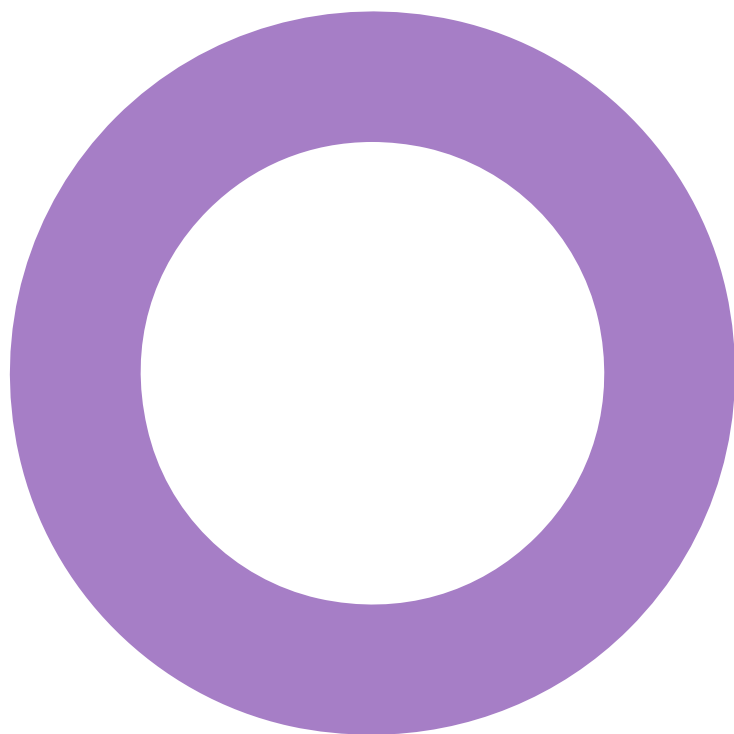


Hinckley & District Hospital: CDC & Endoscopy Building. Hinckley.

NHS Property Services.

SUSTAINABILITY
SUSTAINABILITY & ENERGY STATEMENT
PLANNING STATEMENT
REVISION 02 – 11 AUGUST 2023



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
01	30/05/2023	Issue for Comment	L. Flockton	G. Papachristou	J. Nuttall
02	11/08/2023	Updated Issue	K O'Sullivan / L. Flockton	D. McLellan	J. Nuttall

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Project number: 23/24891
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1. Executive summary.

This Sustainability and Energy statement has been prepared in relation to the proposed development of Hinckley & District Hospital: CDC and Endoscopy building. It summarises the proposed approach being taken for aspects of sustainability and energy.

It seeks to highlight how the proposed development will promote sustainable construction and energy through the design and summarises the relevant regulatory and planning policies applicable and how the relevant policy targets will be addressed and achieved.

The Statement responds to the UK planning and regulatory framework and to the Hinckley & Bosworth Council Core Strategy 2009, specifically Policy 24, Sustainable Design and Technology.

Sustainability Strategy Summary

The following summarises the key items discussed within the document with respect to the strategy that has been developed on the basis of the Five Capitals Model for Sustainability. This helps to capture the multi-faceted benefits of WT Partnership aims in the context of its social, physical, natural, human and economic ‘capital’ sustainability aspirations for the project.

PHYSICAL

Designed to perform

The aim is to create a flexible and future-focussed design that can respond to shifting trends and continuously enhance user experience. This includes maximising physical connectivity and delivering an ell-electric masterplan which effectively manages its carbon footprint demonstrating a clear route to net zero carbon.

SOCIAL

Placemaking and engagement

The Proposed Development aims to nurture a connected community; celebrating life by activating public spaces from the outset and deploying diverse engagement methods and communication channels to empower the local community.

ECONOMIC

Productivity and growth

By ensuring equity for all, the economic value of the Proposed Development is increased where all users of a place feel they have a level of ownership of the asset and buy-in to the outcomes it is seeking to achieve (e.g. local employment, SMEs).

NATURAL

Embracing nature

Means achieving a seamless integration between the built and natural environment and enhancing biodiversity. The connection between people and nature on the Proposed Development will be facilitated through the delivery of accessible and quality urban greening.

HUMAN

Health and wellbeing

It means putting people at the heart of design and creating a world leading healthy indoor and outdoor environment through the optimisation of key environmental factors and the delivery of active buildings, walkable streets and energised public spaces. Learning and skills will be fostered to enable people to thrive and lead fulfilling lives.

Energy Statement Summary

Approach

This report evaluates the Proposed Development against the energy hierarchy; be lean, be clean and be green. This is to demonstrate how both building fabric, and energy efficient systems/LZCs improve the Building Emission Rate over the Target Emission Rate.

Proposed Development

The Part L (2021) assessment for the proposed development has been completed using Dynamic Simulation Software – IES VE 2022.2 This has been specifically designed to generate compliance results with the latest iteration of Building Regulations.

The results suggest that, when using the parameters listed out within this report, the proposed development complies with the relevant criteria.

	Proposed Development
Target emission rate (kgCO ₂ /year):	7.5
Building emission rate (kgCO ₂ /year):	7.31
Percentage Betterment:	2.53%
Required Minimum Electrical Output (kWh/year)	32,000
Indicative PV area (m ²)*	200
*This is PV active area – further area may be needed for access and maintenance	

Table 1: % Betterment over the notional target when assessing against the criteria of Part L 2021 using compliant software.

Energy Hierarchy – Energy Efficiency Approach

The following elements the design have been selected as key contributors to the Energy Hierarchy:

- Replacing fossil fuel energy generation with cleaner Air Source Heat Pumps.
- Improving the efficiency of fan powers and ensuring variable flow for all conditions.
- Air Source Heat Pump generated domestic hot water.
- Use of Photovoltaic panels
- Installing efficient lighting systems and controls across the building as standard.

2. Introduction.

2.1 The Application

This Sustainability and Energy statement has been prepared in relation to the proposed development of Hinckley & District Hospital: CDC and Endoscopy building. It summarises the proposed approach being taken for aspects of sustainability and energy.

Development Description

The development will be three-storeys tall including the roof top plant space, two-storey elements on the north and south side of the development. The development is approximately 2,000m² in total floor area. The development will include the following spaces:

- Consultancy and examination rooms
- Ultrasound/CT/MRI Scanner rooms
- Waiting area and reception
- Endoscopy Procedure rooms
- Patient Preparation rooms
- Staff rest areas
- Plant Rooms

Aim

This Sustainability and Energy Statement summarises the pertinent regulatory and planning policies applicable to the Proposed Development, and sets targets commensurate with these policies, which the proposed development will seek to achieve.

This strategy summarises the sustainability measures that will be implemented for the development.

Hoare Lea has developed this based on our Five Capitals Model for Sustainability, and therefore provides recommendations to achieve multi-faceted benefits in the context of their social, physical, natural, human and economic ‘capital’ aspirations.



Figure 1: Proposed ground (above) and first floor (below) plans

3. Policy and Drivers.

3.1 National Drivers

As a summary, the national planning policy applicable to the Proposed Development are outlined within this section.

3.1.1 Part L (2021) Conservation of Fuel and Power

This report sets out to demonstrate a route to compliance with Approved Document Part L, conservation of fuel and power, for the proposed development and associated Building Use Types. This assessment has been undertaken to demonstrate a suggested Energy Strategy for the development based on a similar projects.

Approved Document Part L (2021, England edition) is the Building Regulations relating to the conservation of fuel and power in buildings. The Approved Document is separated into two sections: Part L Volume 1 and Part L Volume 2.

Part L Vol.1 relates to dwellings specifically, with an individual criterion for this building-use type

Part L Vol.2 relates to buildings other than dwellings ‘Conservation of fuel and power in buildings other than dwellings’ and sets out a specific criterion for this building use type.

Schedule 1: Conservation of Fuel and Power.

Schedule 1 of the Building Regulations Part L states that reasonable provisions shall be made for



- Limiting Heat Gains and Losses through;
 - Thermal elements and other parts of the building fabric; and;
 - From pipes, ducts and vessels used for space heating, space cooling and hot water services.
- Providing fixed building services which are:
 - Energy Efficient;
 - Have effective controls; and;
 - Are commissioned by testing and adjusting as necessary to ensure they use no more fuel and power than is reasonable in the circumstances

Developments should aim to at least meet the limiting values for system and fabric requirements in order to better the Building Emission Rate set by a notional building which uses standardised inputs based on the system and fabric design of each building.

Buildings are formally assessed on the following criteria:

Criteria	Requirement
Emission Rate	Do the emissions generated by the running of the development exceed that of the notional
Primary Energy Rate	Does the energy requirement of the development exceed that required within the notional

If a development does not succeed in achieving the criteria, it is not deemed to be Building Regulation Compliant.

3.1.2 Part L Updates

Please note: Building Regulations Part L were updated in June 2022 (titled Part L 2021).

As a full plans submission was not submitted to the local authority's building control prior to the June 2022 transitional arrangement deadline, the 2021 regulations have been enforced.

3.1.3 National Planning Policy Framework

The latest iteration of the 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:

- a) *all plans should promote a sustainable pattern of development that seeks to: meet the development needs of their area; align growth and infrastructure; improve the environment; mitigate climate change (including by making effective use of land in urban areas) and adapt to its effects;*
- b) *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:*
 - i. *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*
 - ii. *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.*

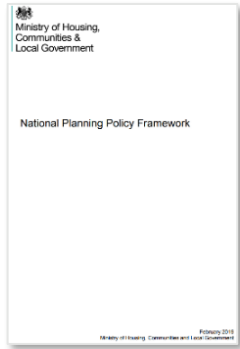
For decision-taking this means:

- a) *approving development proposals that accord with an up-to-date development plan without delay; or*
- b) *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:*
 - i. *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*
 - ii. *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:

- a) *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);*
- 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.”*

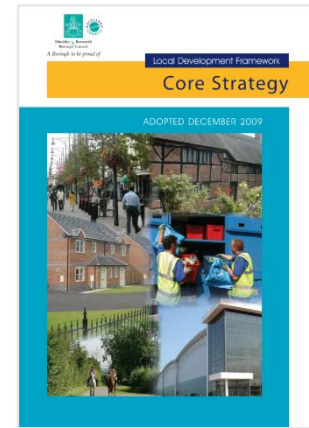


3.2 Local Plan – Hinckley & Bosworth Council Core Strategy 2009.

The Local Plan is intended to help shape the way in which the physical, economic, social and environmental characteristics of Hinckley & Bosworth Borough Council from 2009 to 2026.

