

8.3 SUSTAINABILITY

The **sustainability strategy** for the site has been developed by Buro Happold around eight key themes to set ambitious targets for the new building:

Operational Energy and Carbon



Increasing energy efficiency, decarbonisation of energy, heat, and transport and balancing any remaining emissions through carbon offsetting. This section looks to set targets that will drive down energy demand and carbon emissions.

It is estimated that the NDP Hotel project could achieve total site-wide Carbon Dioxide emission reductions of 50% compared to the 35% Part L 2021 baseline. Refer to Buro Happold's Section 8.4.1 in this document for further details.

Climate Change Resilience



Ensuring the masterplan is prepared for and resilient to the shocks and stresses that may be anticipated with forecast changes in the future climate. This covers the topics outlined in the DEFRA UK Climate Change Risk Assessment 2017; Heat stress, food supply, Disease response, Natural Capital and Water stress and Flood risk.

A highly efficient approach to building fabric and MEP systems has been utilised to reduce Carbon Dioxide emissions from the outset. Highly insulated and air-tight fabric has been utilised to reduce heat losses in winter with modest glazed ratios to minimise solar gains during the summer months. A curtain walling façade system is proposed across the whole building, with external shading fins or "projected mullions" providing enhanced solar gain mitigation. The balconies on the south are strategically positioned to shade the glazing from the high-angle southerly sun to minimise overheating risk. Refer to section 8.4.2 of this document for further details on Buro Happold's overheating strategy.

Biodiversity



Increasing the abundance and diversity of plant and animal species appropriate to local ecology. Having a positive impact on the biodiversity gain of the area as well as how the site users will positively engage with the site, through nature.

The development will be in line with schemes to protect wildlife in the local area. Buro Happold's Lighting Consultants have suggested a series of measures to avoid disrupting habitat for bats, birds and invertebrates in the surrounding area.

Arup's Landscape section within this document highlights the importance of urban greening on site to help nurture current species of animals and insects in the local environment. This is achieved through the implementation of green roofs, flower-rich perennial planting and tree-lined streets and planters, including ecological enhancements such as small trees and herbaceous and ornamental planting.

Health and Wellbeing



Health and wellbeing of site users and visitors is central to the design. This is to be achieved through supporting the physical and mental health of residents, by creating spaces and infrastructure on site that is conducive to an active and socially cohesive lifestyle.

To contribute and promote a well-rounded, active and healthy lifestyle, the development's landscape has been designed to promote pedestrian outdoor space which will encourage and welcome residents to utilise the outdoor space on site. This has been achieved through the use of the integration of greening on both street and podium level, as well as the creation of outdoor rooms at levels 12 and 13, and incorporating pedestrian-priority spaces along Park Lane.

The scheme prioritises active spaces with community amenity space and play provision which will have a positive impact on the wellbeing of all who use the space, fostering recreation and outdoor usage for all generations. This in turn will benefit resident's mental health, fostering community and reducing the risk for social isolation.

8.3 SUSTAINABILITY (CONTINUED)

Water and Surface Water Run-off

In line with the BREEAM Wat 03 credit leak detection will be provided on the incoming mains water via the use of water meters, located on the incoming mains and then on the leaving pipe of the residential and hotel water storage tanks respectively. Mains water will be metered for the landlord's areas, hotel areas and within each apartment for individual dwellings.

The proposed development considers the use of sustainable drainage techniques in accordance the NPPF, the London Plan 2021 and the Haringey Planning Policy. SuDS Techniques for the Proposed Development:

- Permeable Surfaces are proposed to be underlain with a pavement construction to allow rainwater to pass through the surface via voids, treated and stored in a sub-base aggregate where it either slowly infiltrates into the ground or passes on to the next stage in the drainage system. Due to the ground conditions and previous land uses, ground infiltration is not considered for this site and therefore geocellular storage with a high void ratio is proposed underneath the permeable surfaces to attenuate surface water from the site.
- Planted areas across the site can be utilised as bioretention systems. Due to the restricted external space for other SuDS, underground storage structures will form part of a series of attenuation features which will contribute to attenuating the 1:30 and 1:100 year storm events. Tree pit attenuation is proposed at front of the hotel on Park Lane.
- A system of rainwater drainage will be provided, collecting discharge from all the roof areas to suit the architectural roof designs falling by gravity. All roof areas and terraces greater than 6m² shall be provided with rainwater drainage system installation.

