



**Unit H, George
Curl Way
Par Club**

19 August 2026

Energy and Sustainability Strategy

**UNIT H, GEORGE CURL WAY,
EASTLEIGH, SO18 2RX**

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CONTENTS

Executive Summary	4
Introduction.....	5
Project Description	6
Planning Context.....	7
Key policy Criteria	7
Sustainability Strategy.....	9
Location and land use	9
Sustainable design principles	9
Waste Strategy	10
Pollution	12
Transport.....	14
BREEAM Excellent Strategy.....	15
Energy Strategy	16
Approach to Energy.....	16
Energy Hierarchy	16
Baseline Emissions.....	17
Be Lean: Use Less Energy.....	17
Active Cooling and the Cooling Hierarchy	18
Be Clean: Supply Energy Efficiently	19
Be Green: Use Renewable Energy	19
Energy Results Summary	20
Conclusion.....	20
Appendix A – Eastleigh Policy Response Matrix	21
Appendix B – Part L BE GREEN BRUKL Output .	23

Executive Summary

Futura Bright has prepared this Energy and Sustainability Strategy in support of the planning application for Par Club at Unit H, George Curl Way, Eastleigh. The proposal comprises the refurbishment, fit-out and associated alteration of an existing commercial building to provide a modern golf, leisure, hospitality and wellness destination. The current project brief is approximately 3,100 m².

The Strategy follows the Eastleigh Borough Local Plan 2016–2036 and current Eastleigh guidance. The principal local sustainability driver is Policy DM2 as the non-residential floorspace is above 500 m². The project is therefore being progressed with a target of BREEAM UK Non-domestic Refurbishment and Fit-out 2014 Excellent.

The existing building envelope is to be retained as part of the proposed development. The energy strategy follows the energy hierarchy, prioritising the use of highly efficient heating and cooling systems, complemented by efficient mechanical ventilation with heat recovery (MVHR) systems. The strategy also incorporates energy-efficient lighting and appropriate lighting controls to minimise energy consumption while maintaining the required levels of occupant comfort and functionality.

Key energy outcomes

BASELINE	BE LEAN	BE GREEN
28.94	26.9	26.49
BER	BER 7% below baseline	BER 8.5% below baseline
kgCO ₂ /m ² /yr		

Across the modelled hierarchy, the BER reduces from 28.94 to 26.9 kgCO₂/m²/yr, equivalent to an overall 8.5% reduction against the project baseline and an estimated regulated carbon saving of approximately 7.43 tCO₂/yr. The staged BER results are presented to demonstrate how carbon reduction has been considered through the design.

Key Strategy measures

- Target BREEAM RFO 2014 Excellent, with the current pre-assessment identifying a route from an approximately 73% Excellent baseline through additional credits in energy, health and wellbeing, transport, water, materials, waste and pollution.
- Retain and adapt the existing structure and envelope, avoiding unnecessary replacement of serviceable building elements and the embodied impacts associated with equivalent new construction.
- Upgrade lighting from the project baseline of approximately 95 lm/W with simple switching to approximately 110 lm/W LED lighting with occupancy, manual-on/automatic-off and daylight-responsive controls appropriate to each space.
- Use heat recovery within the ventilation strategy, including an approximately 80% heat recovery air handling arrangement and a central MVHR design basis of approximately 65% heat recovery efficiency for changing/WC accommodation where applicable.
- Propose high-efficient ASHP/fan-coil units.
- Assume industry best practice fit-out materials at planning stage, prioritising durable, low impact, responsibly sourced and low VOC products, with final selections coordinated with the BREEAM evidence requirements.
- Apply good practice measures for water efficiency, construction waste, pollution control, sustainable travel, ecology, drainage, commissioning and operational management as the detailed design develops.

Introduction

Futura Bright has prepared this Energy and Sustainability Strategy for Par Club in support of the planning application at Unit H, George Curl Way. The purpose of the document is to describe the measures incorporated into the Proposed Development and to explain how the project responds to the applicable Building Regulations and the planning-policy requirements of Eastleigh Borough Council.

The report considers both regulated energy performance and broader sustainability matters. In addition to the energy hierarchy and operational carbon, the strategy addresses land use and circular economy, materials, water, waste, pollution, transport, ecology and urban greening, climate adaptation and drainage, health and wellbeing, and operational management.

Assumptions

- The external building fabric is retained. No carbon saving is claimed from wholesale wall, roof, floor or window replacement.
- Where elements are newly formed, replaced or materially altered, they should be designed to the applicable Part L requirements and detailed to limit air leakage, thermal bridging and condensation risk.
- New air conditioning, heat pump systems are assumed to replace older equipment within the Par Club area. Existing air-circulation extract infrastructure may be reused where suitable, supplemented by heat recovery/MVHR as required by the detailed MEP design.
- Where materials, sanitary fittings, transport measures or landscape details are not yet fixed, the report sets realistic planning stage best practice assumptions.
- The energy figures in this report relate to regulated operational energy modelled through the supplied SBEM workbooks. They do not represent whole life carbon or unregulated plug/process loads.

PROJECT DESCRIPTION

Unit H, George Curl Way is an existing commercial building within Eastleigh Borough. The proposed Par Club development relates to the currently available portion of Unit H and comprises the refurbishment, fit-out and associated alteration of the existing space to create a golf, leisure, hospitality and wellness facility.

The proposals comprise approximately 3,100 m² over two floors. At ground-floor level the current brief includes a golf performance centre with simulator / driving range bays, coaching studios, a restaurant and bar, members lounge, retail space and associated back of house facilities. The first floor is proposed to provide a wellness centre including a gym, yoga studios, treatment and consulting rooms, office accommodation, meeting rooms and staff facilities.

The development is mainly an adaptive reuse project. This allows the retention of a significant proportion of the existing building structure, envelope, drainage and services infrastructure while upgrading the internal environment and building services to suit the new use.