It covers the following:

- Policy 1 – Development in Hinckley
- Policy 2 – Development in Earl Shilton
- Policy 3 – Development in Barwell
- Policy 4 – Development in Burbage
- Policy 5 – Transport infrastructure in the sub-regional centre
- Policy 6 – Hinckley/Barwell/Earl Shilton/Burbage Green Wedge
- Policy 7 – Key Rural Centres
- Policy 8 – Key Rural Centres Relating to Leicester
- Policy 9 – Rothley Brook Meadow Green Wedge
- Policy 10 – Key Rural Centres within the National Forest
- Policy 11 – Key Rural Centres Stand Alone
- Policy 12 – Rural Villages
- Policy 13 – Rural Hamlets
- Policy 14 – Rural Areas: Transport
- Policy 15 – Affordable Housing
- Policy 16 – Housing Density, Mix and Design
- Policy 17 – Rural Needs
- Policy 18 – Provision of Site for Gypsies, Travellers, and Travelling Show people
- Policy 19 – Green Space and Play Provision
- Policy 20 – Green Infrastructure
- Policy 21 – National Forest
- Policy 22 – Charnwood Forest
- Policy 23 – Tourism Development
- Policy 24 – Sustainable Design and Technology



3.2.1 Policy 24 – Sustainable Design and Technology

Policy 24 states the following:

The council will require all development in Hinckley, Burbage, Barwell and Earl Shilton to meet the following requirements, unless it would make the development unviable:

Residential developments to meet the Code for Sustainable Homes at the following levels:

- Minimum of Code Level 3 to 2013
- Minimum of Code Level 4 from 2013-2016
- Code level 6 from 2016 onwards

Residential developments in Key Rural Centres and Rural Villages will be expected to meet the sustainability targets set out in Building a Greener Future.

Schools, hospitals and offices developments to meet, at a minimum, BREEAM (or equivalent) assessment of 'Very Good'. Since 2016 they will be required to meet, at a minimum, BREEAM (or equivalent) assessment rating of 'Excellent'

The Code/BREEAM level to be met will be set at the time of determination of detailed planning permission of reserved matters unless other legislation/guidance requires a higher level at the time of construction.

4. Approach to Sustainability.

The following strategy addresses a wide range of sustainability subject areas and covers various headline sustainability categories. The strategy confirms the applicable policies and the Applicant's aspirations and measures of sustainability that will be implemented at the Proposed Development.

The design of the Proposed Development is based on sustainable design and construction principles as informed by planning requirements and industry best practice. It is on this basis that we are utilising a sustainability framework based on five defined factors; i.e., the people, the buildings, the social network, the natural environment, and the economic aspects as illustrated in Figure 5 to capture the multi-faceted sustainability benefits and values that the proposed development could bring to the:

- Application Site,
- Local community,
- Surrounding businesses, and
- Future building users.

The Delivery Framework

Working with all key stakeholders, an overall vision for the development has been defined. Workshops have been held in collaboration with the client and project team to help create a charter including innovative initiatives and key objectives to be delivered as a result of the project. As illustrated in Figure 2 and Figure 3 the strategy responds to the five elements of our defined framework; and is intended that the agreed objectives are tracked and monitored throughout project delivery and operational phases.

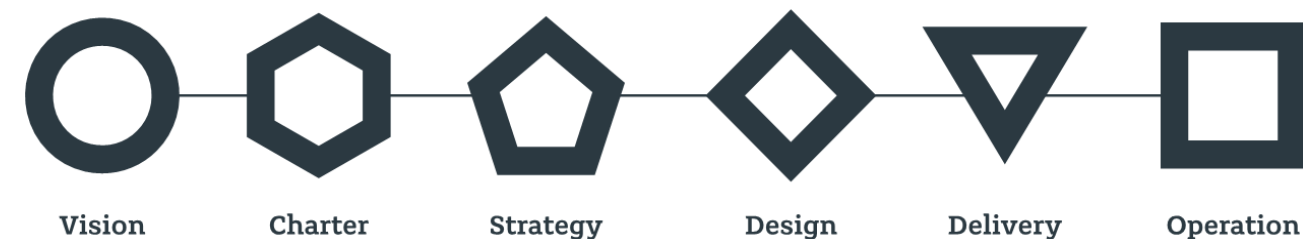


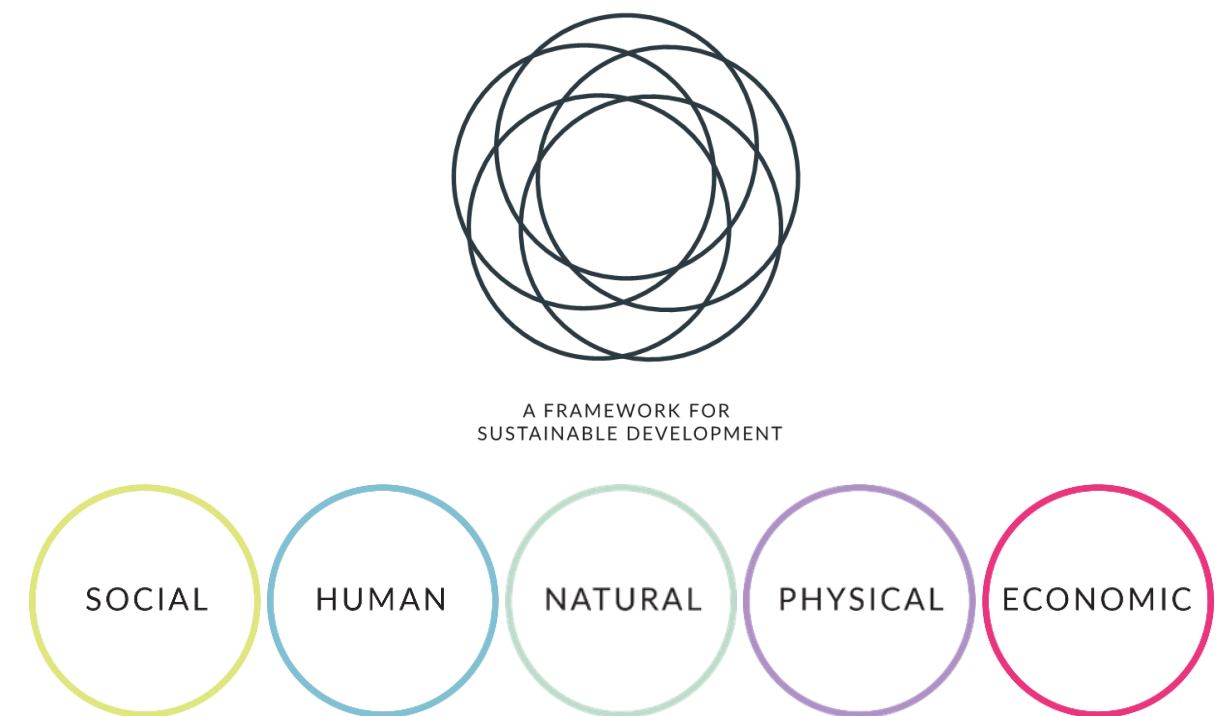
Figure 2: Sustainability Strategy – Delivery Phase (Inception to Completion).

The Energy Strategy is being delivered in line with the Energy Hierarchy – please refer to the separate energy strategy submitted in support of this planning application for further detail.

Environmental Assessment

In line with Hinckley and Bosworth council policy, a BREEAM Bespoke pre-assessment has been produced highlighting how the Proposed Development intend to achieve BREEAM 'Excellent' rating.

CREATING VALUE



Social Capital	An inclusive community By enabling community identity, SOCIAL VALUE is increased where a great place brings people together and creates a community.
Human Capital	Health at its heart With a focus on people, HUMAN VALUE is increased where quality and longevity of life is improved, and happiness is increased.
Natural Capital	Human and nature integration By seeking to achieve positive gain, NATURAL VALUE is increased where existing quality is protected, and new complementary resources are introduced.
Physical Capital	A future proof flagship Creating high quality buildings ensures PHYSICAL VALUE is increased where buildings and infrastructure project an image of design for longevity and allow people to navigate easily on foot/by bicycle.
Economic Capital	A catalyst for opportunity By ensuring equity for all, ECONOMIC VALUE is increased where all users of a place feel they have a level of ownership of the asset and buy-in to the outcomes it is seeking to achieve.

Figure 3: Proposed Framework for Sustainability – Creating Value.

5. Proposed Sustainability Strategy.

The design of the Proposed Development is based on high sustainability aspirations and is compliant with industry best practice. In addition, it also attempts to push the boundaries of conventional construction by deploying innovative methods and approaches during design and construction. The strategy for the Proposed Development addresses key sustainability challenges and opportunities, responds to the requirements of the applicable policies, and implements the Applicant's aspirations.

It embraces the Five Capitals framework, responding to the challenges of climate, biodiversity and health and wellbeing, UN sustainable development goals and Applicant vision, aiming to create long term value and generate a flow of environmental, social and economic benefits. Each Capital or Pillar has been contextualised to the specific needs, challenges and opportunities arising from the Proposed Development, resulting in five themes as follows:

- Social → Placemaking and Engagement
- Human → Health and Wellbeing
- Natural → Embracing Nature
- Physical → Designed to Perform
- Economic → Productivity and Growth