Air Quality

Reducing the impact the development has on the air quality of the wider community, from air pollutants, Nitrous Oxide, Carbon Monoxide, Carbon Dioxide, PM 2.5 and PM 10. It also aims to maximise positive air quality, providing clean air externally and internally across the site.

A site-specific monitoring survey for the development has been undertaken as part of the Air Quality Management Plan (AQMP). A series of measures have been designed to control road traffic emissions during the operational phase, taking into account sensitive receptors both within and adjacent to the Site. This includes electric vehicle charging infrastructure in line with the London Plan requirements.

Operational traffic movements have been assessed through dispersion modelling and have concluded that there will be less impacts in air quality than those previously predicted as there will be no predicted changes to operational traffic as a result of S73 Amendments.

The originally approved gas boiler has been planned to be replaced. There will no longer be any building emissions from routine heating and hot water provision as these do not have any emissions to air.

Mobility and Sustainable Transport

The masterplan is designed to minimise the use of private fossil fuel transport from the site's visitors, residents and users. Arup, the Transport Consultants, have prepared a Framework Travel Plan for the development which aims to:

- "Influence the travel behaviour of residents, staff and visitors;
- Encourage travel by cycle, on foot and by public transport through highlighting their accessibility and availability;
- Promote healthy lifestyles, sustainable and active travel, and vibrant communities."

Zero-carbon transport is encouraged in the scheme by promoting travel by walking and cycling. To encourage cycling a 'Cycle to Work' scheme / Interest-free cycle loans for staff has been proposed to enable staff to purchase bicycles and spread the payments over a period of time. Arup's proposed Santander 'Cycles scheme membership' also encourages this by providing cycle hire membership for the first occupiers of the residential units for up to three years. Additionally, end-of-trip facilities are provided such as showers/ changing facilities for employees, which aims to encourage cycle to work through enhancing its convenience and comfortability.

Refer to the Arup's Transport section in this report for details on cycle parking provision.

Resources, Materials and Waste

This means we reduce the amount of resources we use, increasing proportion of recycled content as well as the amount of materials reused and thinking about the end of life of products. The ultimate goal is to design out waste, keeping products in use so that nothing goes to waste.

The design team will take a holistic view of material sustainability, selecting materials based on a wide criteria including: sourcing, operational performance, aesthetics. This will ensure that the materials selected meet the aspirations of the development and are compliant with BREEAM credits MAT01, MAT02.

A whole life-cycle carbon assessment was carried out on the proposed hotel building development. Refer to the Whole Life Carbon Assessment section within this report for further details.

According to the current operational waste management strategy, waste will be segregated at source into at least the following streams, in line with good segregation practices in this type of venues: General waste, Mixed recyclables (metals and plastics), Glass, Cardboard and paper, Food waste, Bulky items and Specialist waste.

It is anticipated that waste will be collected by a private waste contractor selected by the operator. Alternatively, waste could be collected by Haringey via their current commercial waste service partner, Veolia.

Refer to the Buro Happold Waste Management section of this report for further details.

8.3 SUSTAINABILITY (CONTINUED)

The Sustainability Strategy is based around the latest Haringey Council and GLA targets.