FIGURE 1: INDICATIVE GROUND-FLOOR ARRANGEMENT



FIGURE 2: SITE LOCATION – REGIONAL CONTEXT

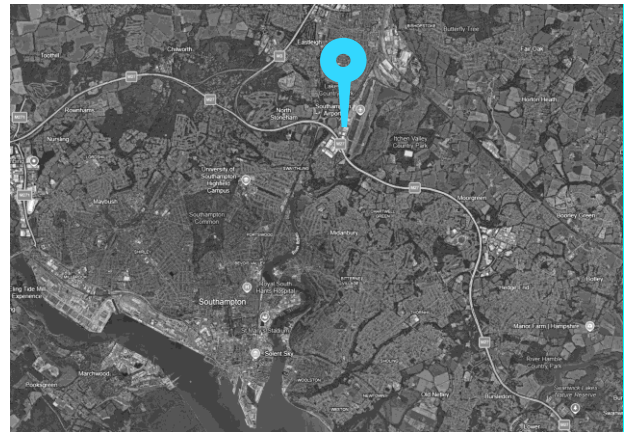


FIGURE 3: SITE LOCATION – LOCAL CONTEXT



FIGURE 4: EXISTING STREET VIEW



PLANNING CONTEXT

A policy review has been undertaken and has been referenced throughout each section of the report outlining how the strategies have considered the key issue of the local borough. A summary, planning policy, and guidance applicable to the proposed development is noted below:

- The Building Regulations Conservation of fuel and power (Part L) 2010 – 2021 edition incorporating 2023 amendments.
- National Planning Policy Framework (December 2024, amended February 2025)
- Eastleigh Borough Local Plan 2016-2036 (adopted April 2022)
- Eastleigh Council's Environmentally Sustainable Development Supplementary Planning Document



The report is based on Approved Document L Volume 2, 2021 edition incorporating 2023 amendments. Although 2026 Approved Document L guidance has been published, the Future Buildings Standards regulations are scheduled to come into force in March 2027. The applicable standard and transitional

provisions should therefore be confirmed with Building Control at the appropriate project stage.

KEY POLICY CRITERIA

TABLE 1: KEY POLICY CRITERIA

Policy / Guidance	Key requirements and project relevance
Eastleigh Borough Local Plan 2016-2036 - Policy DM2	Non-residential development above 500 m ² requires a high sustainability standard. The project is aiming for a BREEAM Excellent target. DM2 also promotes passive design, daylight and natural ventilation where practicable, connection to local low-carbon energy networks, low-impact materials and design for future flexibility.
Policy DM3 - Adaptation to climate change	Requires development to respond to climate risks, including a cooling strategy, water-efficiency measures and SuDS / green infrastructure where applicable.
Policy DM4 - Zero or low carbon energy	Supports infrastructure that generates zero/low-carbon energy or makes more efficient use of energy sources, subject to environmental safeguards.
Policy DM6 - Sustainable surface water management	Requires SuDS for qualifying new development and sets principles for source control, water quality and long-term maintenance. The extent applicable to this refurbishment / change-of-use project depends on the external extension and drainage works.

Policy Guidance /	Key requirements and project relevance
Policy DM8 – Pollution	Seeks to avoid effects from air pollution, odour, water pollution, noise/vibration, light intrusion and land contamination.
Policy DM11 – Nature conservation	Requires protection and enhancement of nature conservation interests and seeks biodiversity net gain on development and redevelopment sites.
Quality places SPD	Adopted in June 2026, supports the adopted Local Plan. It promotes compact and sustainable development, stronger responses to climate change and biodiversity net gain, and the protection of natural resources including land, water, energy and materials.
National Planning Policy Framework	Supports sustainable development, effective use of land, sustainable transport, well-designed places, climate-change mitigation/adaptation and protection of the natural environment.
Building Regulations Part L	The current scope is based on Approved Document L Volume 2, 2021 edition. The 2026 standards have been published but are scheduled to come into force in March 2027; the applicable regulatory route should therefore be checked again at Building Control stage.

Policy DM2

Policy DM2 is the main local sustainability policy for this scheme because the proposed non-residential floorspace is above 500 m². The policy sets a high sustainability standard for development at this scale, including BREEAM and carbon reduction expectations, while also promoting energy-efficient passive design, daylight and natural ventilation where practical, local low-carbon energy networks, lower-impact materials and adaptability.

For Par Club, the planning strategy is to target BREEAM RFO 2014 Excellent and to demonstrate that the design team has actively tested reasonable operational-carbon improvements through the energy hierarchy. The modelling shows a BER reduction from 28.94 to 26.9 and then 26.49 kgCO₂/m²/yr as Lean and Green measures are applied. This shows the reduction achieved by measures to an existing-building refurbishment in which the envelope is being retained.

Policy DM2 provides alternative routes for demonstrating the required sustainability standard. For non-residential development, this can be achieved by targeting BREEAM Excellent, or alternatively through BREEAM Very Good together with Passivhaus certification and a 15% improvement in predicted carbon emissions compared with the Building Regulations standard current at the time. The Proposed Development is following the BREEAM Excellent route, while the hierarchy calculations are presented to demonstrate the quantified energy and carbon improvements achieved through the proposed design measures.

The project brief does not currently include a connection to a district or community heat network. The design should nevertheless keep any practical local low carbon network opportunity under review through detailed design. In the absence of a viable connection forming part of the project, efficient building-level all-electric heat-pump systems are assumed.

Sustainability Strategy

The following section sets out the wider sustainability approach for the Proposed Development. Unlike regulated energy modelling, there is no single calculation methodology for all sustainability matters. The strategy therefore combines the relevant Eastleigh policy requirements, the BREEAM RFO pre-assessment and proportionate industry best practice for a commercial refurbishment and fit-out.

LOCATION AND LAND USE

The proposal makes use of an existing commercial building rather than requiring an equivalent new facility on an undeveloped site. Retaining Unit H and adapting the available floorspace for Par Club therefore has strong circular-economy and sustainable land use. The existing structure, envelope, foundations and much of the established site infrastructure can continue to provide value through a new use.

The fit-out should be developed on the basis of retain before replace. Existing structural and non-structural elements that remain serviceable should be kept where they can meet the functional, fire, acoustic and aesthetic requirements of the new use. Where strip-out is required, the contractor should identify components suitable for direct reuse, manufacturer take back, recycling or recovery before disposal.

