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Our Cultural Heart – Library and Foodhall Redevelopment

Sustainability Statement Update

26/01/2024

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Introduction

The following document is written with reference to 'Kirklees Cultural Heart – Sustainability Statement' [Ref. AR-5878-01], by Etude, dated 30.09.2022 – submitted as part of the Planning Submission pertaining to the overall Kirklees Cultural Heart development.

With reference to the above statement by Etude, this document reviews the changes made to the Library and Food Hall elements of the overall scheme only, and how these relate to the original Sustainability Brief set out for the project. This, following a review of the design, which is based on a greater level of detail and interrogation with respect to buildability and cost.

The original statement set out the manner in which the Kirklees Cultural Heart project, from here-on referred in this document as 'Our Cultural Heart' or OCH, meets the aims and priorities of the following Chapters of the 'Kirklees Local Plan', 2019:

- Chapter 2 Achieving sustainable development
- Chapter 6 Delivering growth and sustainable development
- Chapter 10 Transport
- Chapter 11 Design
- Chapter 12 Climate Change
- Chapter 13 Natural Environment
- Chapter 16 Waste
- Chapter 18 Environmental Protection

The original statement does this via the exploration of the building design process, arranged according to the following sections within the report:

- Energy and Net Zero Carbon
- Low Carbon Heat
- Renewable Energy
- Sustainability
    - BREEAM
    - Water Consumption
    - Flood Risk and Drainage
    - Transport
    - Waste Provision
    - Ecology
    - Biodiversity Net Gain

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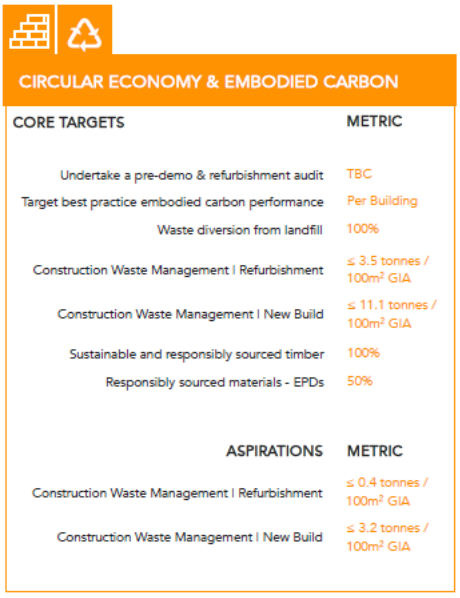
- Air Quality

The above Sections of the original statement present a narrative, outlining the considerations made as part of the design process, and describing a selection of the measures within each category.

The outcome of the Sustainability Brief development process described within the above sections of the original statement, is ultimately however, a set of Key Performance Indicators, set out from Page 4 – Page 7 of the report. These give clear and measurable outcomes which can be interrogated along with the design as it progresses, in order to ascertain how the individual elements meet or exceed the original Sustainability Brief.

The KPIs set for the project, and the revised performance of the Library and Foodhall elements of the overall scheme against these and/or the proposed strategy for the further assessment of such, is outlined below.



CIRCULAR ECONOMY & EMBODIED CARBON

CORE TARGETS	METRIC
Undertake a pre-demo & refurbishment audit	TBC
Target best practice embodied carbon performance	Per Building
Waste diversion from landfill	100%
Construction Waste Management I Refurbishment	≤ 3.5 tonnes / 100m² GIA
Construction Waste Management I New Build	≤ 11.1 tonnes / 100m² GIA
Sustainable and responsibly sourced timber	100%
Responsibly sourced materials - EPDs	50%

ASPIRATIONS	METRIC
Construction Waste Management I Refurbishment	≤ 0.4 tonnes / 100m² GIA
Construction Waste Management I New Build	≤ 3.2 tonnes / 100m² GIA

The revised designs for the Foodhall and Library are projected to meet the Core Targets set out in the table adjacent.

The project team is also committed to striving to achieve the Aspirational Metrics outlined.

In addition to the Core KPIs, a set of outline targets, based on the Concept Design were laid out relating to Embodied Carbon – this to be reviewed via assessment according to RICS Whole Life Carbon Methodology.

The target set for the Library and Foodhall is 350kgCO2/m2 for Stages A1-A5 i.e. Embodied Carbon at Completion of Construction Stage.

The target is based on LETI Office standards, and hence, must incorporate a degree of flexibility in reality, as the complexity of internal layout, fit-out, and servicing for a Library or Foodhall usage is very different from an office, typically with open plan floor plates and very uniform occupancy and usage.