Policy	Project targets / design response
SP4 Working towards a Low Carbon Haringey (Strategic Policies 2013-2026)	a) See Energy Statement, which includes a site wide energy strategy (low- to zero-carbon energy generation is targeted).
SP5 Water Management and Flooding (Strategic Policies 2013-2026)	a) Flood risk assessment
SP6 Waste and Recycling (Strategic Policies 2013-2026)	a) Operational Waste Management Plan (OWMP) and Site Waste Management plan (SWMP)
SP7 Transport (Strategic Policies 2013-2026) Delivering regeneration and access Delivering action on Climate Change and quality and healthy Places	a) A Travel Plan is produced for the scheme. The Plan attends to both regeneration and access as well as action on climate change and creation of quality and healthy places. b) See Health Impact Assessment (HIA)
DM19 Nature Conservation (Development Management DPD 2017)	a) The Landscape strategy and Design and Access Statement advance net gains in biodiversity as well as climate resilience.
DM20 Open Space and Green Grid (Development Management DPD 2017)	a) The Landscape strategy and Design and Access Statement design an increase in open and green space over the site.
DM21 Sustainable Design, Layout and Construction (Development Management DPD 2017)	a) See Energy Statement for application of the energy hierarchy within the scheme.
DM22 Decentralised Energy (Development Management DPD 2017) Communal energy systems Existing and planned future DE networks DE network connection zones Customer charters	a) The Energy Strategy describes the site wide energy strategy and design of the district heat network
a) The Energy Strategy describes the site wide energy strategy and design of the district heat network.	
DM23 Environmental Protection (Development Management DPD 2017) Air quality Noise and vibration Light pollution Contaminated land Hazardous substance	a) Environmental Impact Assessment details in full the environmental impact and associated mitigation
DM24 Managing and Reducing Flood Risk (Development Management DPD 2017)	a) Flood risk assessment produced
DM25 Sustainable Drainage Systems (Development Management DPD 2017)	a) Flood risk assessment produced
DM26 Critical Drainage Areas (Development Management DPD 2017)	a) Flood risk assessment produced
DM27 Protecting and Improving Groundwater Quality and Quantity (Development Management DPD 2017)	a) Flood risk assessment produced
DM28 Watercourses and Flood Defences (Development Management DPD 2017)	a) Flood risk assessment produced
DM29 On-Site Management of Waste Water and Water Supply (Development Management DPD 2017)	a) Flood risk assessment produced