New partitions, finishes and service installations should be designed with future flexibility in mind. Demountable partitions, accessible service zones and replaceable finishes will help enable later changes in use without wholesale demolition, supporting Policy DM2's objective of extending building life through re-use.

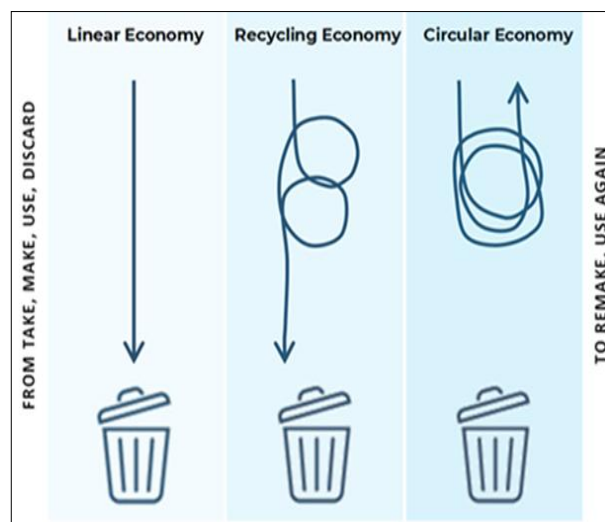
SUSTAINABLE DESIGN PRINCIPLES

Circular Economy

A 'circular economy' aims to change the principles of the existing economy from one which employs 'Take, Make, Use and Discard' values to one which instead encourages a 'Remake and Use Again' material use model. Reusing and repurposing as much material as possible, and then recycling whatever can be

recycled at the end of the process are the fundamentals of this principle. The Proposed Development will make use of these notions as frequently as possible in its design and construction approach.

FIGURE 5: CIRCULAR ECONOMY PRINCIPLES



A licensed contractor will be employed to provide the waste management services on the site and records will be kept ensuring that as much of the on the site waste produced as practically possible is diverted from landfill.

Recycled Content and Material Sourcing

Specific methods of construction at this time are not confirmed and will be investigated at a later date at Detailed Design Stage to ensure that the structure and finishes relate to the local context and environmental aims of the project.

Low impact and local materials will be sourced where this is possible within the design constraints and development budget, with the potential for future embodied carbon modelling to be undertaken once the procurement process is underway. The following material principles are therefore proposed for design development:

- Prioritise retention of existing structure, envelope and serviceable internal elements before replacement.
- Use responsibly sourced timber, with FSC or PEFC certification where timber products are specified.

- Prefer products with Environmental Product Declarations (EPDs), recycled content and demonstrably lower embodied impacts where comparable options are available.
- Specify durable, repairable finishes suited to high-traffic leisure, hospitality and wellness environments to reduce replacement frequency.
- Use low-VOC paints, coatings, adhesives, sealants and finishes to support indoor air quality.
- Reduce unnecessary layers and finishes, and coordinate dimensions / prefabrication where practical to minimise off-cuts and waste.
- Consider recycled-content metals, plasterboard and floor finishes and supplier take-back schemes where available.
- Avoid materials with known high environmental or health impacts where practical and consistent with fire, hygiene and durability requirements.

A full Whole Life Carbon Assessment is not included within the current appointment. Nevertheless, the adaptive reuse of the existing building and the material principles above provide a proportionate approach to embodied carbon at planning stage.

WASTE STRATEGY

Waste will be minimised through the site's construction and operation in line with best practice to ensure that the impact on the environment through the disposal of waste and consumption of new materials is minimised.

FIGURE 6: DEFRA WASTE HIERARCHY



All Waste will be managed in line with the DEFRA Waste Hierarchy.

Construction Waste Management

The Proposed Development is expected to be delivered using a traditional construction approach, with the majority of construction activities undertaken on site. As a result, construction waste will be managed through a structured Site Waste Management Plan, to be implemented for the duration of the works.

The refurbishment and fit-out will create construction waste streams including metals, timber, plasterboard, ceiling systems, flooring, insulation, packaging, plastics and general mixed construction waste. These materials will be managed in accordance with the waste hierarchy, with priority given to waste prevention, reuse and recycling before recovery or disposal.

Opportunities to reduce waste will be considered throughout the detailed design and construction stages. This will include accurate material ordering, careful storage and protection of materials, coordination of design information to minimise abortive works, and the use of standardised dimensions where practical to reduce off-cuts. Where existing materials or structures are removed, opportunities for reuse on site or recycling off site will be reviewed before disposal is considered.

During construction, waste will be segregated on site wherever practicable to maximise recycling and recovery rates. Dedicated waste storage areas will be identified within the construction compound, with skips or containers clearly labelled for different waste streams. Particular care will be taken to ensure that hazardous or potentially polluting materials are stored and removed in accordance with relevant legislation and best practice.

All waste removed from the site will be transferred by licensed waste carriers to appropriately permitted facilities. Waste transfer notes and records will be retained by the contractor to demonstrate that waste has been managed responsibly and in accordance with the relevant duty of care requirements.

The Principal Contractor will be responsible for implementing and monitoring the Site Waste Management Plan. A designated member of the site team will be appointed to monitor waste arising, review opportunities for reuse and recycling, and ensure that site operatives are aware of the waste management procedures. The plan will be reviewed during the construction period and updated where necessary to reflect the progress of the works and the waste streams being generated.

Through these measures, the construction phase will seek to minimise waste generation, maximise the reuse and recycling of materials, and ensure that residual waste is managed in a responsible and compliant manner.

As a minimum, the site waste management plan will include for the following:

1. Pre-Construction Planning

Set Waste Reduction Goals: Identify opportunities to minimise waste, such as off-site fabrication or modular construction.

Assign Responsibility: Appoint a waste champion (typically the site manager or sustainability officer) to oversee implementation.

Conduct a Waste Audit: Estimate the types and volumes of waste expected during the project.

Engage the Supply Chain: Work with suppliers and subcontractors to reduce packaging waste and encourage take-back schemes.

2. Waste Segregation and Storage

On-Site Waste Segregation: Provide clearly labelled skips and bins for different waste streams (e.g., timber, metal, plastics, hazardous waste).