The changes proposed to the design, as explored in this application, do not inherently alter potential performance in this respect, although it will be necessary to review performance at RIBA Stage 4, based on more detailed designs and specifications. Replacing the estimates and 'rules of thumb' necessarily employed at Stage 2/3, with actual carbon data, based on actual specifications, will allow a more accurate assessment of the carbon impact of the proposed development,

It is worthy of note that a reduction in newly constructed structure and fabric will lead to an inherently lower embodied carbon value for the refurbishment works, in real terms. The retention and renovation of existing building elements is a more efficient use of resources, as those buildings already exist, when compared to replacement with newly constructed elements.

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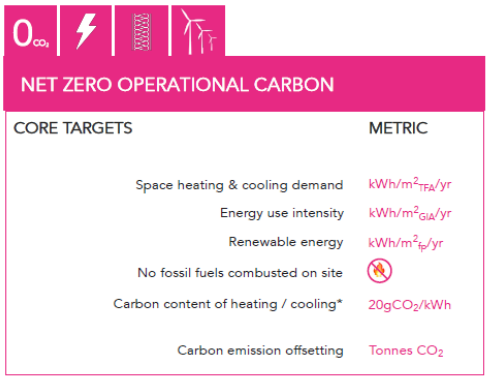
This shift in focus, towards the reinvigoration of what exists at present, is a key strength of the revised design, in terms of buildability, cost, and importantly, in terms of actual carbon emissions and resource use 'on the ground'.

The longevity of new-build developments is also much shorter than historical buildings. Newly constructed facades and roofs typically offer a life cycle to replacement of 25-40 years however, a carefully refurbished historical building can stand for many, many years longer than this. This longevity characteristic is not well-accounted for within targets based on Stages A1-A5 of the RICS methodology, which assess carbon content at completion and do not account for benefits during operation / maintenance. These benefits are assessed by stages B and C of the RICS methodology, which are not included for within the original project targets, however, will be assessed as and reviewed as part of the design and reporting process for the Foodhall and Library going forward.

The key design principles outlined for the scheme, towards the Zero Carbon agenda, are centred around the following principles:

- Design towards decarbonisation. This being the avoidance of on-site fossil fuel combustion in favour of electrical heating systems.

- Going beyond simple BRUKL Part L2 analysis of energy demands via Operational, Regulated and Unregulated Energy Assessment, via the use of CIBSE TM54 methodology.



The revised designs for the Library and Foodhall continue to follow this methodology, with no changes proposed in this respect. No fossil fuel combustion will be employed for any servicing or unregulated uses e.g. catering. The development will also be subject to full CIBSE TM54 analysis, with design decisions made through this lens – as intended by the original Sustainability Brief.

The design process for the Library and Foodhall project has provided further clarity in the following areas:

- Client usage profiles for spaces within the building.
- Client maintenance requirements.
- Internal Thermal Comfort Requirements.
- Buildability, particularly through the lens of ensuring regulatory compliance.
- Cost and hence viability of the overall scheme.
- Technical complexity of realising the aspirations of the design.

Increased clarity in these areas, replacing the assumptions made in arriving at the initial targets, has informed the assessment of the energy performance of the design reviewed within the pages of this document. The outcomes if this design development are described below, with reference to the original Sustainability Statement, by Etude.

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Space Heating and Cooling Demand

Design development of the Library has led to a reduction in New Build areas and overall floor area, as well as an increased proportional usage of the existing building. This has clear benefits in terms of embodied carbon, as well as increasing efficiencies of space usage. While refurbishment areas, which must be renovated with consideration to heritage requirements, may not be as energy efficient as a newly constructed fabric, none of the proposed changes present a reduction in the performance of the existing building areas, post development. All works will be in accordance with a detailed plan, agreed with heritage bodies and building control, leading to the maximisation of the potential performance of the existing buildings.

During client consultation it has become clear that the Foodhall area, rather than an untreated space, as assumed within the original brief, will be designed as far as possible, to best-practice, modern internal thermal comfort conditions. This will require active heating and cooling during the summer and winter months, which was not considered as part of the original assessment. Energy performance in this area must be considered in this light, which will lead to significantly increased suitability for purpose, and therefore useability.

Energy Intensity

As above, a shift in focus from new build to refurbishment of the Library building, and the resultant increase in reliance on the albeit greatly enhanced, existing building fabric, alters the context by which energy performance will be assessed.

Similarly, the change of the Foodhall from an unheated, naturally cooled space to an actively serviced environment, will render this target subject to change. This however, should be viewed in the light of a significantly increased degree of occupant comfort during winter and summer, and an accompanying increase in uptake of the space by the local and wider community, throughout the year.