FIGURE 330. Key Sustainability Policies



FIGURE 331. Proposed podium terrace facing Park Lane

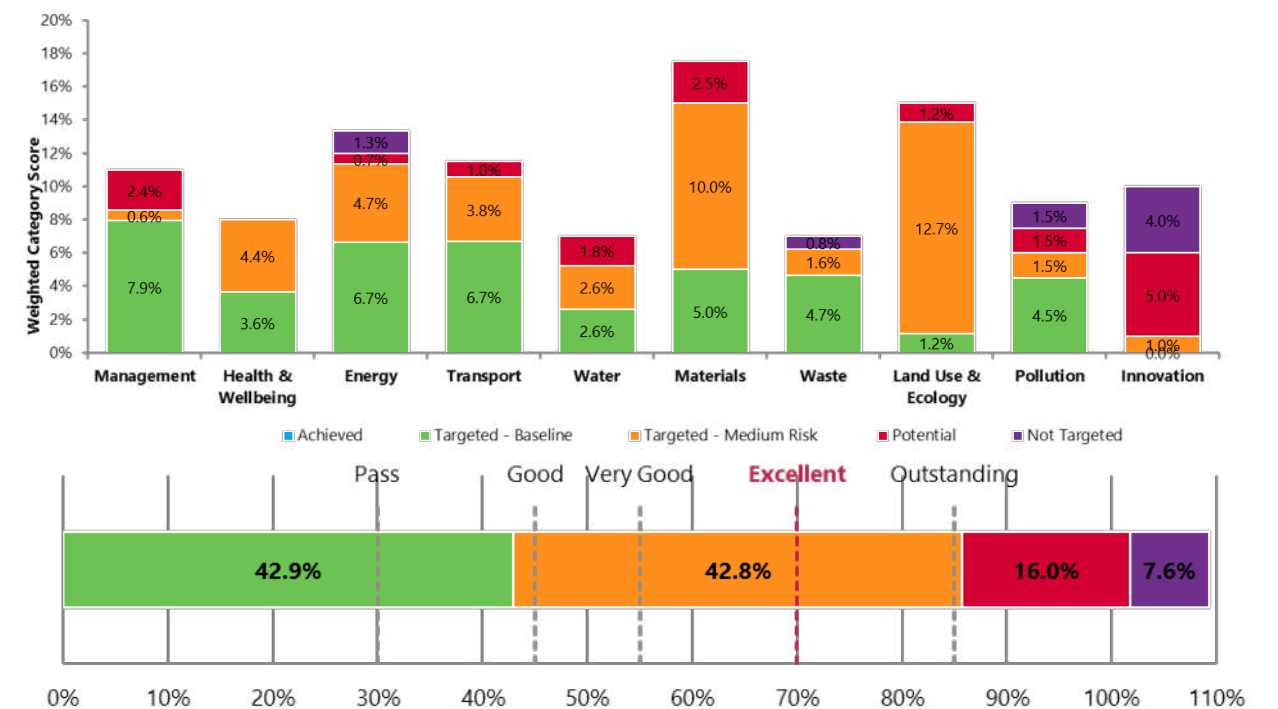


FIGURE 332. BREEAM targeted score and associated risk level for each category

8.4 ENERGY STRATEGY

8.4.1 OVERVIEW

In accordance with planning policy, the **energy strategy** for the development has been developed in alignment with the London Plan energy hierarchy; Be Lean, Be Clean, Be Green, and Be Seen.

This approach aims to minimise energy consumption from the outset through the use of efficient massing, passive measures and efficient systems before the deployment of low- and zero-carbon technologies.

It is estimated that the NDP Hotel project could achieve total site-wide Carbon Dioxide emission reductions of 50% compared to the 35% Part L 2021 baseline. This exceeds the onsite GLA target of 35%.



FIGURE 333. Energy Hierarchy

PART L

Part L of the 2021 Building Regulations relates to the Conservation of Fuel and Power in both new construction dwellings (Part L1) and non-domestic buildings (Part L2). These documents stipulate a minimum level of efficiency that buildings must be constructed to.

Compliance with these regulations is demonstrated through thermal modelling analysis. The proposed hotel building comprises self-contained domestic dwellings therefore Part L 1 applies here. For everything else, Part L 2 applies. Therefore, two separate energy models have had to be created and analysed.

Refer to Buro Happold Energy Strategy for full details.

	Total regulated emissions (Tonnes CO ₂ / year)	CO ₂ savings (Tonnes CO ₂ / year)	Percentage savings (%)
Part L 2021 baseline	117.5		
Be Lean	98.7	18.8	16%
Be Clean	56.4	42.2	36%
Be Green	59.0	-2.6	-2%
Total Savings	-	58.4	50%
	-	CO ₂ savings off-set (Tonnes CO ₂)	-
Off-set	-	1,770.6	-

FIGURE 334. Estimated carbon reductions at each stage of the energy hierarchy

'Be Lean'

Key passive design measures that are being employed in the scheme are listed below:-

- Massing orientation: main façade faces southeast, north-west to minimise solar heat gains.
- Aluminium fins and projected mullions to protect east and west façades as well as brise solei to enhance solar heats gain mitigation.
- High performance unitised curtain wall system including triple glazing.
- The balconies on the south are strategically positioned to shade the glazing from the high-angle southerly sun to minimise risk of overheating.
- Optimised window-to-wall ratio of 27% to limit unwanted solar gains whilst balancing good levels of daylight.

Fabric element	Unit	Proposed design	Notional building Part L2 2021
Curtain walling	W/m ² .K	0.64	Walls: 0.18 Windows: 1.4
Glazing g-value*	-	0.4-0.5	0.29
Roof	W/m ² .K	0.13	0.15
Floor	W/m ² .K	0.13	0.15
Airtightness	m ³ /m ² @50Pa	3	3

FIGURE 335. Building fabric specification

'Be Clean'

In alignment with planning policy, the feasibility of a Decentralised Energy Network (DEN) within the context of the development has been assessed. There are proposed district energy networks that will be located in the vicinity of the Proposed Development as the area has been identified as a key development area within the Haringey Sustainable Design and Construction SPG.

The energy strategy proposes connection to the DEN from the first occupation of the hotel building to deliver savings in carbon dioxide emissions. The proposed basement energy centre has been sized and placed along the Park Lane façade of the Hotel building to ensure ease of connection in to the proposed route.

'Be Green'

A portion of the roof will be dedicated for solar photovoltaics, a type of Low and Zero Carbon (LZC) technology, which will generate electricity and deliver carbon dioxide emission reduction arising from the development.

'Be Seen'

GLA energy hierarchy to further outline the critical impact that post occupancy monitoring and comparative assessment has on the energy use of a building and its value to the industry as a means of rationalising design.