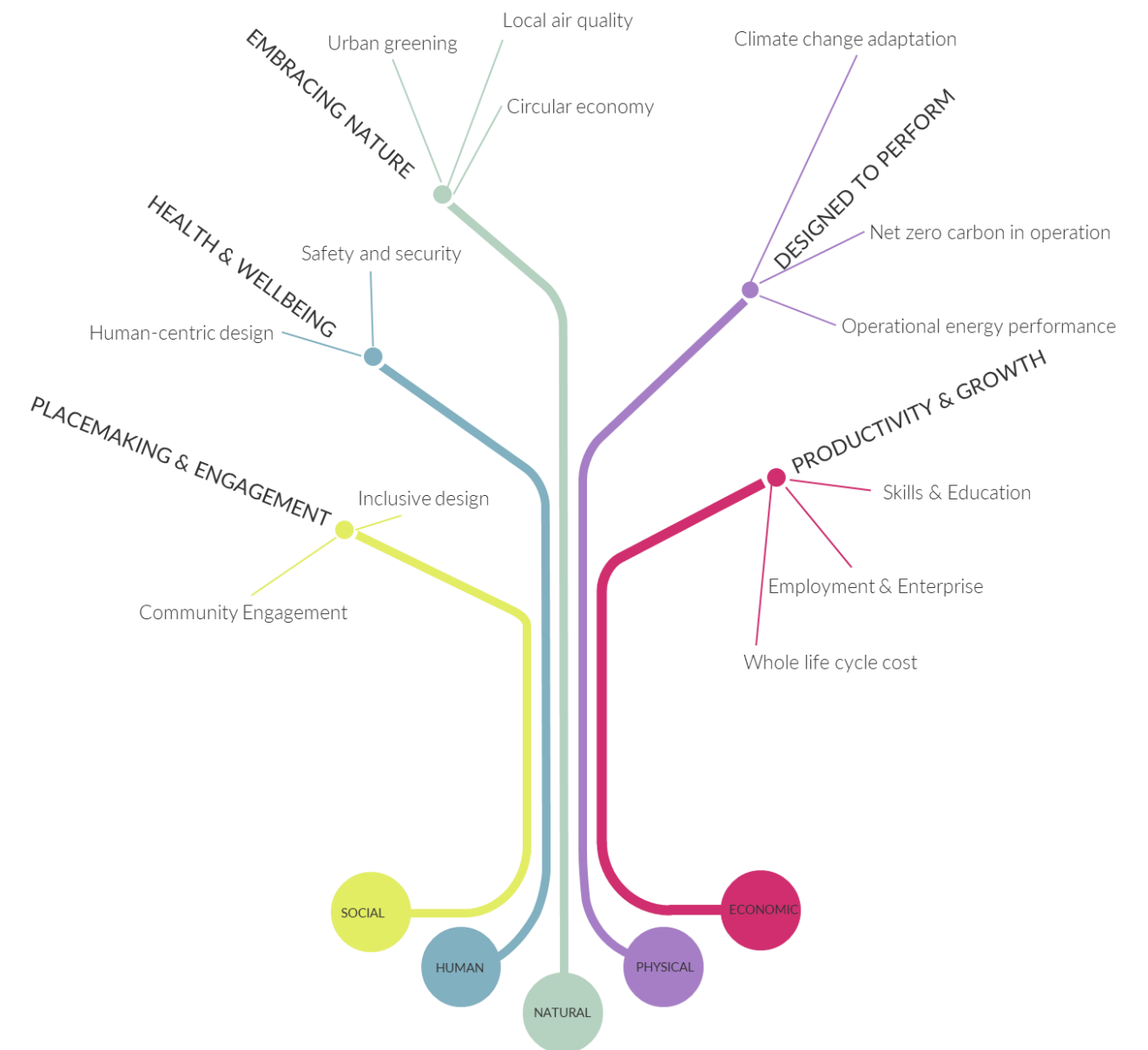
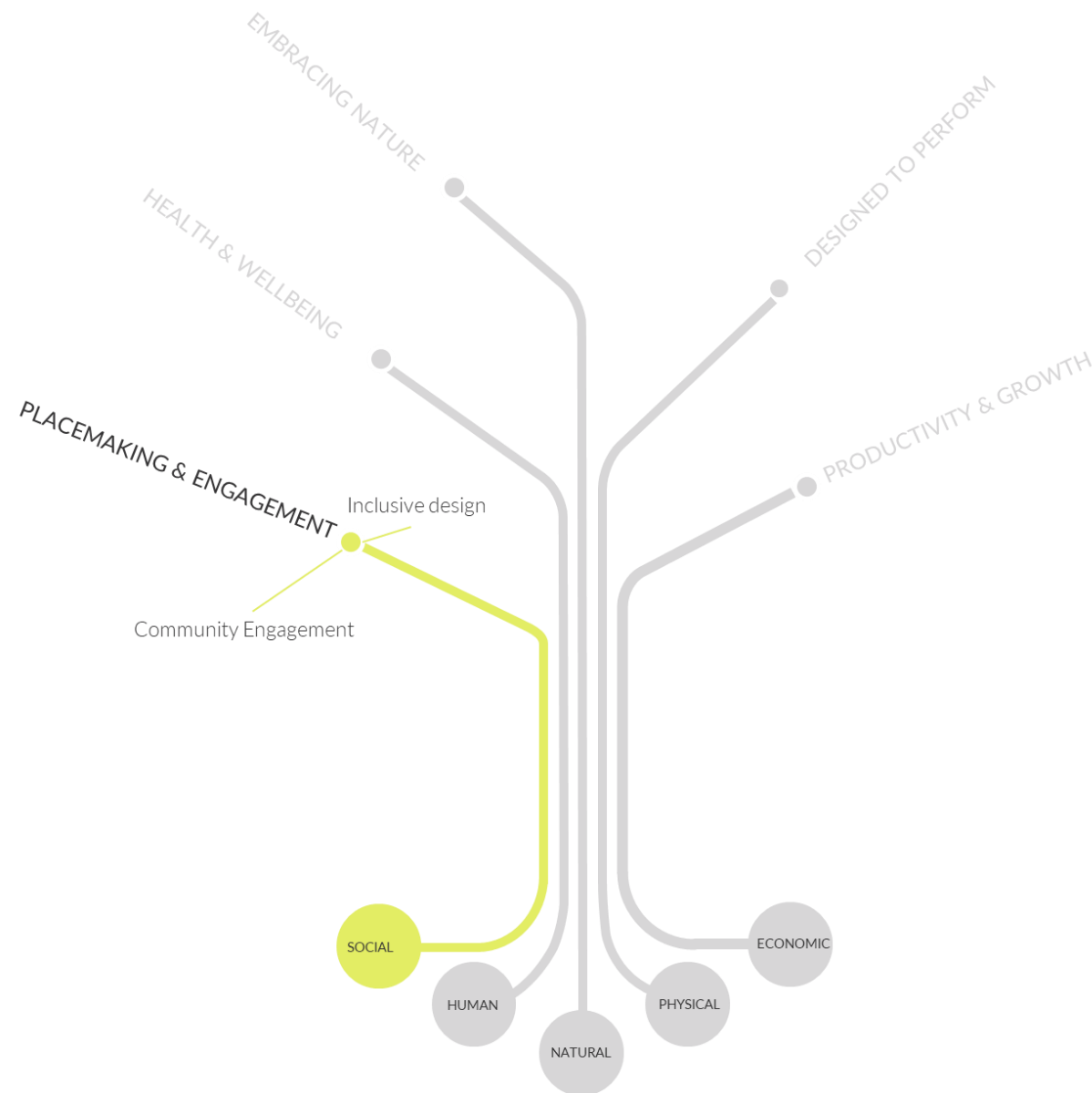


Figure 4: The Sustainability Strategy Illustrated – Key Themes and Focus Areas.

5.1 Placemaking and Engagement



Inclusive Design

The Proposed Development seeks to enable community identity and social cohesion through placemaking. This includes design decisions enabling the integration of people with different needs and abilities such as wheelchair and pushchair access, highly visible doors, non-slip mats and automatic doors.

In order to help create vibrant communities, The Proposed Development aims to strengthen the connection between people and the places they share by encompassing the provision of public spaces that are accessible and create a genuine sense of place, fostering strong relationships with local residents, workers and visitors, and supporting the services and activities that they want and need. The Proposed Development will deliver a diverse and vibrant destination providing a range of environments to meet the needs of a mix of users, thus helping to connect people and integrate in the local cityscape.

Community Engagement

Opportunities to engage with the local community will be explored at the design, construction and operational stages of the Proposed Development, which will include initiatives such as reaching out to existing community-led stakeholder forums and participation in community programmes in the local area through direct investment or in-kind contribution, targeting the creation of local employment, more opportunities for disadvantaged people and improved training opportunities for young people. The design of the Proposed Development will also be sympathetic to its surroundings, maximising the potential of the site.

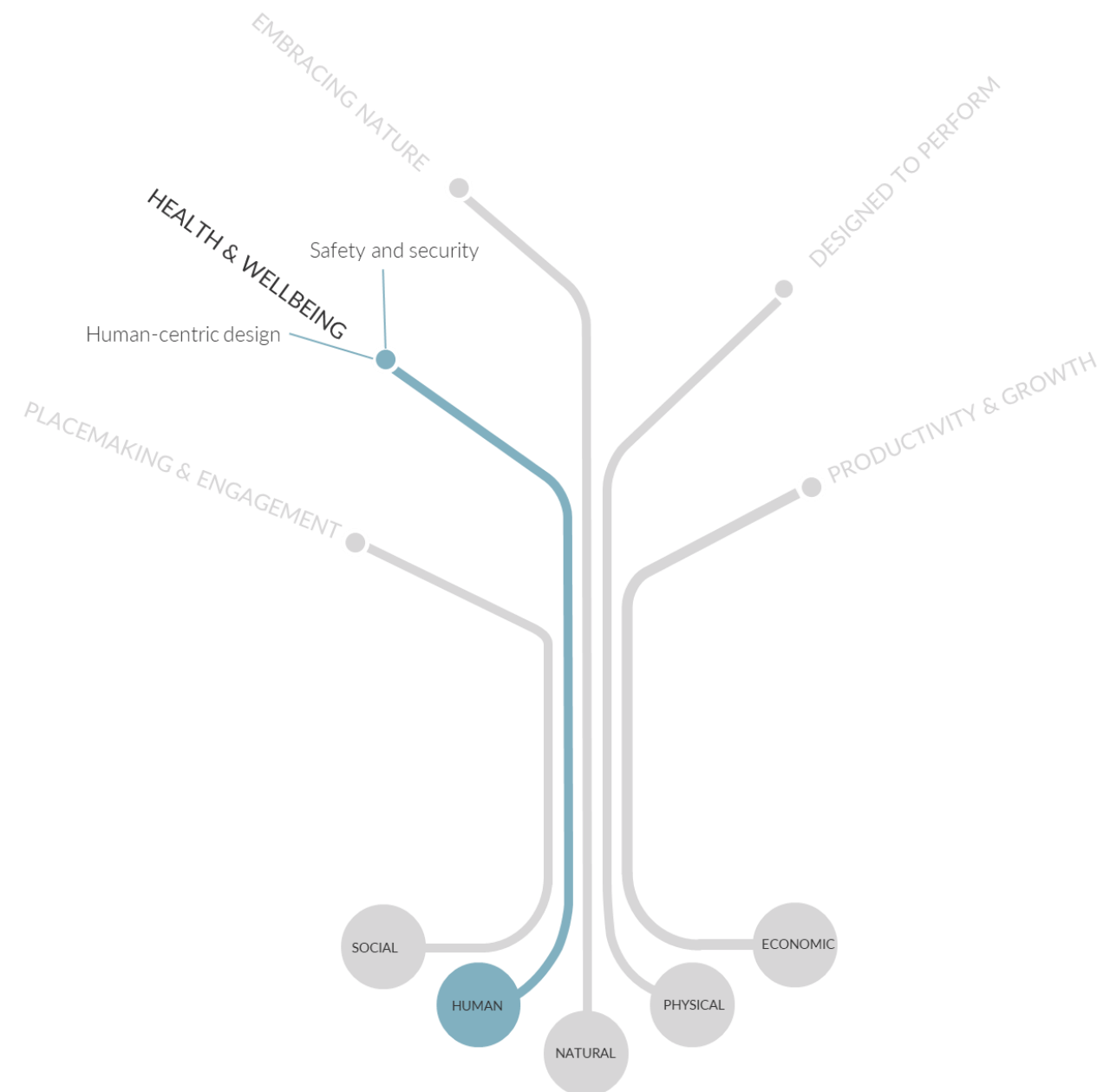
The following will be explored through the design process, where possible:

- **During design** – design teams can add value through their own CSR activities, such as creation of local jobs and apprenticeships
- **During construction** – social value may be captured through S106 agreements for local labour. Although, in addition to these agreements, apprenticeships can focus on providing more than this by creating jobs and training for those furthest from the job market.
- **Property management** – unlock opportunities for occupiers to employ local people, reach local schools and volunteer.
- **Occupation** – creating social value through engagement with the local community, provide jobs and training opportunities, engage with local supply chain and protect environment.

Communicating with honesty and integrity is critical to help build trust and confidence with the community. This includes discussing the trade-offs that go in the development and wider decision-making drivers. It also relates to being open and transparent about the ways in which the project can or cannot implement the input provided by communities. This would also ensure higher levels of accountability.