Secure Waste Storage: Ensure waste storage areas are clearly marked, weatherproof, and secure to prevent contamination or fly-tipping.

Hazardous Waste Management: Identify and handle hazardous materials (e.g., asbestos, lead-based paints) in compliance with the Hazardous Waste Regulations 2005.

3. Waste Reduction and Reuse Strategies *(included within this report)*

Design Out Waste: Work with designers to specify materials that generate less waste.

Material Reuse: Where possible, reuse materials such as timber, and fixtures.

Supplier Take-Back Schemes: Engage suppliers who offer returnable packaging or materials buy-back schemes where relevant and applicable.

4. Recycling and Disposal

Follow the Waste Hierarchy: Prioritise prevention, reuse, and recycling before disposal.

Use Licensed Waste Carriers: Ensure all waste is removed by registered carriers and disposed of at permitted sites or handled and managed appropriately for processing elsewhere.

Maintain Duty of Care Records: Keep waste transfer notes (WTNs) and hazardous waste consignment notes for at least two years.

5. Monitoring and Reporting

Track Waste Generation: Record waste types, quantities, and disposal methods.

Conduct Regular Waste Audits: Periodically review waste performance against targets.

6. Compliance with Regulations and Standards

Environmental Protection Act 1990 – Duty of care for waste management.

Waste (England and Wales) Regulations 2011 – Sets out legal requirements for waste minimisation.

Waste will be minimised during all site activities through the monitoring and measuring of energy use and water use from the outset of construction, at a minimum of monthly intervals to track consumption, with reduction measures proposed where they are needed and relevant.

It is anticipated that more than >95% of construction waste will be diverted from landfill as a minimum, with a target for all (100%) being diverted and reused and/or recycled.

POLLUTION

Policy DM8 requires the project to avoid unacceptable effects from air pollution, odour, water pollution, noise, vibration and light intrusion. According to a desktop study through the National Atmospheric Emissions Inventory (NAEI) the location of the Proposed Development currently has a fairly poor air quality ratings for carbon dioxide, nitrous oxide and particulate matter – all of which are byproducts of combustion.

Carbon Dioxide levels are shown as red, with more than 1995 tonnes/km².

Nitros Oxide emissions are markedly high in this location with background levels >25 tonnes/km².

PM10 emissions – those associated with atmospheric particulate pollution of less than 10um – which can exacerbate health conditions are also high with background emissions of >4 tonnes/km².

These high emissions are likely due to the developments close proximity of Southampton Airport, and key motorways like the M27 and M3. The NAEI data identify transport and fuel combustion as important sources of NOx emissions nationally, and transport-related emissions are therefore of particular relevance to the local context of the site.

The proposed development aims to minimise the exacerbation of any air quality issues in the area through the avoidance of fossil fuel burning on site, and taking an all electric approach to building conditioning.

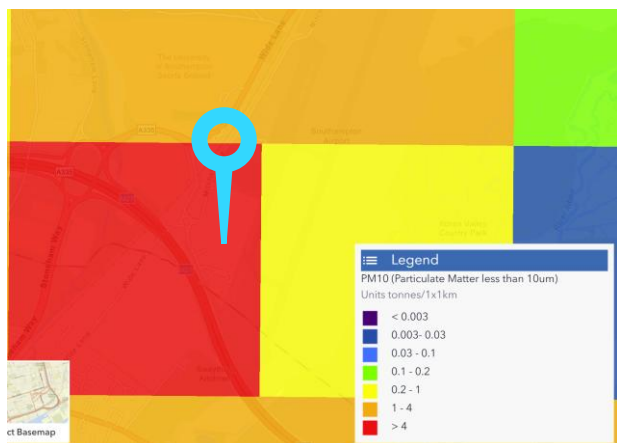
FIGURE 7: AIR POLLUTION MAP – CARBON DIOXIDE EMISSIONS
(NAEI.ENERGYSECURITY.GOV.UK/EMISSIONSAPP/)



FIGURE 7: AIR POLLUTION MAP - NITROGEN OXIDE EMISSIONS
(NAEI.ENERGYSECURITY.GOV.UK/EMISSIONSAPP/)



FIGURE 8: AIR POLLUTION MAP - PM10 EMISSIONS
(NAEI.ENERGYSECURITY.GOV.UK/EMISSIONSAPP/)



Pollution from Construction

General best practice principles will be adhered to on site to minimise on site pollution and disturbances to other nearby residences.

Pollution will be managed on site through the adoption of best practice in respect of noise and air pollution to ensure that this is minimised and any adverse impacts are mitigated.

Best practice principles for the reduction of pollution from construction works will be implemented on site to limit the impact of site works to the local and wider environment. In general, the following principles will be adopted where these are applicable to the works taking place, and where it is practicable to do so:

- The idling of vehicles will be prohibited
- Vehicles will meet the highest standard possible in relation to emissions
- Spill kits will be available on site for the spillage of any fuels or other pollutants

- The site works layout will be optimised to quicken delivery times and reduce impact on surrounding areas from the movement of machinery and other equipment
- Construction sites will be kept in general good order to assist in the good outlook of the construction industry as a whole, and improve local relations for the duration of works
- The use of generators on site will be prohibited unless there is no feasible alternative
- Skips will be continuously covered.
- All Non-Road Mobile Machinery will be well maintained to avoid excessive emissions

Operational Pollution: Air

The Proposed Development is to implement an all-electric heating system, meaning there are no fossil fuels burnt on site. Therefore, there are no air pollution impacts anticipated from the operation of the buildings. See the preceding Energy Assessment for further information on the technology proposed to limit energy use and emissions on site.

Operational Pollution: Noise

At present, heat pumps and an air handling unit are proposed for the heating and cooling provision, with the location of these systems being in a plant room to ensure undue noise impacts are minimised as far as practicable for an sensitive locations nearby.

Please see the energy statement section of this report which outlines the proposed energy systems, and emissions reductions proposed.

WATER USE

Policy DM3 requires non-residential development to consider water-efficient appliances, fittings and leak detection.

Potable water is considered a scarce resource. In 2021 the Environmental Agency completed its latest classification of water stressed areas within the United Kingdom of which London and the South of England form the bulk area of concern.