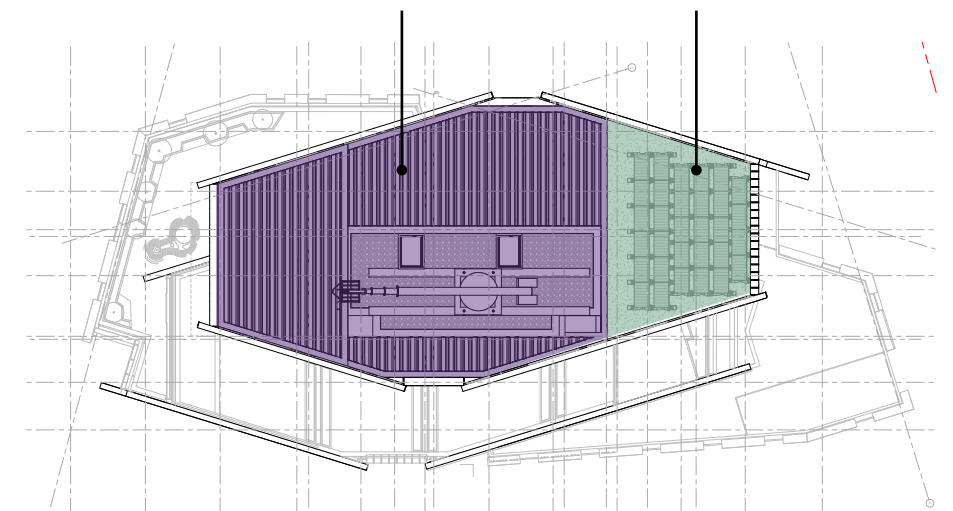


FIGURE 336. Roof Plan with Photovoltaic Zone

8.4 ENERGY STRATEGY (CONTINUED)

8.4.2 OVERHEATING

Building Regulations Part O 2021 has introduced a requirement to not exceed noise levels at night-time within bedrooms. Acoustics modelling has demonstrated that the noise levels of the location will require night-time acoustic attenuation to bedrooms to comply with the criteria. Façade constraints have been modelled separately below to show the impact of installing acoustic louvres, by limiting the openable free area. Results demonstrate that even with Acoustic Louvres, bedrooms are no longer maintained within the TM59 comfort range.

To resolve the residual overheating risk, as result of an acoustically constrained façade, mechanical cooling will be implemented. Nonetheless, openable windows will still be provided to give occupants control and choice of their environment. Mechanical systems will ensure that cooling is not activated whilst windows are open.

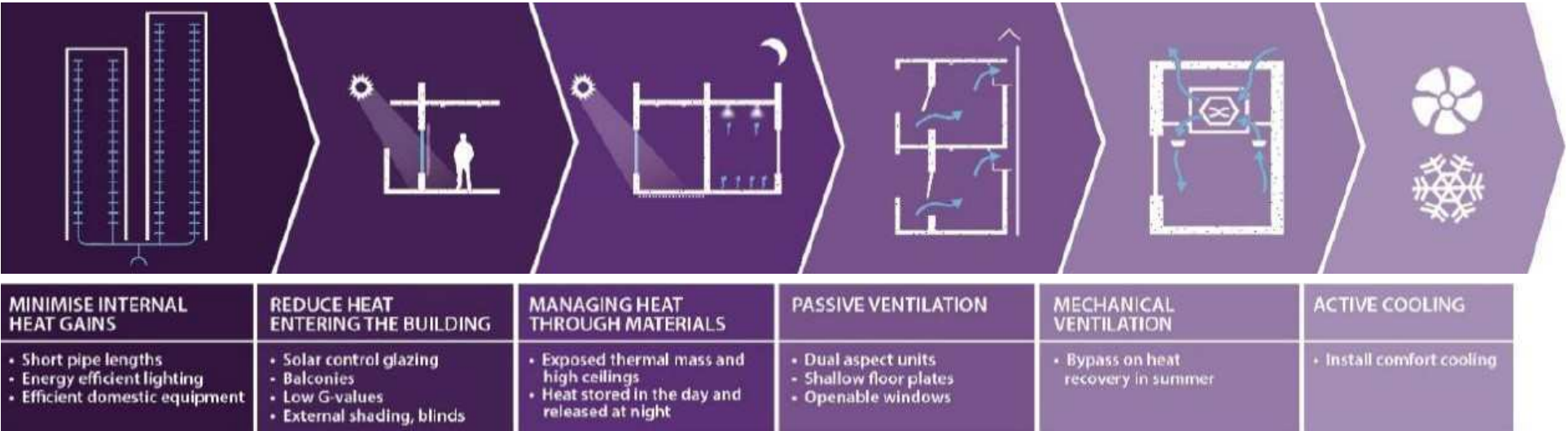
As stated within policy, all developments must make reasonable endeavours to mitigate overheating risks and ensure cooling demands are managed to prevent excessive energy consumption from air-conditioning systems.