Enabling different levels of community influence is a critical consideration. The role of management and stewardship is key to ensure the long-term quality of space. Placemaking is an ongoing process that doesn't end once a place is 'made'. Effective design and planning consider how the place will be used and managed over time as well as how it will respond to change. Communities could be empowered to take on parts of the stewardship and governance elements which would foster a sense of belonging.

5.2 Health and Wellbeing



Human-Centric Design

It stands to reason that any new healthcare facility should lead not only in the provision of healthcare services, but it should also proactively promote and support the health and wellbeing of the community which makes up its staff, its patients and visitors, and its local community members and organisations.

This extends from supporting a healthy indoor environment quality as demonstrated through measured parameters, to creating an attractive master plan which draws the local community into the site through increased accessibility, provides healthy and low carbon transport opportunities, and enhances the attractiveness and functionality of the surrounding spaces.

Easily accessible and visible cycle spaces at ground level, will encourage active movement for workers and visitors. Internally, key active design principles will be embraced including, for example, aesthetic circulation networks and point-of-decision signage to encourage stair use.

Excellent acoustic performance, indoor air quality and enhanced access to daylight for building users are strategic priorities for the project to ensure a comfortable and healthy indoor environment. Acoustic comfort will be optimised to meet the performance criteria contained in BS 8233:2014 standards.

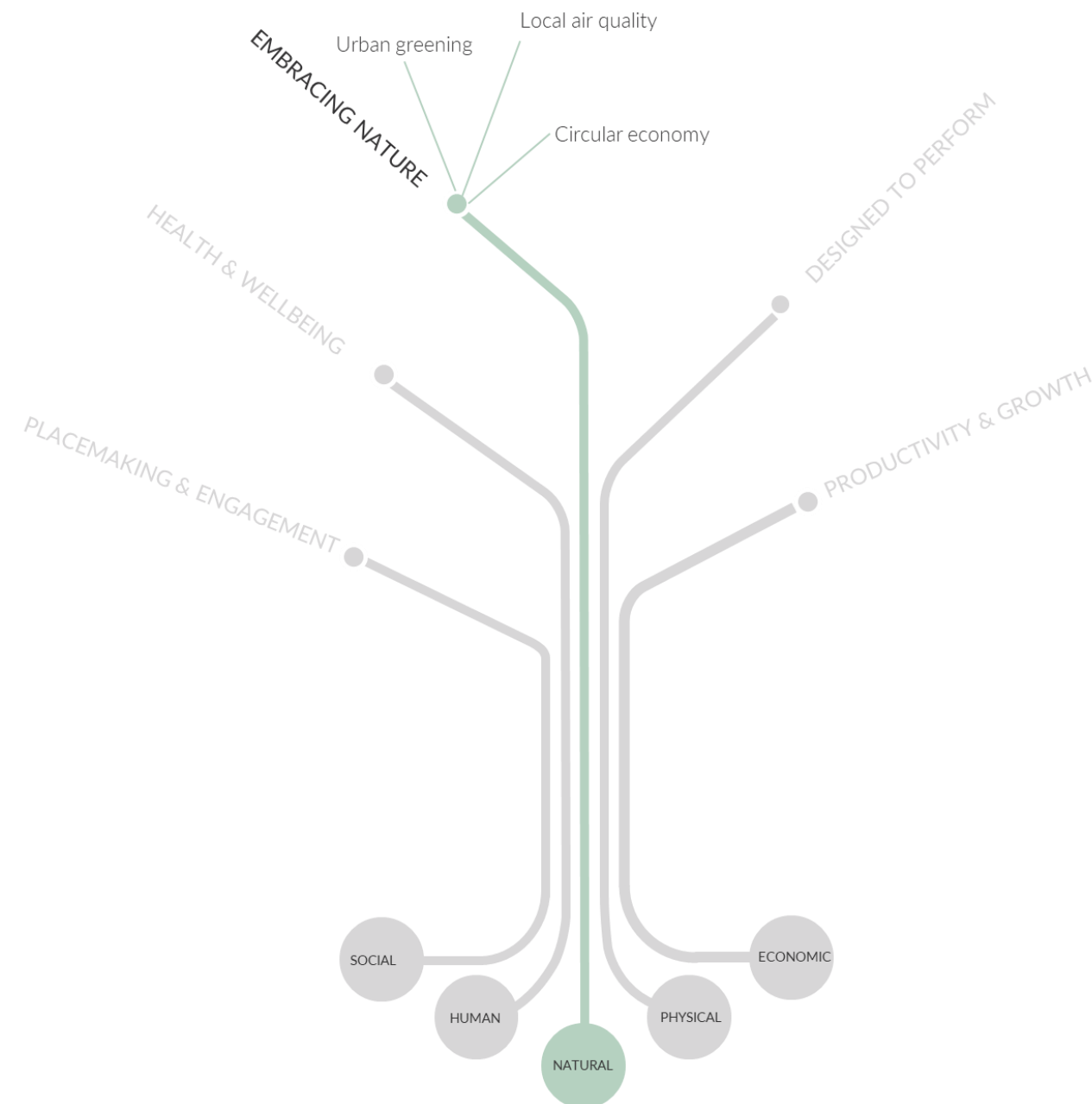
Achieving good indoor air quality will be attained through a focus on providing sufficient fresh air supply and specifying materials with low, or no, volatile organic compounds (VOC) emissions, helping to create a healthy indoor environment. Fresh air supply will also be achieved through either natural/ mixed mode and/or mechanical ventilation.

Excellent levels of thermal comfort will be achieved by designing and testing key areas at risk of overheating in accordance with the guidance in HTM 03-01. The Proposed Development will seek to provide a positive user experience through continuous monitoring of the building performance and engagement with occupants.

Safety and Security

A safe public realm will be designed to consider the context of the Proposed Development's local surroundings. Natural surveillance, lighting of footpaths, natural 'desire lines' for pedestrian routes and other principles from 'Secured by Design Hospitals 2005' will be implemented. CIRIA guidance on Wellbeing at site level will be observed and staff wellbeing courses will be provided throughout all phases of development.

5.3 Embracing Nature



Urban Greening

The Proposed Development will aim to create a distinctive space which integrates the built and natural environment, seamlessly bridging the gap between people and nature. The project's target is to achieve biodiversity net gain to create a more resilient, living, breathing ecosystem to nurture the vital relationship between people and nature.

Local Air Quality

Sustainable design and construction practices will be implemented to preclude adverse impacts on local air quality. The Proposed Development will deliver an air quality neutral development through a combustion-free on-site energy strategy.

Circular Economy

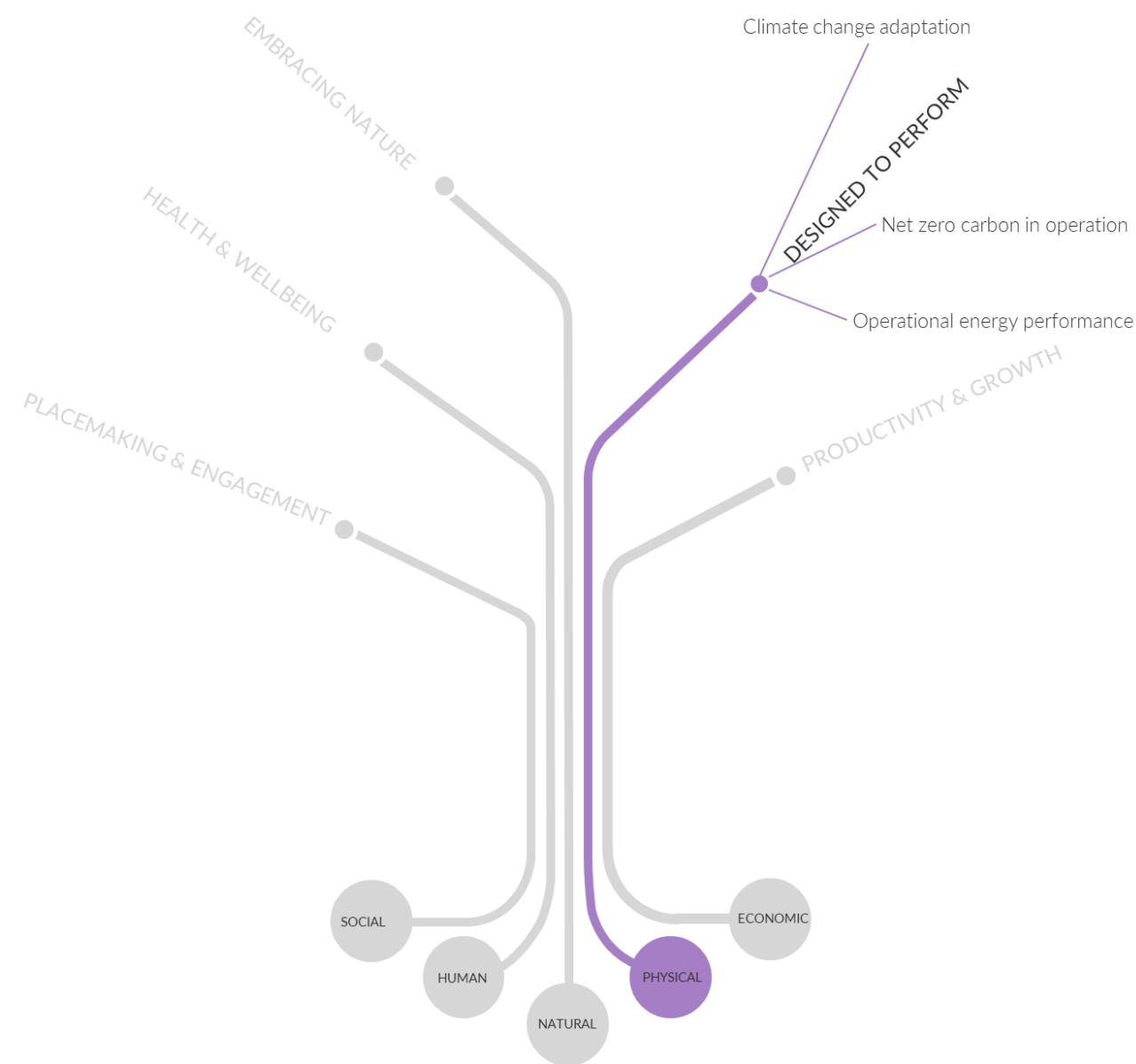
Considering circular economy principles for the development consists of:

- Material minimisation
- Longevity and adaptability
- Waste reduction and recycling
- Refurbishment

Key measures which may be incorporated include:

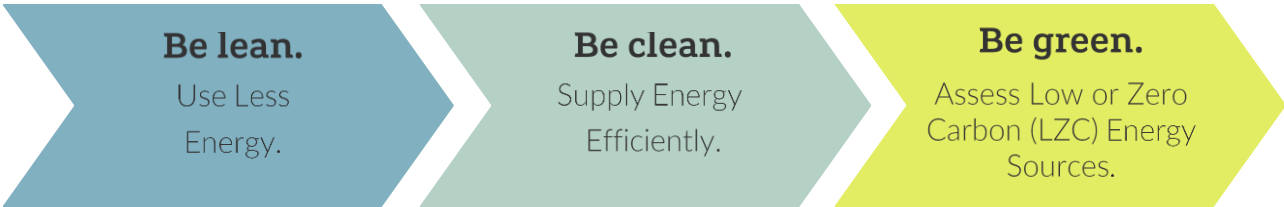
- A strategy to reduce, reuse and recycle materials minimising construction waste generation. Pre-demolition materials on site will be re-used where feasible. On site environmental data during the construction phase will be collated, reviewed and verified to promote transparency and accountability. Upon project completion, the Applicant will disclose the waste arisings from the development.
- A strict sustainable sourcing strategy aligned with industry best practice (e.g. ISO 20400 Sustainable procurement guidance) to be implemented to deliver sustainable outcomes through the whole value chain.
- Consideration to the application of modularity and ease of future adaptation / disassembly.