Generally, water use within non-residential buildings is low.

Water use is typically only measured in accordance with the comments from the Local Authority for residential buildings – with the calculation providing a result on litres per person, per day water use.

It is assumed that the best practice water use rates will be specified for the development, with water use within rooms reduced in line with the following fitting rates outlined within Part G to achieve a water use of <110 litres/person/day.

TABLE 2: PREDICTED INTERNAL WATER USE – FITTING SPECIFICATION (ASSUMED)

Water fitting	Maximum consumption
WC	4/2.6 litres dual flush
Showers	8 l/min
Baths	170 litres
Basin taps	5 l/min
Sink taps	6 l/min
Dishwasher	1.25 l/place setting
Washing machine	8.17 l/kilogram

BIODIVERSITY AND LANDSCAPE

The project is primarily a refurbishment of an existing developed building, which limits the need for additional land take. This is beneficial from a land-use and ecological perspective. Policy DM11 nevertheless requires development and redevelopment to protect ecological interests and seek biodiversity enhancement.

Keep the footprint of external works and new hardstanding to the minimum necessary for the project.

Protect retained trees, planted areas and habitats during construction where these are present within or adjacent to the works.

Where landscape works are included, prioritise native or locally appropriate species, pollinator-friendly planting and species diversity.

Consider small-scale urban-greening features such as native planting, climbers, planters or green-roof areas where compatible with the architectural and maintenance strategy.

Use external lighting controls and careful luminaire placement to reduce ecological light spill.

TRANSPORT

Policy DM13 promotes safe access and appropriate provision for public transport, cycling and walking. The development reuses an established commercial site and will therefore make use of existing access and parking infrastructure, subject to the transport consultant's final assessment.

- Provide secure, convenient cycle parking for staff and visitors in accordance with the final transport and planning requirements.
- Use the gym / wellness changing facilities to support staff and visitor active travel where practical; confirm dedicated cyclist shower / changing provision within the final plan.
- Provide EV charging and/or EV-ready infrastructure within the parking strategy in accordance with the applicable Building Regulations and planning requirements.
- Provide travel information to staff and members covering available public transport, walking and cycling routes.
- Coordinate servicing, deliveries and restaurant waste collections to minimise unnecessary vehicle movements and conflict with customer arrival periods.
- If required by the transport assessment, support a Travel Plan or proportionate travel-management measures aimed at reducing single-occupancy car trips.

Exact parking, cycle-storage, EV-charging and public-transport details are outside the information currently available to this Strategy and should be aligned with the final Transport Statement / Travel Plan before issue.

BREEAM Excellent Strategy

A BREEAM UK Non-domestic Refurbishment and Fit-out 2014 pre-assessment has been prepared for Unit H. The current assessment applies Parts 1–4 of the RFO framework and records a baseline score of approximately 73% equivalent to an Excellent rating. The project is targeting BREEAM Excellent, and the pre-assessment identifies a series of potential credits that can strengthen the route to that target as the design is developed and evidence is secured.

Because the project scope is still evolving and the external fabric is largely retained, final applicability of individual RFO parts and credits should be reconfirmed with the BREEAM Assessor. The planning strategy should therefore treat Excellent as a project target supported by an active credit plan rather than as an unconditional forecast at this stage.

Potential credit opportunities identified in the pre-assessment

TABLE 3 POTENTIAL CREDIT OPPORTUNITIES IDENTIFIED

BREEAM ISSUE	POTENTIAL CREDITS IDENTIFIED
Hea 02 – Indoor air quality	+1
Hea 04 – Thermal comfort	+3
Hea 06 – Safety and security	+1
Ene 01 – Reduction of energy use and carbon emissions	+7
Tra 01 – Sustainable transport solutions	+1 potential measure noted
Tra 02 – Proximity to amenities	+1
Wat 01 – Water consumption	+2

Mat 01 – Environmental impact of materials	+3
Mat 06 – Material efficiency	+1
Wst 05 – Adaptation to climate change	+1
Pol 02 – NOx emissions	+1
Pol 03 – Flood risk / surface water run-off	+2

The BREEAM strategy should be managed through detailed design with clear credit ownership, evidence deadlines and a contingency margin. Commissioning, seasonal review, aftercare and operational monitoring should also be coordinated because they support both BREEAM performance and the real-world energy outcomes of the completed facility.

Energy Strategy

APPROACH TO ENERGY

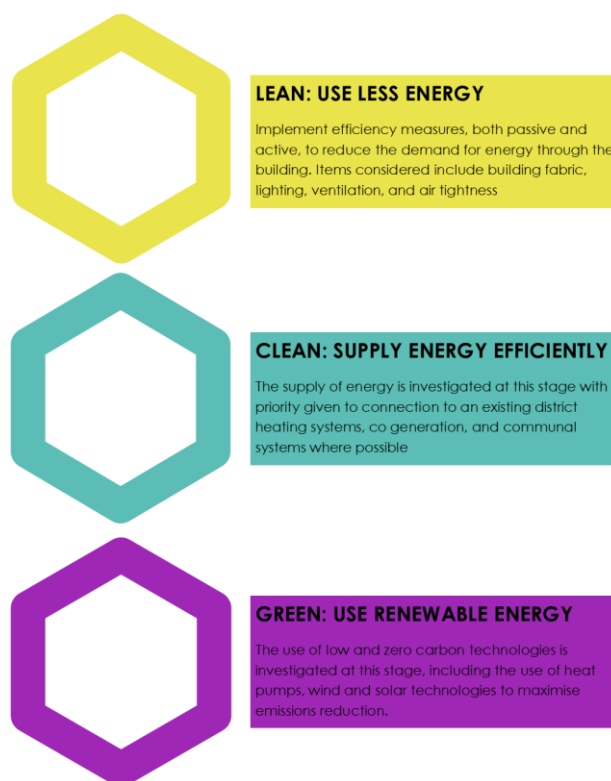
The energy strategy follows the energy hierarchy: first reduce demand and avoid waste, then supply the remaining demand efficiently, and finally use low/zero carbon technologies where appropriate. For Par Club the hierarchy has been adjusted to reflect the constraints and opportunities of an existing-building refurbishment.