The overheating mitigation strategy has been summarised as follows:

- LED lighting throughout with A+ appliances to be considered where controllable
- Efficient and insulated pipe distribution with optimised pipework temperature.
- Optimal G-values and triple glazing
- Main facade faces north-west and south-east. Where possible, façades is shaded with Brise Solei and aluminium fins to help reduce solar gain.
- Balcony positioning on south to offer shading of large glazed areas.
- Openable windows and doors to balconies allowing natural ventilation.
- All units are dual aspect to allow cross ventilation.
- Concrete slabs which are complimentary of thermal mass.
- Mechanical cooling is required as a result of an acoustically constrained facade.



- A** High efficiency curtain wall façade with minimal thermal bridging.
- B** Protruding mullions to protect east and west façades.
- C** Triple glazing.
- D** Optimal glazed ratios of c.27% to minimise overheating and maximise daylight.
- E** South glazing strategically protected from high level sun by stacked balconies.
- F** Maximal openable areas to living spaces.
- G** Brise soleil and vertical fins to protect high level sun whilst allowing good levels of daylight.
- H** Massing orientation main facade faces south-east and north-west to minimise solar heat gains.



8.4 ENERGY STRATEGY (CONTINUED)

8.4.3 ENERGY STATEMENT (COMPLIANCE)

Document	Policy	Performance target	Compliance	Notes
LBH Strategic Policies 2013 with alterations adopted July 2017	SP4 Working towards a low carbon Haringey	Residential - 25% reduction in carbon emissions (on Part L 2013 Baseline) through on-site measures	Yes	Exceeded through compliance with London Plan Policy SI 2
		Non-domestic - achieve minimum BREEAM rating of 'Very Good', with aspiration for 'Excellent'	Yes	As set out in Sustainability Statement
		Site-wide net-zero carbon (regulated)	Yes	Cash-in-lieu carbon offset payment calculated using GLA Carbon Emissions Reporting Tool
		Promote low- and zero-carbon energy generation	Yes	Proposed connection to existing Energetik DEN and roof-mounted PV array
LBH Development Management DPD (adopted July 2017)	DM22	Promote provision and use of Decentralised Energy Network infrastructure	Yes	Proposed connection to existing Energetik DEN
London Plan 2021	SI 2 Minimising greenhouse gas emissions	Residential - 10% reduction in carbon emissions (against Part L 2021 Baseline) through energy efficiency measures alone (Lean)	Yes	As demonstrated in carbon emissions results in energy hierarchy summary section
		Residential - Overall 35% reduction in carbon emissions (against Part L 2021 Baseline) through on-site measures	Yes	As demonstrated in carbon emissions results in energy hierarchy summary section
		Non-domestic - 15% reduction in carbon emissions (against Part L 2021 Baseline) through energy efficiency measures alone (Lean)	No	Unfeasible to achieve due to energy demand dominated by domestic hot water load because of building typology

Document	Policy	Performance target	Compliance	Notes
		Non-domestic - Overall 35% reduction in carbon emissions (against Part L 2021 Baseline) through on site measures	No	Unfeasible to achieve as carbon emissions reductions from DEN are not accounted for in methodology.
		Site-wide - 35% overall carbon reduction through on-site measures	Yes	As demonstrated in carbon emissions results in energy hierarchy summary section
		Maximise on-site renewable energy generation	Yes	Maximum feasible area of roof-mounted PV array proposed
		Net-zero carbon' (regulated) through offset of residual carbon emissions	Yes	Cash-in-lieu carbon offset payment calculated using GLA Carbon Emissions Reporting Tool
	SI 3 Energy Infrastructure	Select heat source in accordance with the Heating Hierarchy to prioritise decentralised energy networks	Yes	Connection to existing Energetik DEN proposed
	SI 4 Managing heat risk	Reduce the potential for internal overheating and reliance on air conditioning systems	Partial	Compliance demonstrated in 'unconstrained' window opening scenario but acoustic constraints mean mechanical cooling is required