5.4 Designed to Perform



Regulated Energy Performance

The Proposed Development follows the Energy Hierarchy.



Be Lean

A fabric first approach, implementing where possible upgrades to existing building fabric and services.

Be Clean

A review will need to be undertaken to determine heat network availability within the area and whether it is viable for the project to connect.

Be Green

The strategy should seek to maximise the provision of low and zero carbon energy capture and generation to meet the remaining demands of the development.

(% betterment over baseline / target emission rate)	
Be Lean.	-40%
Be Clean.	0%
Be Green.	2.53%
Total.	2.53%

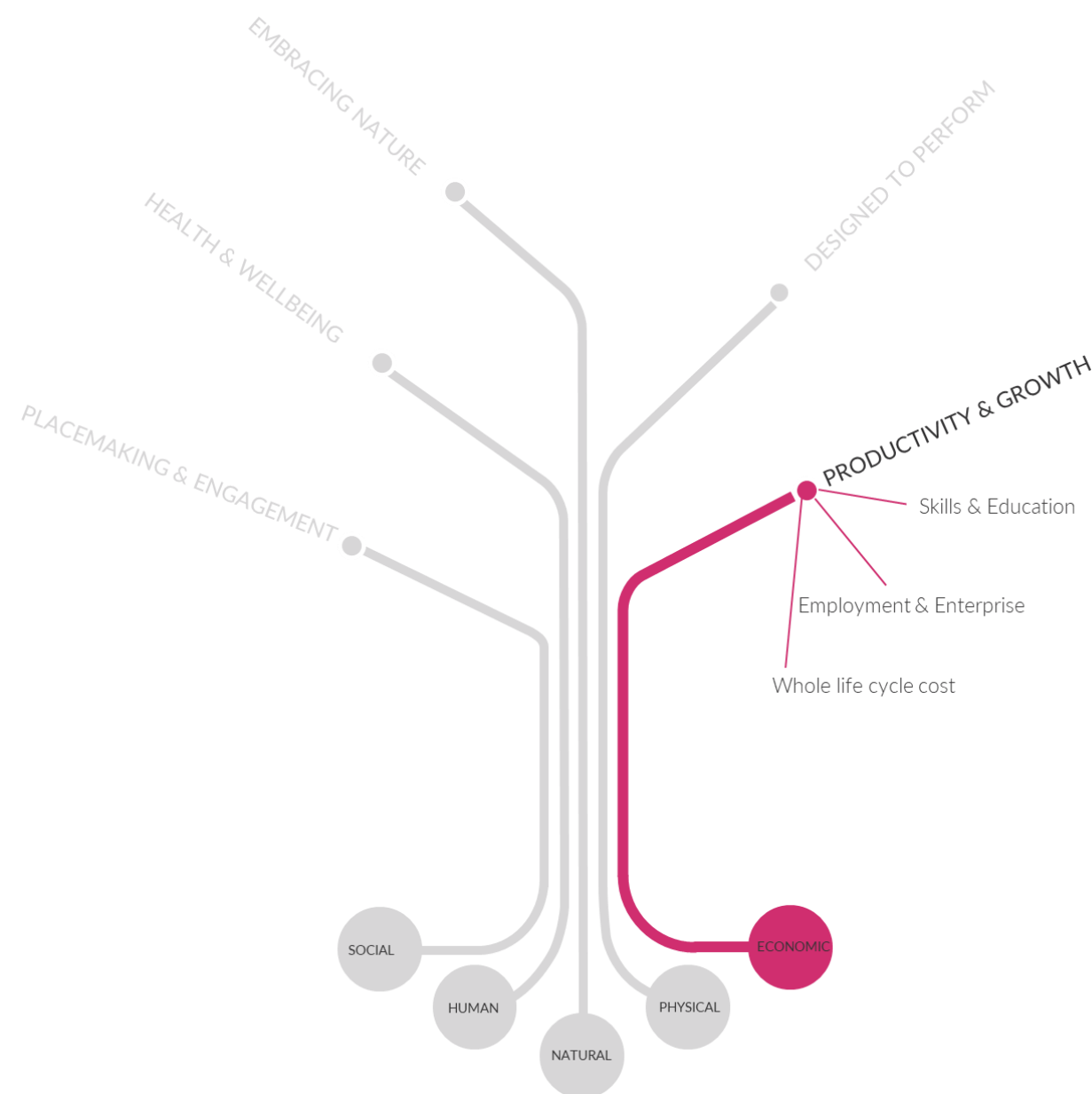
Table 2: Carbon reduction breakdown.

Through the measures outlined in the energy statement, it is anticipated that a 2.53% reduction in CO₂ emissions can be achieved beyond the baseline, inclusive of all measures when utilising updated SAP 10.2 carbon factors.

Climate Change Adaptation

To future-proof the development, low-impact and renewable materials will be prioritised, such as timber. A Climate Change Risk Assessment and adaptation strategy will also be developed to further strengthen the resilience of the Proposed Development. The Strategy will cover elements such as factoring in a climate change allowance in SuDS and surface water run-off design and overheating assessments.

5.5 Productivity & Growth



Skills & Education

- The Proposed Development is expected to enable sustainable growth through the creation of jobs during construction and other opportunities for harnessing local talent.
- The Project will also engage with local schools and colleges to bridge the gap between education and employment to further support aspirations of young people in the local area.

Employment & Enterprise

The Proposed Development will support local businesses through providing quality full time and part time employment that meets local needs and provides job security for employees.

The Employment & Enterprise theme includes the following objectives:

- Employment: The Project will provide full time equivalent local employment, sub-regional employment, and employment in the wider geographical area through engaging with local and regional businesses and supply chains. The Proposed Development also has the potential to provide local jobs within the healthcare setting.
- Supply Chain: Expanding on the point above, the Proposed Development will prioritise local suppliers, preferably small and medium sized businesses based within the Leicestershire area. Apart from the obvious benefit of supporting local business, local procurement offers a wide range of other potential advantages. Local sourcing can offer greater control over the supply chain, higher levels of flexibility and predictability, lower environmental footprint and reduced supply chain cost. This will also contribute towards the recovery of the local economy from the COVID-19 crisis.
- Business Support: The Project will support local businesses through providing training and support events to enable knowledge transfer and connection with social and community enterprises.

The project will nurture a fair working environment that promotes fair remuneration and rewards ethical behaviour among the project team.

Whole Life Cycle Cost

To deliver whole life value from the Proposed Development and promote economic sustainability, undertaking whole life cycle costing of the design options has been considered and will be reviewed further at the later design stages.

As shown under the BREEAM credit Man 02, targeted as part of the Proposed Developments commitment to achieving BREEAM rating 'Excellent', this improves the building design, specification and through-life maintenance and operation. The following whole life cycle appraisals have been targeted under the BREEAM pre-assessment and are currently under review:

- RIBA Stage 2: An elemental life cycle cost (LCC) analysis.
- RIBA Stage 4: A component level LCC plan.

The whole life cost - that is a combination of the capital, maintenance and operational costs informs the design decision and helps achieve the following:

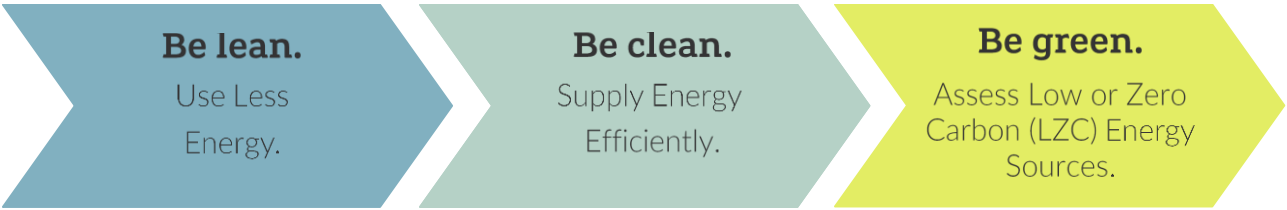
- Lowest possible building energy consumption over the operational life span of the development (compared to other options/alternatives analysed).
- Significant reduction in maintenance requirement/frequency.
- Prolonged replacement intervals of services infrastructure/systems or building fabric.
- Dismantling and recycling or reuse of building components.

6. Energy strategy overview.

6.1 Energy Strategy.

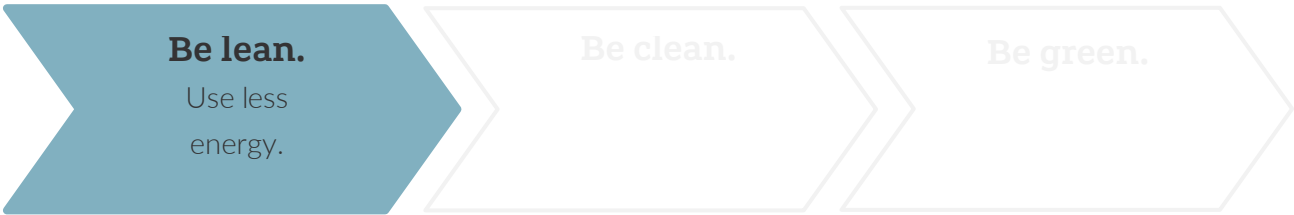
The energy strategy has been based on the energy hierarchy; Be Lean, Be Clean and Be Green.

The strategic approach to the design of the Proposed Development has been to reduce demand for energy prior to the consideration of integrating Low or Zero Carbon (LZC) technologies, since controlling the demand is the most effective way of reducing energy requirements and CO₂ emissions.



6.1.1 Be Lean.

Passive design and energy efficiency measures form the basis for the reduction in overall energy demand and carbon emissions for the proposed development. This energy strategy aims to reduce the energy demand initially by optimising the envelope and building services within the development.



An initial series of Part L compliance calculations have been undertaken to determine the potential reduction in annual regulated carbon emissions using passive measures such as those indicated in the following Table.



Fabric performance

As part of the updates to Part L 2021, u-values are seeking to be improved upon. Below depicts how the proposed building compares to the notional building, used as a baseline model for comparison.