The building envelope is being retained, so the project does not claim a fabric first carbon reduction. Instead, Be Lean combines practical demand reduction and efficient supply measures: high-efficiency lighting, improved controls, high efficient heat pumps and ventilation heat recovery/MVHR systems. No separate Be Clean modelled scenario is presented. The Be Green stage then improves the proposed heat-pump performance.

ENERGY HIERARCHY

In order to ensure a cohesive strategy is adopted, the principles of energy hierarchy have been implemented focusing on maximising energy efficiency before integrating Low and Zero carbon technologies. This approach guarantees a systematic and consistent approach is adopted by prioritising each principle and implementing suitable mitigation measures.

FIGURE 9 THE ENERGY HIERARCHY



No separate Be Clean stage is proposed. The completed energy modelling will quantify the reduction achieved at each applicable stage and demonstrate the overall performance of the Proposed Development.

The percentage improvements reported in the hierarchy are calculated against the project baseline BER of 28.94 kgCO₂/m²/yr.

BASELINE EMISSIONS

The Baseline scenario represents the development using the retained building fabric and baseline services/controls assumptions. It allows the effect of later Lean and Green interventions to be quantified without implying that the existing envelope will be rebuilt.

TABLE 4 BASELINE RESULTS

METRIC	BASELINE RESULT	UNIT
Building Emissions Rate (BER)	28.94	kgCO ₂ /m ² /yr
Annual regulated emissions	87.78	tCO ₂ /yr
Building Primary Energy Rate (BPER)	311.09	kWhPE/m ² /yr

- Modelled floor area: 3,033.2 m².
- Existing fabric represented using the project modelling assumptions, including external wall U-value 0.45 W/m²K, ground floor 0.45 W/m²K, principal roof 0.25 W/m²K, existing windows 3.45 W/m²K and rooflights 3.56 W/m²K.
- Air permeability represented at 25 m³/(h·m²) at 50 Pa in accordance with the modelling convention used for the older existing building; this is a calculation input rather than a proposed airtightness target.
- Baseline lighting efficacy approximately 95 lumens per circuit watt with simple on/off switching.
- Heat-pump/fan-coil modelling basis: SCOP 2.5, EER 2.5 and SEER 5.0.
- Heat-recovery air-handling arrangement included in the service specification where applicable; local extract provided to relevant spaces.
- Point-of-use electric domestic hot water systems are included in the model where required by the use. A total storage volume of 180l has been assumed.

BE LEAN: USE LESS ENERGY

'Be Lean' focuses on the idea of designing buildings to use less energy and managing demand during operation. This is done by embedding architectural and building fabric measures notably known as 'Passive Design' measures and energy efficient services known as 'Active design' measures. It is recommended demand reductions are introduced at the early stage of the design prior to the scheme becoming fixed.

As the Proposed Development is primarily a refurbishment and fit-out of an existing building, the scope to modify building orientation, form or the external thermal envelope is limited. The existing building fabric is therefore to be retained, with the Be Lean strategy focused primarily on the efficiency of lighting, controls and ventilation systems.

TABLE 5 BE LEAN RESULTS

METRIC	BASELINE	BE LEAN	CHANGE VS BASELINE
BER (kgCO ₂ /m ² /yr)	28.94	26.9	-2.04 / -7%
Annual regulated emissions (tCO ₂ /yr)	87.78	81.59	-6.19 tCO ₂ /yr
BPER (kWhPE/m ² /yr)	311.09	288.72	-7.2%

The Be Lean measures reduce the BER by approximately 7% against the project baseline. This is the first quantified step in the hierarchy and demonstrates the benefit of improving lighting, controls and ventilation efficiency without relying on invasive envelope replacement.

Building Fabric

No carbon reduction is claimed from upgrades to existing walls, floors, roofs or windows. These elements are generally retained. Where new or replacement elements are introduced as part of openings, penetrations, roof works, extension interfaces or other local alterations, they should meet the applicable Part L requirements and be detailed to minimise thermal bridging and uncontrolled air leakage. This approach

improves quality without overstating the scope of the refurbishment.

Lighting

The Lean model increases general lighting efficacy from approximately 95 lm/W to approximately 110 lm/W. High efficiency LED lighting reduces regulated electrical consumption and also reduces internal heat gains, which can lower the associated cooling demand in the gym, golf, office, hospitality and wellness spaces.

Lighting controls

Lighting controls should be matched to occupancy and daylight availability rather than using a single control type throughout the building. The modelled strategy includes a combination of PIR occupancy detection, automatic off, manual on/automatic off, dimming and daylight responsive control.

- Offices and restaurant/bar areas: occupancy control with daylight-responsive dimming where suitable.
- Circulation, WCs and changing areas: occupancy based switching or dimming.
- Members' lounge, board/meeting rooms, kitchens and stores: manual-on/automatic-off or equivalent user-led control with automatic shut-off.
- Gym and yoga areas: occupancy control and dimming appropriate to the varying activity and lighting scenes.

Ventilation heat recovery and MVHR

Mechanical ventilation should be provided to suit the occupancy and activity loads of the different spaces. The energy strategy assumes heat recovery is used where practical so that the energy in extract air is not unnecessarily discarded. The current design basis includes an air-handling arrangement with approximately 80% plate heat exchanger efficiency and specific fan power around 1.2 W/l/s.

The detailed MEP design should confirm which existing circulation/extract systems are retained, which are replaced and how the final MVHR/AHU systems interface with the new air-conditioning. Ventilation rates, fan power, demand control and heat-recovery bypass should be commissioned against the actual occupancy patterns.

No separate Be Clean scenario is modelled for this project. The scheme does not currently include a confirmed district/community energy connection, and the relevant efficient supply measures are therefore incorporated into the Lean design narrative. Any viable local low-carbon network opportunity should be kept under review, but the current strategy assumes efficient building level electrical systems.

ACTIVE COOLING AND THE COOLING HIERARCHY

Active cooling is required to maintain suitable internal conditions for the mix of gym, golf, hospitality, workplace and wellness uses. The design should nevertheless follow a cooling hierarchy so that mechanical cooling addresses the residual load rather than compensating for avoidable heat gains.