8.4 ENERGY STRATEGY (CONTINUED)

8.4.4 WHOLE LIFE CARBON STATEMENT

A **whole life-cycle carbon assessment** was carried out on the proposed hotel building development. The relevant quantities from the cost plan (Draft Version 13. July 2023) were used to complete the assessment as accurately as possible.

It was estimated that the total emissions (modules A1-A5) per area based on the GIA was ~824 kgCO₂e/m², which is less than the GLA's standard benchmarks. The analysis has identified that the largest opportunities contributing to potential reduction in life-cycle carbon are the continued investigation of lower carbon façade design and leaner design of concrete elements. The height of the building presents challenges to carbon reduction, for that reason, at this stage, assumptions have been taken in a conservative manner. As the project evolves further, reduction strategies will be analysed in close interaction with the design team.

The results show an overall embodied carbon value of 1,171 kgCO₂e/m² GIA for modules A-C (excluding B6 and B7). This achieves the GLA standard benchmark of 1200kg CO₂e/m² but falls short of the GLA aspirational target of 800 kgCO₂e/m² GIA. In order to reach the aspirational benchmark target, the project will need to reduce its overall embodied carbon by ~30%.

Additionally, it was estimated that the total emissions (modules B-C excluding B6 & B7) per area based on the GIA were ~349 kgCO₂e/m², which meet the GLA's standard benchmark. The analysis has identified that the largest factors contributing to life-cycle carbon are the replacement of façade elements and the services. The specification of specific design lives and a robust repair and maintenance strategy for the both the façade and the mechanical equipment would help to reduce this impact.

The study included analysis of the D stage as well, including the modules reuse, recovery and recycle. D modules are usually incorporated with circular economy analysis but are still relevant to the overall whole life carbon of the building, as the building sits within a wider network of buildings within the borough. Maximising the positive impacts of the D modules, while not directly contributing to the result will support the transition to a net zero building industry.

	Module A1-A5 (excluding sequestered carbon)	Modules B-C (excl B6 & B7)	Modules A-C (excl B6 & B7; including sequestered carbon)
TOTAL kg CO₂e	22,555,188 kg CO ₂ e	9,553,529 kg CO ₂ e	32,065,706 kg CO ₂ e
TOTAL kg CO₂e/m² GIA	824	349	1171
Most appropriate benchmark	Residential		
WLC Benchmark	<850	<350	<1200
Aspirational WLC Benchmark	<500	<300	<800