Parameters	Part L (2021)	Notional Building	Proposed Development
Fabric Air Permeability (m ³ /m ² .h at 50Pa)	8.00	5.00 / 3.00	3.00
External Wall U-value (W/m ² .K)	0.26	0.18	0.15
Ground Floor U-value (W/m ² .K)	0.18	0.15	0.15
Roof U-value (W/m ² .K)	0.16/0.18	0.15	0.15
Glazing U-value (W/m ² .K) (glazed door / windows)	1.6	1.40	1.40
Glazing g-value	0.40	0.29	0.35
Glazing light transmittance	70 %	70 %	70%
Glazing Frame percentage	10%	10%	10%
Personal Door U-value (W/m ² .K) – Solid / Glazed	1.6	1.9 / 1.4	2.2 / 1.4



Space Heating and cooling

- Space heating utilises Air Source Heat Pumps, as within the proposed building but with a reduced efficiency of 164% (improved efficiencies are considered among the Be Green case).
- VRF and Air systems operate a system specific fan power of 1.50 W/l/s. (note: FCU/VRF are incorporated into the Be Lean and Be Clean cases, an option is considered in the Be Green case).
- Efficient variable speed pumps to help minimise energy consumption.



Mechanical ventilation

The use of heat recovery with an efficiency of 75% is used. Recovering heat from the extract air can help reduce annual heating energy considerably with no adverse impact on the air quality of the incoming fresh air.

The local mechanical ventilation units will have efficient motors and specific fan powers in the region of 1.50 W/l/s to help reduce the energy consumption associated with delivering fresh air into the buildings.



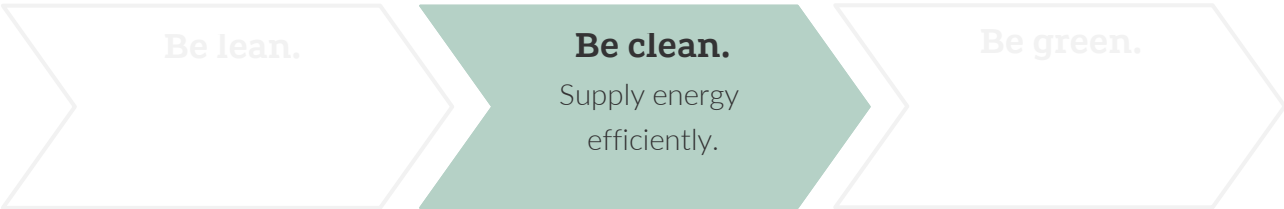
Domestic hot water (DHW) system

Efficient storage (where applicable) and delivery will be incorporated which minimises heat losses. A generator seasonal efficiency has of 286% has been utilised as part of the Be Lean case. (Improved efficiencies and options are considered among the Be Green case).

Table 3: Passive Design Measures

6.1.2 Be Clean

This stage of the energy hierarchy includes consideration of connection to available district heat networks, or the use of on-site heat networks and decentralised energy production such as Combined Heat and Power (CHP) in order to provide energy and reduce consumption from the national grid and gas networks, through the generation of electricity, heating and cooling on-site.



Combined heat and power (CHP)

Due the proposed changes to the carbon emission factors in future revisions of Part L – the use of Combined Heat and Power (CHP) is likely to offer a ‘negative benefit’ within the next five years and therefore has not been explored as part of the energy strategy.

The nearest District heating network connection is at either Leicester Royal Infirmary, 13.2 miles away, or Coventry University 12.7 miles away. Therefore at this time, district heating has not been considered for the development due to the distance.

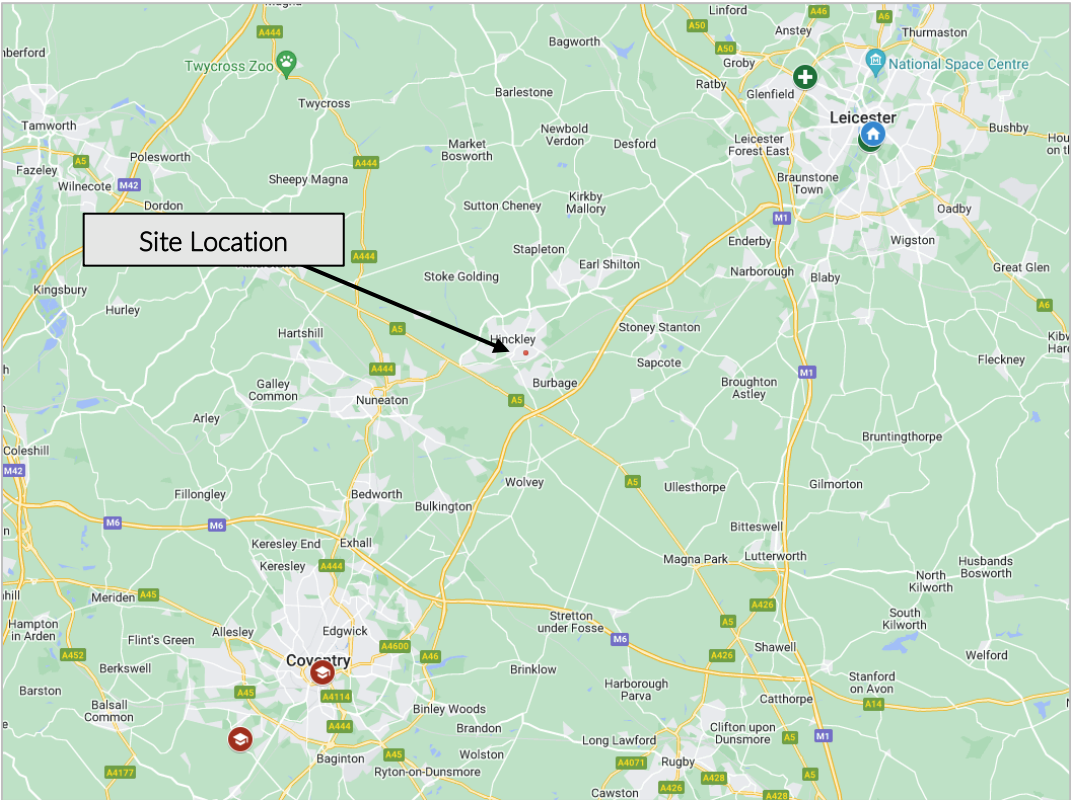
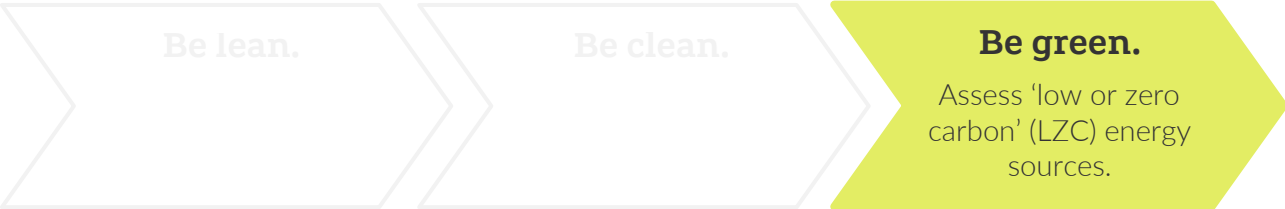


Figure 4: District Heat Map – Association of Decentralised Energy

Table 4 Decentralised Energy Measures

6.1.3 Be Green

The final step of the energy hierarchy explores the feasibility of Low and Zero Carbon (LZC) technologies to allow for the production of renewable energy onsite in order to offer a further reduction in carbon emissions.



Air source heat pumps

Air source heat pumps (ASHP) use thermodynamic principles to convert heat from the air into useable heat within the building. Unlike some other sources of renewable energy, heat pumps do require energy (typically electricity or gas) to pump and compress refrigerant through the system. However, under the Renewable Energy Directive 2009/28/EC they are classified as renewable technologies provided that the final energy output significantly exceeds the primary energy input required to drive the heat pump. ASHP need to be located externally with access to the ambient air, typically at roof level.

Suitability to Proposed development:

Due to grid decarbonisation and the proposed SAP10 carbon factors, it is expected that ASHP technology will offer significant carbon emission reductions over the gas boiler baseline scenario. ASHP plant can be located at roof level and integrated into space heating and hot water systems (albeit potentially with some degree of ancillary top-up heating to raise water temperatures). Implementing heat-pump technology brings the additional benefit of a shift towards combustion-free development, with the associated benefit to local air quality.

This approach is expected to result in significant regulated CO₂ emission reductions beyond the Building Regulations Part L (2021) ‘baseline’ on a site-wide basis.

Air Source Heat Pumps are therefore proposed for the development as the primary heat generating technology serving the community heat network.



Space heating

Heating will be provided mostly by radiant panels in public and circulatory spaces. VRF systems are provided for consultation spaces, including offices and anywhere that would benefit occupants with comfort cooling. Technical rooms are kept at a consistent temperature using Constant Volume systems utilising air as required by specialist equipment. All spaces are served by a highly efficient air source heat pump operating at a seasonal efficiency of 400%.



Space cooling

Cooling is provided by VRF systems and Air systems (constant volume) where required. Circulatory spaces are cooled mostly via natural ventilation, with the option for this to be adopted in other spaces at subsequent stages, which could help to minimise the impact on carbon emissions. All spaces are served by a highly efficient air source heat pump operating at a generator seasonal efficiency of 600%.



Mechanical ventilation

Ventilation is served by air handling units utilising both VRF systems and air systems in the required rooms. A natural ventilation approach has been adopted in the appropriate areas, consisting of circulation spaces with other rooms having the potential to be explored further. Mechanical ventilation with heat recovery strategy has been proposed. The use of heat recovery with an efficiency of 75% is used.



Domestic hot water provision of 2000L has been proposed, incorporating secondary circulation with a loop length of 185m and circulation losses of 7.00 W/m. The DHW system is served by a water source heat pump (WSHP) with a seasonal efficiency of 400%.

Table 5: Renewable Technology Measures

6.2 Part L 2021 Assessment Results Breakdown

The following table and graph details how the proposed development performs against Part L 2021.

