See Appendix 2 ○ <i>Handover commissioning certification.</i> ○ <i>Design assessment and adherence to code of practice BS 5250:2021.</i>
	<p>Heating and Hot water</p> <ul style="list-style-type: none"> ○ A heating system options appraisal of GSHP, ASHP and heat networks should be presented to the client to determine decision making. ○ Underfloor heating network provides heat output for all end users. ○ Design temperatures (<i>general</i>) -3°C outside and 19°C internal. Social Services setting internal 21°C. ○ Hot water and heating systems are independent of each other. ○ LETI space heating demand/heat loss targets incorporated. ○ LETI maximum heating dead leg and water outlet certification applied. ○ NCC ASHP Developers Pack. ASHP designs are sized and designed to optimise energy efficiency, whilst meeting operational requirements. 	<ul style="list-style-type: none"> ○ <i>Heating/hot water/commercial catering is fossil free.</i> ○ <i>Inclusion within architectural design process.</i> ○ <i>Adherence to NCC ASHP Developers Pack</i> See Appendix 5 ○ <i>Applicable LETI emergency design compliance.</i> See Appendix 2
	<p>Renewables</p> <ul style="list-style-type: none"> ○ Maximise Solar PV generation, exhausting all suitable locations for building and ground mounted Solar PV systems. (<i>Solar PV installation not limited to roof spaces to meet operational NZ</i>) ○ Solar PV system options to review emerging technologies and their project inclusion to maximise energy generation yield. (<i>i.e. building integrated PV</i>) ○ Solar PV product `solar edge` or equivalent specification, with individual panel optimisers, and interface with fire alarm systems. ○ Solar PV automatic inverter function, reduces DC on roof to close to zero. 	<ul style="list-style-type: none"> ○ <i>Offsets operational usage and exports excess, where possible.</i> ○ <i>Inclusion within architectural design process.</i> ○ <i>Solar PV system alignment with `solar edge` specification or equivalent.</i>
	<p>IT</p> <p>IT server/communication room(s) strategically located away from heating plant and situated on a North or East facing outside wall, to maximise natural cooling.</p> <ul style="list-style-type: none"> ○ LETI IT loads incorporated, where appropriate. 	<ul style="list-style-type: none"> ○ <i>Inclusion in architectural design process.</i> ○ <i>Applicable LETI emergency design guide compliance.</i> See Appendix 2
	REQUIREMENTS	PERFORMANCE

		INDICATOR
	<p>Lighting</p> <ul style="list-style-type: none"> ○ LED lighting specified for all internal and external lighting luminaires. ○ Lighting preprogrammed to achieve a <i>maximum</i> 10% over minimum guidance lighting lux levels. ○ SMART control system to incorporate daylight maximisation and absence energy saving features. Lighting programmed demand on/auto off, where appropriate. ○ PIR detection to be included in toilet areas. ○ Decorative lighting included by client exception only. ○ LETI lighting power density measures incorporated. 	<ul style="list-style-type: none"> ○ <i>Inclusion in architectural design process.</i> ○ <i>Applicable LETI emergency design guide compliance.</i> ○ See Appendix 2 ○ <i>Lighting control strategy.</i>
	<p>Ventilation</p> <ul style="list-style-type: none"> ○ Ventilation should be passive by default and designed in as far as practicable, ensuring compliance with associated statutory requirements/guidance. ○ Should mechanical ventilation be unavoidable, LETI targets to be incorporated. ○ Indirect consequences of moisture are assessed and minimised in design. 	<ul style="list-style-type: none"> ○ <i>Compliance with BB101, HSE and building control.</i> ○ <i>Applicable LETI emergency design guide compliance.</i> ○ <i>Design assessment and adherence to code of practice BS 5250:2021</i>
	<p>Utilities</p> <ul style="list-style-type: none"> ○ Site electrical connection capacity is specified to meet end usage only and agreed with client. Significant margins of expansion removed. ○ No fossil fuels to be used on site, (<i>excluding educational purposes etc</i>). ○ Water boosters installed by exception. Its passive infrastructure to be installed, should there be future demand. ○ Water fittings comply with the flow rates set in applicable standards including showers, taps, WCs and urinals. 	<ul style="list-style-type: none"> ○ <i>Inclusion in architectural design process.</i> ○ <i>Electrical connection capacity agreed in collaboration with client.</i> ○ <i>GBS/WPPN's for water fittings. They should also meet AECB standards & DEFRA best practice guidelines.</i> ○ <i>CIRIA W11 4m³/fte/yr, 16 l/fte/day or 0.55 m³/m² NIA – Office only</i>
	<p>Equipment</p> <p>Energy consuming equipment including building services equipment, ICT and white goods should meet the relevant energy efficiency standards.</p>	<ul style="list-style-type: none"> ○ <i>Adherence to WPPN's</i> ○ <i>'A' rated equipment to be used where possible (eco-design of energy-consuming products regulations)</i>
	REQUIREMENTS	PERFORMANCE