1. Limit unwanted solar gains. Retain suitable existing shading and consider solar-control measures where glazing is altered or replaced, without creating unnecessary winter heat loss.
2. Minimise internal heat gains. Use efficient LED lighting, effective lighting controls and energy-efficient equipment.
3. Manage heat within the building. Use zoning, realistic set points, occupancy schedules and local controls so that unoccupied areas are not unnecessarily conditioned.
4. Use passive ventilation where practical. Natural ventilation can be useful in suitable spaces where security, acoustics, air quality and the conditioned-space strategy allow it.
5. Use mechanical ventilation efficiently. Heat recovery, demand control and appropriate fan power should minimise the energy penalty of required fresh air.
6. Meet residual cooling demand with efficient heat-pump/air conditioning systems. Final capacities should be based on calculated loads to avoid oversizing and poor part-load performance.

The BREEAM thermal comfort strategy and commissioning process should be coordinated with the cooling hierarchy so that energy performance and occupant comfort are treated together rather than as competing design objectives.

BE CLEAN: SUPPLY ENERGY EFFICIENTLY

'Be Clean' focuses on using already existing local energy resources (such as secondary heat) and supplying energy efficiently and as clean as possible.

Eastleigh policy says developments of this size should, "where practical and viable," connect to any existing near or adjacent low-carbon local energy network unless this is proved unviable.

An example of clean energy supply is District Heat Networks (DHN). Heat networks function by providing heating to multiple buildings in a specific area from a centralised source. This centralised source can be Combined Heat and Power (CHP) plant, a boiler, or renewable energy sources such as biomass, geothermal, or solar thermal systems. These systems offer multiple benefits such as efficiency, sustainability and overall reduced costs associated with the end use for heating the building.

However, considerations to be acknowledged include the availability of a DHN within the local area, as well as the DHN's heat source e.g., whether this is still reliant on fossil fuels, or non-renewable sources of energy.

After reviewing the Proposed Development, it can be confirmed as there are no available DHN within the local vicinity for the Proposed Development to connect too, therefore this solution is not viable for the development.

No emissions reductions from Clean technologies can be reported here.

BE GREEN: USE RENEWABLE ENERGY

Be Green centres on exploring the feasibility of Low and Zero Carbon technologies to allow for the production of renewable energy onsite in order to offer a further reduction in carbon emissions.

Be Green applies the principal low-carbon servicing improvement: higher-efficiency air-source heat-pump/fan-coil performance. Heat pumps transfer ambient heat rather than generating all useful heat through direct electrical resistance or on site combustion, making their seasonal efficiency a key driver of the proposed regulated carbon performance.

Be Green Results Summary

TABLE 6 BE GREEN INPUTS

PERFORMANCE METRIC	LEAN	GREEN
SCOP – heating	2.5	4.5
EER – cooling	2.5	3.8
SEER – seasonal cooling	5.0	5.5

The final selected systems should be specified to deliver the modelled seasonal performance as closely as practical, with adequate turndown, zoning and controls. Outdoor units should be located to allow safe maintenance and air movement while controlling noise and visual impact.

Other low and zero carbon technologies

The current staged models do not include a separate photovoltaic contribution and the PV input remains to be confirmed in the project specification. This Strategy therefore does not claim a PV carbon saving. Roof mounted PV can remain under review at detailed design where roof capacity, orientation, landlord arrangements, electrical infrastructure and project budget make it practical, but it is not relied upon for the energy results reported here.

TABLE 7 BE GREEN RESULTS

METRIC	BE LEAN	BE GREEN	CHANGE
BER (kgCO ₂ /m ² /yr)	26.9	26.49	-0.41 / -1.5% from Lean
Annual regulated emissions (tCO ₂ /yr)	81.59	80.35	-1.24 tCO ₂ /yr from Lean
BPER (kWhPE/m ² /yr)	288.72	284.50	-1.5% from Lean

Relative to the project baseline, the complete Be Green strategy reduces BER by 2.45 kgCO₂/m²/yr, equivalent to approximately

8.5%, and reduces annual regulated emissions by approximately 7.43 tCO₂/yr.

ENERGY RESULTS SUMMARY

TABLE 8 ENERGY RESULTS SUMMARY

STAGE	BER KGCO ₂ /M ² /YR	ANNUAL REGULAT ED EMISSION S TCO ₂ /YR	REDUCTI ON VS PROJECT BASELINE
Baseline	28.94	87.78	—
Be Lean	26.9	81.59	7%
Be Green	26.49	80.35	8.5%

The modelled results demonstrate a clear reduction as refurbishment measures are added. The Lean stage delivers the first reduction without requiring wholesale fabric replacement, and the Green stage provides the additional benefit from higher efficiency heat pumps. The final design should keep these modelled assumptions through specification, procurement, commissioning and handover so that the planning stage improvements are achieved.

For Building Regulations purposes, the latest modelling records a Target Emissions Rate of 17.64 kgCO₂/m²/yr for both the Lean and Green scenarios. The Lean BER is 26.90 kgCO₂/m²/yr, reducing to 26.49 kgCO₂/m²/yr under the Green scenario. These figures provide useful Part L modelling context but are kept separate from the reductions measured against the project baseline and from the alternative sustainability routes set out under Policy DM2.

Conclusion

This Energy and Sustainability Strategy sets out a guide for the refurbishment and fit-out of Par Club at Unit H, George Curl Way. The strategy follows the Eastleigh Borough Local Plan, current Eastleigh design/climate guidance, national planning policy, Part L, and the project's BREEAM RFO pre assessment.

The main sustainability opportunity is the adaptive reuse of the existing commercial building. The structure and envelope are retained rather than replaced, while the fit-out is developed using durable, lower impact and

flexible materials and systems. Broader measures address construction waste, water efficiency, pollution prevention, climate resilience, drainage, ecology, sustainable travel, indoor environmental quality, commissioning and operational management.

The project is targeting BREEAM UK Non-domestic Refurbishment and Fit-out 2014 Excellent. The current pre-assessment records an approximately 73% Excellent baseline and identifies additional credit opportunities that can support progression toward Excellent, subject to detailed design, credit ownership and evidence being secured.