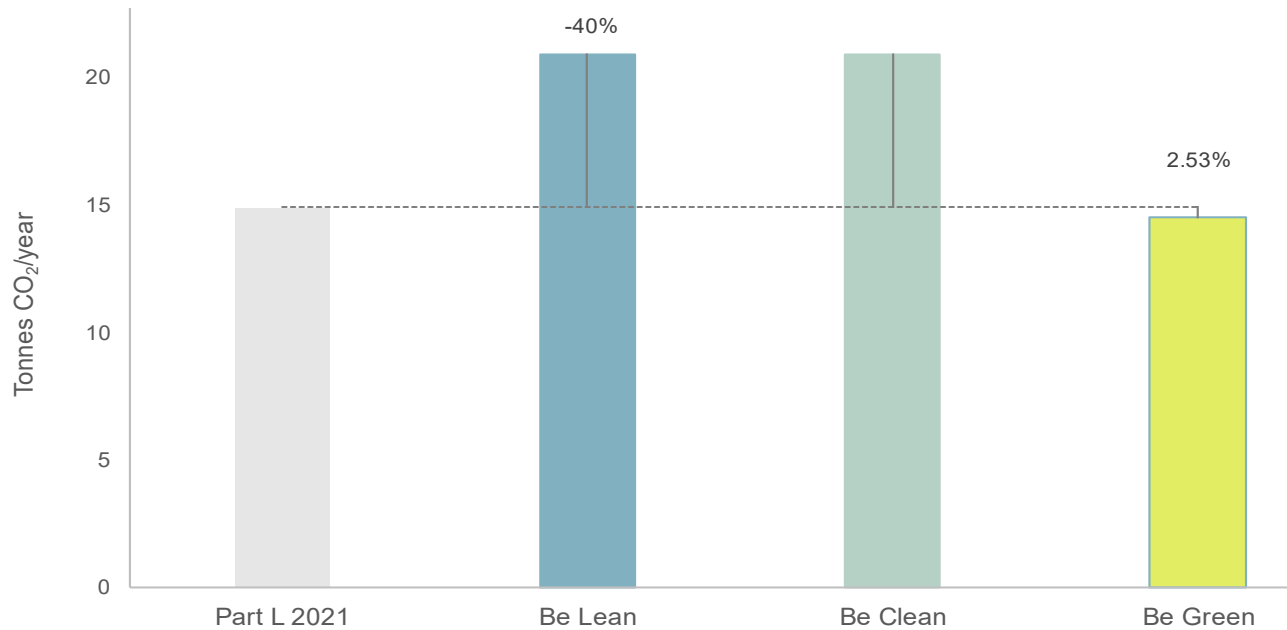


Figure 5 Part L 2021 Graph depicting results

	Proposed Development
Target emission rate (kgCO ₂ /year):	7.5
Building emission rate (kgCO ₂ /year):	7.31
Percentage Betterment:	2.53%
Required Minimum Electrical Output (kWh/year)	32,000
Indicative PV area (m ²)*	200
*This is PV active area – further area may be needed for access and maintenance	

Table 3 Part L 2021 Results for the Proposed Development (Be Green Stage)

7. BREEAM.

An initial pre-assessment has been carried out for the proposed Hinckley and District Hospital: CDC & Endoscopy Building. It is recommended the building should be registered under the BREEAM V6 scheme and assessed using the New Construction Healthcare criteria. The building is currently considered to be most suitable to be assessed using a Fully fitted assessment type. The assessment will be targeting a BREEAM ‘Excellent’ rating as a minimum.

This has been independently done by a qualified BREEAM assessor prior to a review by the project design team. This sets out a route to achieving the target rating and highlights the design team members responsible for each credit issue.

The following predicted scores have been calculated based upon experience with similar buildings and Hoare Lea’s current understanding of the proposed development:

- Baseline score / rating: **73.69%** equivalent to a **BREEAM 'Excellent'** rating.
- Potential score / rating: **81.48%** equivalent to a **BREEAM 'Excellent'** rating.

Please see below credit summary for the strategy for the proposed development:

Category	Issue	Credits		
		Available	Targeted	Potential
Management	Man 01: Project brief and design	4	3	-
	Man 02: Lifecycle cost and service life planning	4	4	-
	Man 03: Responsible construction practices (Me), (Mo)	6	6	-
	Man 04: Commissioning and handover (Me), (Mo)	4	4	-
	Man 05: Aftercare (Me), (Mo)	3	2	+1
Health & Wellbeing	Hea 01: Visual comfort	6	2	-
	Hea 02: Indoor air quality	4	0	+1
	Hea 04: Thermal comfort	3	3	-
	Hea 05: Acoustic performance	3	3	-
	Hea 06: Security	1	1	-
	Hea 07 Safe and healthy surroundings	2	2	-
Energy	Ene 01: Reduction of energy use and carbon emissions (Me) (Mo)	13	9	+1
	Ene 02: Energy monitoring (M) (Me) (Mo)	2	2	-
	Ene 03: External lighting	1	1	-
	Ene 04: Low carbon design	3	2	-
	Ene 05: Energy efficient cold storage	-	-	-
	Ene 06: Energy efficient transportation systems	2	2	-
	Ene 07 Energy efficient laboratory systems	-	-	-
	Ene 08: Energy efficient equipment	2	0	-
Transport	Tra 01: Transport assessment and travel plan	2	2	-
	Tra 02: Sustainable transport measures	10	6	+1

Category	Issue	Credits		
		Available	Targeted	Potential
Water	Wat 01: Water consumption (Mv) (Me) (Mo)	5	3	-
	Wat 02: Water monitoring (Mv) (Me) (Mo)	1	1	-
	Wat 03: Water leak detection	2	2	-
	Wat 04: Water efficient equipment	-	-	-
Materials	Mat 01: Environmental impacts from construction products - Building life cycle assessment	7	7	-
	Mat 02: Environmental impacts from construction products	1	0	-
	Mat 03: Responsible sourcing of construction products (Mv) (Me) (Mo)	4	2	-
	Mat 05: Designing for durability and resilience	1	1	-
	Mat 06: Material efficiency	1	1	-
Waste	Wst 01: Construction waste management (Mo)	5	4	-
	Wst 02: Use of recycled and sustainably sourced aggregates	1	0	-
	Wst 03: Operational waste (Me), (Mo)	1	1	-
	Wst 04 Speculative finishes	-	-	-
	Wst 05: Adaptation to climate change	1	1	-
	Wst 06: Design for disassembly and adaptability	2	2	-
Land Use and Ecology	LE 01: Site Selection	2	1	+1
	LE 02: Identifying and understanding the risks and opportunities for the project	2	2	-
	LE 03: Managing negative impacts on ecology	3	3	-
	LE 04: Change and enhancement of ecological value	4	2	+1
	LE 05: Long term ecology management and maintenance	2	2	-
Pollution	Pol 01: Impact of refrigerants	3	1	-
	Pol 02: Local air quality	2	2	-
	Pol 03: Flood and surface water management	5	4	-
	Pol 04: Reduction of night time light pollution	1	1	-
	Pol 05: Reduction of noise pollution	1	1	-
Innovation	Inn 01: Approved innovation and exemplary level credits	17	0	+3
Targeted weighted score rating:		73.69%, 'Excellent'		
Potential weighted score rating:		81.48%, 'Excellent'		

8. Conclusion.

This Sustainability and Energy statement has been prepared in relation to the proposed development of Hinckley & District Hospital: CDC and Endoscopy building. It summarises the proposed approach being taken for aspects of sustainability and energy.

This seeks to provide recommendations for applying the Five Capitals Model for Sustainability for a holistic approach to sustainability. These guiding capitals offer a framework to achieve multi-faceted benefits in the context of their social, physical, natural, human and economic 'capital' in line with the project's sustainability aspirations.



Designed to perform

The aim is to create a flexible and future-focussed design that can respond to shifting trends and continuously enhance user experience. This includes maximising physical connectivity and delivering an ell-electric masterplan which effectively manages its carbon footprint demonstrating a clear route to net zero carbon.



Placemaking and engagement

The Proposed Development aims to nurture a connected community; celebrating life by activating public spaces from the outset and deploying diverse engagement methods and communication channels to empower the local community.



Productivity and growth

By ensuring equity for all, the economic value of the Proposed Development is increased where all users of a place feel they have a level of ownership of the asset and buy-in to the outcomes it is seeking to achieve (e.g. local employment, SMEs).



Embracing nature

Means achieving a seamless integration between the built and natural environment and enhancing biodiversity. The connection between people and nature on the Proposed Development will be facilitated through the delivery of accessible and quality urban greening.



Health and wellbeing

It means putting people at the heart of design and creating a world leading healthy indoor and outdoor environment through the optimisation of key environmental factors and the delivery of active buildings, walkable streets and energised public spaces. Learning and skills will be fostered to enable people to thrive and lead fulfilling lives.

8.1 Energy Strategy

The approach taken to the energy strategy for this development aims follows the energy hierarchy in order to identify the areas of high performance and the areas that can be improved upon for subsequent design stages.

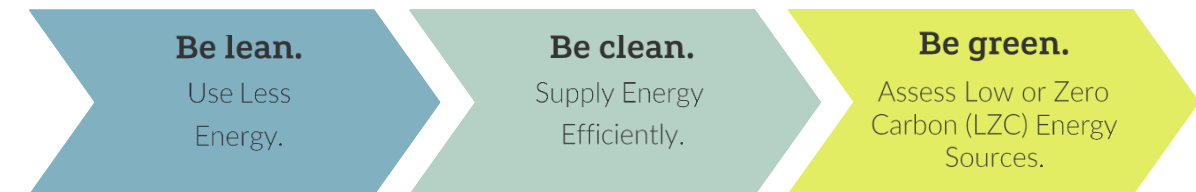


Figure 10 depicts an increase in carbon emissions at the be lean stage. Under Part L 2021 regulations the necessary reduction at this stage can be hard to achieve due to the new calculation methodology for the updated regulations, in place to ensure every effort is made to reduce carbon emissions via passive design methods at first instance.

At the be green stage the development achieves a 2.53% betterment over the Part L Target Emissions, utilising high efficiency ASHPs with a PV array capable of generating an annual yield of 32,000 kWh (This is notionally a PV active area of 200m² with further space/area likely to be needed for access and maintenance.) This minimises the energy usage of the building in the ambition of ensuring that the proposed development is efficient and economical.

This strategy has been prepared to demonstrate that the Applicant and design team have given due consideration to the principles of energy and sustainability, and how these could be implemented and improved upon for the Proposed Development.