Renewable Energy Generation

The proposed low carbon technology proposed for the Library and Foodhall remains unchanged from the previous design, with Air Source Heat Pumps to be employed to meet heating and cooling demand. There will be no combustion on site, with all systems served via electricity. This is in-keeping with the decarbonisation agenda, which allows buildings to become more carbon efficient, along with improvements made to the national grid and local low carbon energy production, over time.

The potential for the enhancement of the original design, via the addition of a solar photovoltaic array has also been extensively explored during the design development process for the Library and Foodhall. This, based on an interrogation of the potential of the existing Library and Foodhall roof structure, layout and maintenance access, to support such technology.

Heritage concerns sit at the heart of this element of the project, and it has been found that to provide a solar array of any significance would necessitate major and fundamental alterations to the existing building fabric, and to the outward appearance of areas that in themselves do not require major alteration. This would be an extremely inefficient use of the existing building stock in terms of embodied carbon and would run contrary to heritage requirements. Hence, enhancement in this area will not be taken forward to the next stage of design and is not included within the revised proposals explored here.

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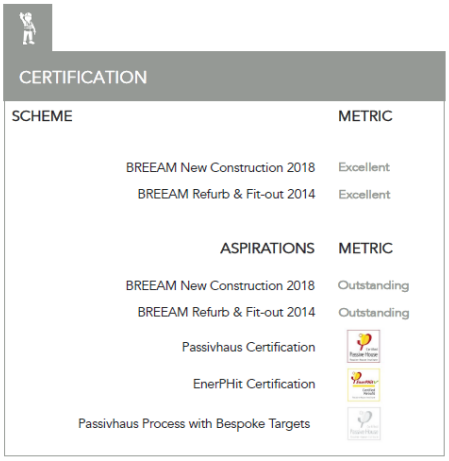
Such impacts upon buildability would be prohibitive to the viability of the project, as well as in terms of real-world resource use. It is also a clear requirement of the client, that unrealistic, over complicated, specialist maintenance regimes must be avoided. This priority must also be considered, in order to avoid the installation of unusable and unmaintainable installations, which would therefore, not perform as modelled, in reality.

Hence, entirely as per the original application, the current design still proposes the use of Air Source Heat Pumps for heating and cooling demand – in-keeping with the decarbonisation agenda.



CERTIFICATION

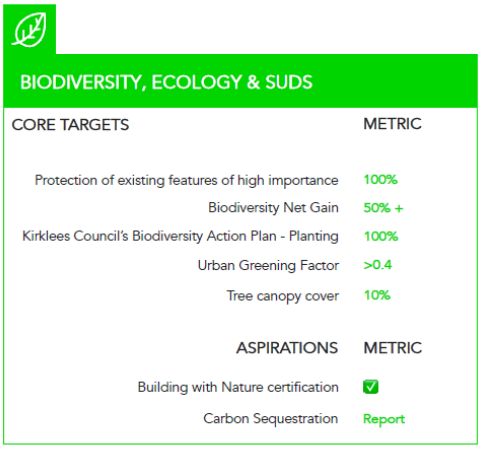
SCHEME	METRIC
BREEAM New Construction 2018	Excellent
BREEAM Refurb & Fit-out 2014	Excellent
ASPIRATIONS	**METRIC**
BREEAM New Construction 2018	Outstanding
BREEAM Refurb & Fit-out 2014	Outstanding
Passivhaus Certification	
EnerPHit Certification	
Passivhaus Process with Bespoke Targets	

The revised designs and approaches for the Library and the Foodhall do not alter the BREEAM strategy in any fundamental manner.

All measures outlined within the pre-assessment, potentially with enhancements in areas relating to site management, water efficiency and Operational Energy Analysis, are currently incorporated.

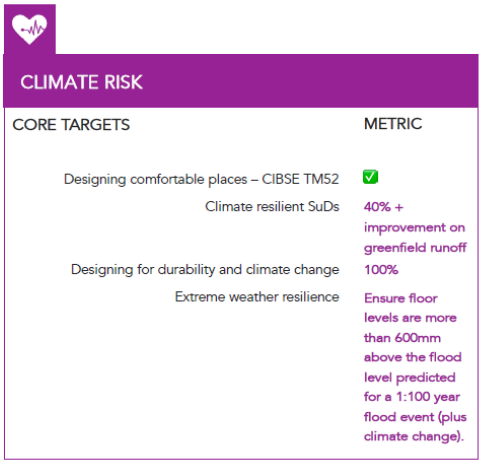
The project is able to commit to a BREEAM Rating of Very Good for all elements, with the aspiration to achieve Excellent to be confirmed following resolution of technical design issues at Stage 4, relating to a small number of Mandatory BREEAM standards required to obtain a rating of Excellent.