FIGURE 337. Estimated WLC emissions of the proposed hotel building

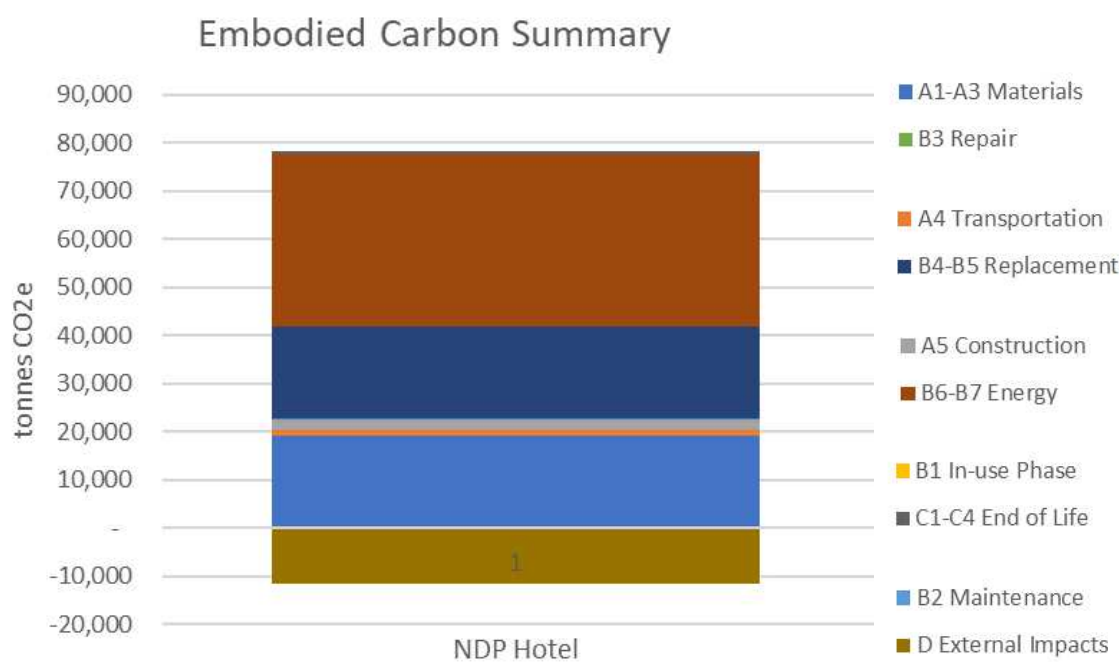


FIGURE 339. Module Breakdown

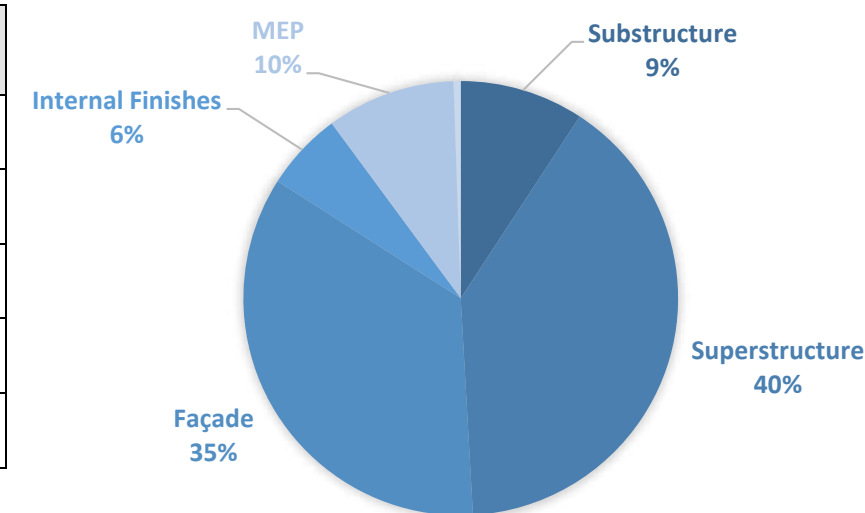


FIGURE 338. WLC results with breakdown of building elements for modules A1-A5

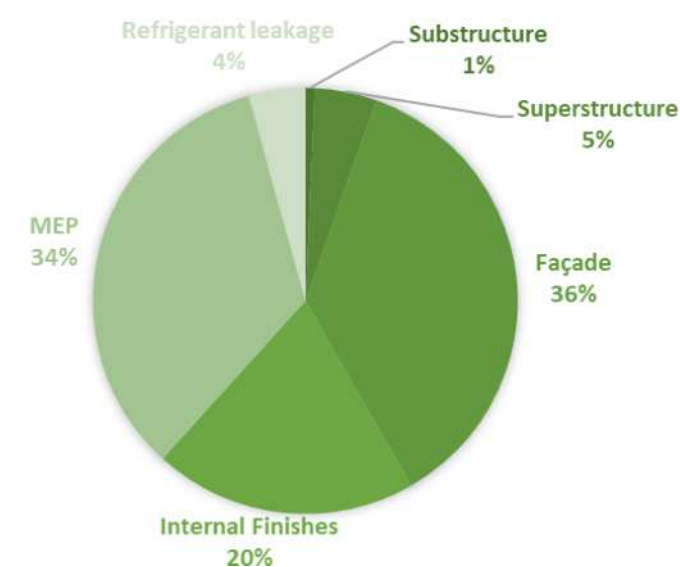


FIGURE 340. WLC breakdown of building elements for module B-C