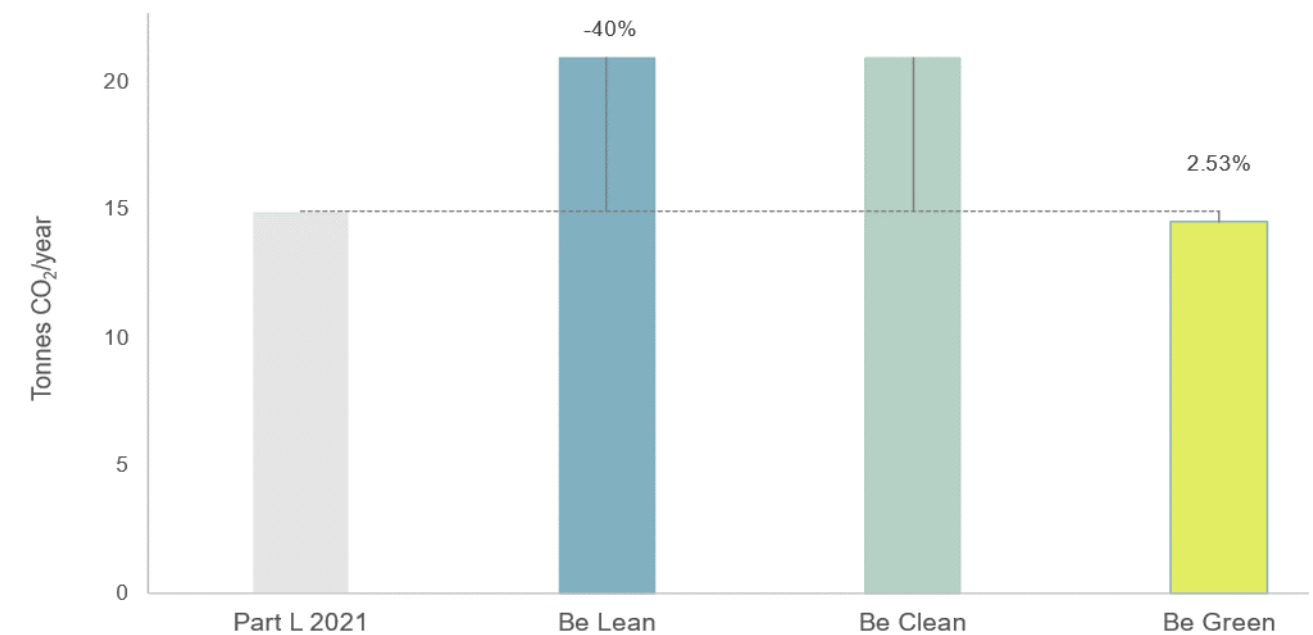


Figure 6 Be Green Emission Rate Betterment for the Hinckley Hospital Development

8.2 BREEAM

The proposed development is targeting a BREEAM 'Excellent' rating as discussed in section 8. The proposed strategy for the development currently scores 73.69%, allowing for a 3.69% gap over the 'Excellent' threshold of 70%. Targeting BREEAM will guide the development in terms of its sustainability credentials and will ensure high design standards are adhered to.

9. Appendix

9.1.1 Fabric Inputs

Parameters	Part L (2021)	Notional Building	Proposed Development
Fabric Air Permeability (m³/m².h at 50Pa)	8.00	5.00 / 3.00	3.00
External Wall U-value (W/m².K)	0.26	0.18	0.15
Ground Floor U-value (W/m²K)	0.18	0.15	0.15
Roof U-value (W/m².K)	0.16/0.18	0.15	0.15
Glazing U-value (W/m².K) (glazed door / windows)	1.6	1.40	1.40
Glazing g-value	0.40	0.29	0.35
Glazing light transmittance	70 %	70 %	70%
Glazing Frame percentage	10%	10%	10%
Personal Door U-value (W/m²K) – Solid / Glazed	1.6	1.9 / 1.4	2.2 / 1.4

9.1.2 System Inputs

The table below details the systems to be associated with each space type.

	Detail	Units	_Sys 1	_Sys 1b	_Sys 2	_Sys 3	_Sys 3b	_Sys 4	_Sys 4b	_Sys 5	_DHW
Heating	System Name/Description	-	VRF	VRF Cooling	VAV (air)	Rad Panel M/Vent	Rad Panel N/Vent	Radiator M/Vent	Radiator N/Vent	Overdoor Heater N/Vent	DHW
	UK NCM System Type	-	VRF	VRF	Dual duct VAV	Other local room heater – unfanned	Other local room heater – unfanned	Central heating using radiators	Other local room heater – unfanned	Other local room heater – fanned	Other local room heater – unfanned
	Heat Source	-	ASHP	ASHP	ASHP	ASHP	ASHP	ASHP	Direct Electric	Direct Electric	WSHP
	Fuel Type	-	Elec	Elec	Elec	Elec	Elec	Elec	Elec	Elec	Elec
	Generator Seasonal Efficiency (SCOP)	%	400	400	400	400	400	400	100	100	400
Cooling	System Type	-	ASHP	ASHP	ASHP	-	-	-	-	-	-
	Fuel Type	-	Elec	Elec	Elec	-	-	-	-	-	-
	Generator Seasonal Efficiency Ratio (SEER)	%	600	600	600	-	-	-	-	-	-
	Generator Nominal Efficiency Ratio (EER)	%	350	350	350	-	-	-	-	-	-
	Does it Qualify for ECAs	Y/N	N	N	N	-	-	-	-	-	-
Adjustment & Metering	Ductwork Air Leakage CEN Classification	-	-	-	-	-	-	-	-	-	-
	AHU Air Leakage CEN Classification	-	-	-	-	-	-	-	-	-	-
	System Specific Fan Power (SFP)	W/l/s	1.5	1.5	1.5	-	-	-	-	-	-
	Pump Type	-	-	-	-	-	-	-	-	-	-

Ventilation	Does the System have Provision for Metering	Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Does the Metering Warn "Out of Range" Values?	Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Cooling / Ventilation Mechanism	-	A/C	A/C	A/C	M/Vent	-	M/Vent	-	-	-
	Air Supply Mechanism	-	Central A/C/Mech	Central A/C/Mech	Central A/C/Mech	Central A/C/Mech	-	Central A/C/Mech	-	-	-
	Heat Recovery Type	-	PHE	PHE	PHE	PHE	-	PHE	-	-	-
	Heat Recovery Seasonal Efficiency	%	75	75	75	75	-	75	-	-	-
	Demand Control Ventilation	-	-	-	-	-	-	-	-	-	-
	Mechanical Exhaust Extract Flow Rate	Ac/hr	-	-	-	-	-	-	-	-	-
	Exhaust Specific Fan Power	W(l/s)	-	-	-	-	-	-	-	-	-
	Supply Specific Fan Power	W(l/s)	System Specific	System Specific	System Specific	-	-	-	-	-	-
Assignment			Waiting/Office/Tech	IM&T	Endoscopy/Scanner	Consult/FF Circ/Wards	GF Circ	Changing/WC	Stairs	Draught Lobby	-

9.1.3 Lighting Parameters

Lighting as defined within the model, detailed in below table.

Specific Lighting System/Area/Room Group	Lighting Gains				Main Lighting Controls									
	Installed Power Density (W/m²/100lux)*	Design Illuminance (lux)	Lamp Efficacy (lm/W)	Display Lamp Efficacy (lm)	Local Manual Switch?	Constant Illuminance Control?	Photoelectric Options					Occupancy Options		
							Photo-electric Options?	Control type**	Sensor Type	Time-switch?	Parasitic Power (W/m²)	Sensing Type	Parasitic Power (W/m²)	Time-Switch?
Toilet		200	100		N	N	N	Auto On - Off	PIR	N	0.05	-	0.05	N
Changing		150	100		N	N	N	Auto On - Off	PIR	N	0.05	-	0.05	N
Circulation		200	100		N	N	N	Auto On - Dimmed	PIR	N	0.05	-	0.05	N
Office		300	110		Y	N	N	Auto On - Off	PIR	N	0.05	-	0.05	N
Exam Room		300	110		Y	N	N	Auto On - Off	PIR	N	0.05	-	0.05	N
Equipment Rooms		300	110		Y	N	N	Auto On - Off	PIR	N	0.05	-	0.05	N
Endoscopy		500	110		Y	N	N	Auto On - Off	PIR	N	0.05	-	0.05	N
Stores		200	100		Y	N	N	Man on – Auto off	PIR	N	0.05	-	0.05	N
Ward		200	100		Y	N	N	Auto on – Dimmed	PIR	N	0.05	-	0.05	N
Plant Room		200	100		N	N	N	Man on – Auto off	PIR	N	0.05	-	0.05	N
Stairs		200	100		N	N	N	Auto On - Dimmed	PIR	N	0.05	-	0.05	N

9.1.4 Domestic Hot Water System(s)

	Detail	Units	DHW
	Generator type	-	WSHP
	Delivery efficiency	%	400
Storage	Storage system	Y/N	Y
	Storage volume	l	2000L
	Storage losses	kWh/l/day	0.0048
Circulation	Secondary circulation	Y/N	Y
	Circulation Losses	W/m	7.00
	Loop length	m	185
	Pump power	kW	0.2
	Pump meter	-	Elec
	Time switch	Y/N	N

9.1.5 Be Lean BRUKL

BRUKL Output Document

Compliance with England Building Regulations Part L 2021



Project name

Hinckley Stage 2 Update LEAN As designed

Date: Wed Aug 09 12:30:00 2023

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.18

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.18

BRUKL compliance module version: v6.1.d.0

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Foundation area [m²]: 696.49

The CO₂ emission and primary energy rates of the building must not exceed the targets

The building does not comply with England Building Regulations Part L 2021

Target CO ₂ emission rate (TER), kgCO ₂ /m²annum	8.07
Building CO ₂ emission rate (BER), kgCO ₂ /m²annum	10.51
Target primary energy rate (TPER), kWh/m²annum	83.99
Building primary energy rate (BPER), kWh/m²annum	105.28
Do the building's emission and primary energy rates exceed the targets?	BER > TER BPER > TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _a -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.15	0.15	00000005:Surf[4]
Floors	0.18	0.15	0.15	00000005:Surf[0]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.15	0.15	10200000:Surf[4]
Windows** and roof windows	1.6	1.6	1.6	00000005:Surf[1]
Rooflights***	2.2	-	-	No roof lights in building
Personnel doors^	1.6	-	-	No personnel doors in building
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building
U _a -Limit = Limiting area-weighted average U-values [W/(m²K)] U _a -Calc = Calculated area-weighted average U-values [W/(m²K)] U _i -Calc = Calculated maximum individual element U-values [W/(m²K)] * Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows. ** Display windows and similar glazing are excluded from the U-value check. *** Values for rooflights refer to the horizontal position. ^ For fire doors, limiting U-value is 1.8 W/m²K NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

Air permeability	Limiting standard	This building
m³/(h.m²) at 50 Pa	8	3

9.1.6 Be Green BRUKL

BRUKL Output Document

Compliance with England Building Regulations Part L 2021



Project name

Hinckley Stage 2 Update As designed

Date: Wed Aug 09 11:20:25 2023

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.18

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.18

BRUKL compliance module version: v6.1.d.0

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Foundation area [m²]: 696.49

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m²annum	7.5
Building CO ₂ emission rate (BER), kgCO ₂ /m²annum	7.31
Target primary energy rate (TPER), kWh/m²annum	82.37
Building primary energy rate (BPER), kWh/m²annum	79.65
Do the building's emission and primary energy rates exceed the targets?	BER =< TER BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _a -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.15	0.15	00000005:Surf[4]
Floors	0.18	0.15	0.15	00000005:Surf[0]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.15	0.15	10200000:Surf[4]
Windows** and roof windows	1.6	1.6	1.6	00000005:Surf[1]
Rooflights***	2.2	-	-	No roof lights in building
Personnel doors^	1.6	-	-	No personnel doors in building
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building
U _a -Limit = Limiting area-weighted average U-values [W/(m²K)] U _a -Calc = Calculated area-weighted average U-values [W/(m²K)] U _i -Calc = Calculated maximum individual element U-values [W/(m²K)] * Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows. ** Display windows and similar glazing are excluded from the U-value check. *** Values for rooflights refer to the horizontal position. ^ For fire doors, limiting U-value is 1.8 W/m²K NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

Air permeability	Limiting standard	This building
m³/(h.m²) at 50 Pa	8	3



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