The Aspirational Targets above will also be reviewed in more detail during the technical design stage, as a matter of due diligence.



BIODIVERSITY, ECOLOGY & SUDS

CORE TARGETS	METRIC
Protection of existing features of high importance	100%
Biodiversity Net Gain	50% +
Kirklees Council's Biodiversity Action Plan - Planting	100%
Urban Greening Factor	>0.4
Tree canopy cover	10%
ASPIRATIONS	**METRIC**
Building with Nature certification	✅
Carbon Sequestration	Report



CLIMATE RISK

CORE TARGETS	METRIC
Designing comfortable places – CIBSE TM52	✅
Climate resilient SuDs	40% + improvement on greenfield runoff
Designing for durability and climate change	100%
Extreme weather resilience	Ensure floor levels are more than 600mm above the flood level predicted for a 1:100 year flood event (plus climate change).

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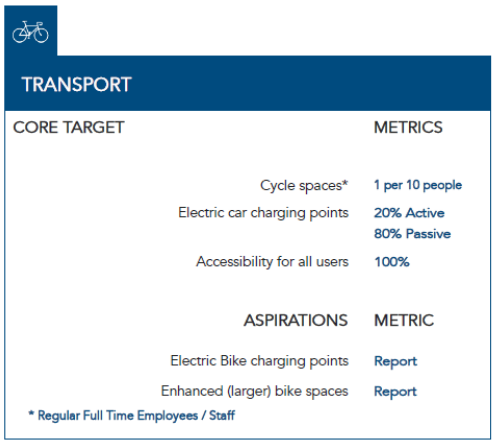
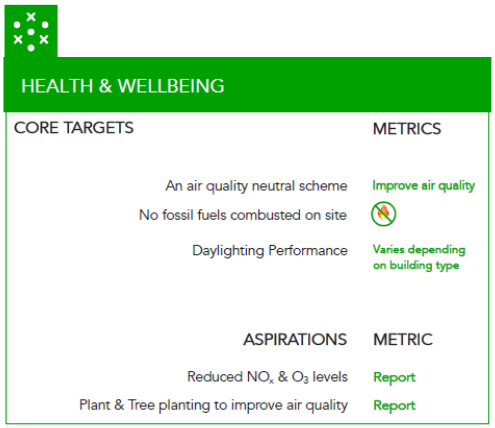


TRANSPORT

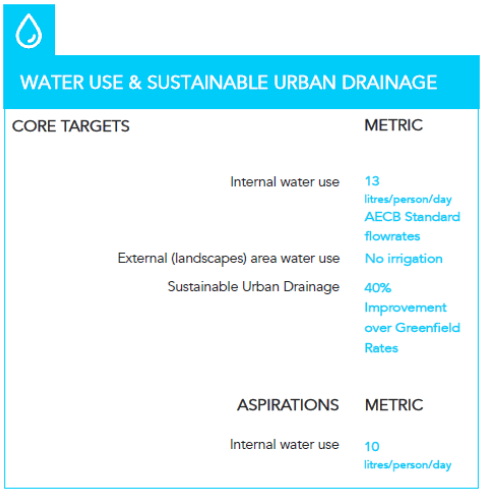
CORE TARGET	METRICS
Cycle spaces*	1 per 10 people
Electric car charging points	20% Active 80% Passive
Accessibility for all users	100%
ASPIRATIONS	**METRIC**
Electric Bike charging points	Report
Enhanced (larger) bike spaces	Report

* Regular Full Time Employees / Staff



HEALTH & WELLBEING

CORE TARGETS	METRICS
An air quality neutral scheme	Improve air quality
No fossil fuels combusted on site	
Daylighting Performance	Varies depending on building type
ASPIRATIONS	**METRIC**
Reduced NO_x & O_3 levels	Report
Plant & Tree planting to improve air quality	Report



WATER USE & SUSTAINABLE URBAN DRAINAGE

CORE TARGETS	METRIC
Internal water use	13 litres/person/day AECB Standard flowrates
External (landscapes) area water use	No irrigation
Sustainable Urban Drainage	40% Improvement over Greenfield Rates
ASPIRATIONS	**METRIC**
Internal water use	10 litres/person/day

The revised designs of the Library and Foodhall do not impact upon the project's ability to meet the Core Targets outlined in any of the following areas:

- Biodiversity, Ecology and SUDS
- Climate Risk
- Transport
- Health and Wellbeing
- Water Use and Sustainable Urban Drainage

The proposed designs are fully inclusive of all measures within the above areas and the project team remains committed to investigation how the Library and Foodhall elements of the project can contribute to the attainment of the Aspirational Metrics described for the overall OCH masterplan.