		INDICATOR
	<p>Monitoring and metering</p> <ul style="list-style-type: none"> ○ Metering strategy to be designed in collaboration with building operators, proving the meters are providing accurate readings. ○ Install an automated metering system (AMR) with half hourly data logging separate from the BMS with data storage and interoperability to access CSV data. ○ AMR breakdown to include major energy uses, (<i>not exhaustive</i>): Heating system flow and return, electrical input (ASHP), catering distribution board, ventilation plant, IT room(s), renewable energy generation, passenger/goods lifts, lighting, cooling, small power. ○ LETI data disclosure requirements to be incorporated. 	<ul style="list-style-type: none"> ○ <i>Inclusion in architectural design process.</i> ○ <i>Applicable LETI emergency design guide compliance.</i> See Appendix 2 ○ <i>TM39 Building energy metering adherence.</i>
	<p>Embodied Carbon</p> <ul style="list-style-type: none"> ○ Focus on reduction of embodied carbon for the largest usages. ○ LETI emergency design guide requirements/targets to be incorporated. 	<ul style="list-style-type: none"> ○ <i>Applicable LETI emergency design guide compliance.</i> See Appendix 2 ○ <i>BS EN 15978 2011 LCA construction stages applied.</i> See Appendix 3
	<p>Electric Vehicle Charging</p> <ul style="list-style-type: none"> ○ Dual AC 22kW capable (<i>can be wired as single phase 7kW chargers if capacity is limited</i>) Type 2 chargers. ○ Connected to the buildings electrical supply. ○ EV charger supply to be sub metered. ○ Charge point installation to follow PAS 1899:2022 for first charger. ○ At least OCCP 1.6 compliant, preferably OCCP 2.0 ○ Preferred supplier for design, installation, and operation See Appendix 4 ○ Point of sale (<i>contactless payment</i>) must be included on the terminal. ○ Charger specification – See Appendix 4 	<ul style="list-style-type: none"> ○ Charger specification same or equivalent as: See Appendix 4 ○ Adherence to PAS 1899:2022
	<p>Controls</p> <ul style="list-style-type: none"> ○ SMART BMS provision to provide front end/remote access. (<i>Where economically advantageous</i>) ○ Controls in end user areas are tamperproof and vandal resistant. ○ Main controls - operated by authorised staff (<i>i.e., simple holiday auto/self-cancelling extension</i>) 	

6.0 Retrofits- non-domestic buildings.

The retrofitting of our estate poses the most significant decarbonisation challenge. NCC has a diverse, ageing estate with differing *live* operational activities. It is vital that a methodical approach is undertaken to ensure property architypes dovetail with NZ interventions.

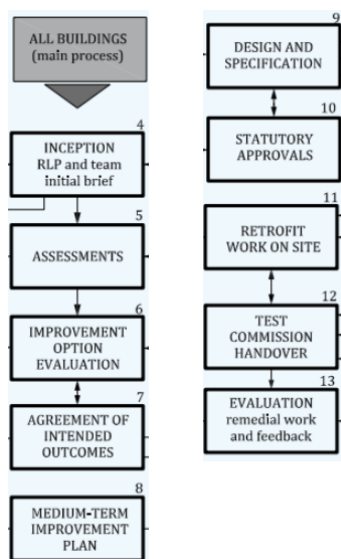
Each building will have its own unique solution; therefore, we will endeavour to find the right balance between carbon and cost savings, heritage, and inconsequential impacts for each of our sites in scope. A priority will be given, where practicable to do so for the reduction of operational carbon, via heating and solar PV interventions, in advance of alternative interventions with a slower carbon ROI.

To do this we will ensure that our retrofits adopt the following methodology:

‘PAS 2038:2021 Retrofitting non-domestic buildings process’

The appointment of a retrofit lead professional/team for works in scope will help to ensure that we de-risk projects and ensure inconsequential impacts from our interventions are considered and mitigated. The practical steps of this commitment are detailed in the figure below:

Table 6.1: PAS 2038 – All building approach



In parallel with this holistic approach, should an ASHP low carbon heating and hot water solution be proposed, it should follow the *‘ASHP Developer Pack Guidance’*. [See Appendix 5](#)

A more sensitive approach will be undertaken for any of our historic buildings and dwellings, as building regulations state:

‘Work to such buildings is required to comply with the energy efficiency requirements as far as is reasonably practicable. In considering what is reasonably practicable, the work should not unacceptably alter or mar the character of the building or increase the risk of long-term deterioration of the building’s fabric or fittings’

Source: Approved document L – Conservation fuel and power

Therefore, for buildings of this type we will supplement the PAS:2038 process with the application of the following British Standards:

- BS 7913:2013 (*Historic Buildings*)
- BS EN 16883:2017 (*Historic Buildings*)

7.0 Purchase of property assets

****The adoption of this policy will not impact any inflight projects****

It is recognised that repurposing the organisation's built environment entails a considerable allocation of resources, expenditure, and disruption. Therefore, it is imperative that we refrain from increasing the workload and costs associated with the current task by incorporating inefficient, carbon-intensive properties into our portfolio.

NCC will seek out funds to fill any financial gaps that may arise from acquiring more efficient buildings. The returns on investment will be significantly greater when considering the alternative - completely retrofitting an inefficient building.

NCC will only target properties that are in the following energy efficiency performance range:

Energy Performance Certificate

B or above.



What if there are no suitable energy efficient properties that meets our operational requirements?

At present, it is uncertain whether energy-efficient buildings that align with our operational needs will be readily available.

If the availability of properties in the market fails to meet NCC's performance standards, it is crucial to clearly outline alternative solutions. In such scenarios, the following approach should be adopted:

The designated officer is required to provide justification in the initial business case or option appraisal.

Explanation of any deviations from policy, accompanied by commentary (*e.g., The inclusion of professional property searches has failed to satisfy both operational requirements and energy efficiency standards*).

Identification of strategies to mitigate energy performance issues in alternative proposals (*e.g., engaging with the Carbon Reduction Team, securing funding for low-carbon interventions to enhance property performance levels through capital expenditure or grant funding*).

Provision of an indicative roadmap outlining the necessary measures and associated costs to retrofit the property to an acceptable standard.