The energy hierarchy has been aligned with the refurbishment scope. The baseline BER is 28.94 kgCO₂/m²/yr. Be Lean incorporates improved controls, ventilation heat recovery/MVHR efficiency and appropriate local fabric detailing, reducing the BER to 26.90 kgCO₂/m²/yr, equivalent to a 7.0% reduction against the project baseline. There is no separate modelled Be Clean scenario. Be Green then incorporates the higher-efficiency heat-pump/fan-coil performance and improved lighting specification, reducing the BER further to 26.49 kgCO₂/m²/yr. Overall, the strategy achieves an approximately 8.5% reduction in BER against the project baseline and an estimated regulated-carbon saving of approximately 7.43 tCO₂/yr.

The BER hierarchy is included to provide evidence that carbon reduction has been actively considered. The Local Plan's DM2 15% criterion is recognised in the policy section, while the BREEAM Excellent target and the wider package of sustainability measures form the principal planning response. Final performance should be protected through detailed specification, BREEAM coordination, commissioning and post-handover monitor.

Appendix A – Eastleigh Policy Response Matrix

The following matrix summarises how the planning stage strategy responds to the principal Eastleigh sustainability themes. Items identified for detailed design should be updated as consultant information and product specifications are confirmed.

Theme / policy	Project response	Evidence section / report	Status
DM2 – BREEAM	Target BREEAM RFO 2014 Excellent; current pre-assessment baseline approximately 57.7% Very Good with potential additional credits identified.	BREEAM Strategy; Appendix C	Targeted evidence / ongoing
DM2 – operational carbon	Energy hierarchy quantifies Baseline, Be Lean and Be Green BER reductions.	Energy Appendix B	Addressed at planning stage
DM2 – passive/efficient design	Retained building form; efficient lighting, daylight/occupancy controls, ventilation heat recovery and cooling hierarchy.	Be Lean; Cooling Hierarchy	Addressed / detail design
DM2 – low carbon networks	No connection forms part of the current brief; practical opportunities to be kept under review.	Be Lean – Efficient supply	Review at detail design
DM2 – materials/flexibility	Retain-before-replace, responsible sourcing, lower-impact products, low VOCs and adaptable fit-out.	Sustainable Principles Design	Addressed / specification ongoing
DM3 – climate adaptation	Cooling hierarchy, water efficiency and proportionate drainage/SuDS measures.	Water; Biodiversity, Landscape and Drainage; Cooling Hierarchy	Addressed / detail design
DM4 – low carbon energy	Higher-efficiency all-electric ASHP/fan-coil system taken forward under Be Green.	Be Green	Addressed
DM6 – surface water	Use source-control/SuDS measures where external works alter drainage.	Biodiversity, Landscape and Drainage	Detail design / drainage consultant
DM8 – pollution	Construction controls; all-electric space conditioning; plant-noise and lighting controls.	Pollution and Environmental Quality	Addressed / specialist coordination
DM11 – ecology	Minimise external works; protect retained habitats/vegetation; locally appropriate enhancement where practicable.	Biodiversity, Landscape and Drainage	Detail design / ecology review

Theme / policy	Project response	Evidence section / report	Status
DM13 – transport	Cycle parking, changing facilities, travel information and EV provision to be coordinated with final transport strategy.	Transport	To be confirmed by transport team
Quality Places SPD	Adaptive reuse, efficient systems, good internal environment, durable materials and flexible layouts.	Whole Strategy	Addressed
Construction waste	SWMP, segregation, reuse/recycling, licensed carriers and monitoring.	Waste and Resource Management	Contractor requirement
Water efficiency	Efficient WCs/showers/taps, leak control and BREEAM Wat 01 coordination.	Water Efficiency	Detail design
Commissioning/aftercare	Commission controls and HVAC; FM training; monitor performance after occupation.	Energy Results Summary; BREEAM Strategy	Detail design / handover

APPENDIX B – PART L BE GREEN BRUKL OUTPUT

BRUKL Output Document



HM Government

Compliance with England Building Regulations Part L 2021

Project name

Unit H George Curl Way_Be Green
As built

Date: Wed Aug 19 10:38:00 2026

Administrative information

Building Details

Address: Southampton , SO18 2RX

Certifier details

Name: Nikolaos Filianakis

Telephone number: 01489 346700

 Address: Solent Business Park, Ailsa, 3 Turnberry House
 4400 Parkway, Whiteley , Fareham, PO15 7FJ

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.31

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.31

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 1468.04

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 /m²:annum	17.64
Building CO ₂ emission rate (BER), kgCO ₂ /m²:annum	26.49
Target primary energy rate (TPER), kWh _{tp} /m²:annum	190.41
Building primary energy rate (BPER), kWh _{tp} /m²:annum	284.5
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 _{limit}	U _{calc}	U _{i-calc}	First surface with maximum value
Walls*	0.26	0.45	0.45	BL00000D:Surf[6]
Floors	0.18	0.44	0.44	BL00000D:Surf[7]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.25	0.25	RF00000D:Surf[0]
Windows** and roof windows	1.6	3.45	3.45	BL00000D:Surf[0]
Rooflights***	2.2	3.57	3.57	WR00002C:Surf[0]
Personnel doors^	1.6	3.38	3.38	WR000016:Surf[0]
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 _{limit} = Limiting area-weighted average U-values [W/(m²K)] U _{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	25

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- Electric Panel heaters and natural vent

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	-
Standard value	0.86	N/A	0.55	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- Electric Panel heaters with Extract

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	-
Standard value	0.86	N/A	0.55	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

3- Fan coil systems

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.5	5.5	0	1.2	0.8
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

1- DHW - POU

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.004
Standard value	1	N/A

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter

NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I			
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard	
Male and Female WCs	0.3	-	-	-	-	-	-	-	-	-	N/A	
Restaurant Bar	-	-	-	-	-	-	-	0.3	-	-	N/A	

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I		
	Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
Female WC		0.3	-	-	-	-	-	-	-	-	-	N/A
Male WC		0.3	-	-	-	-	-	-	-	-	-	N/A
Open Kitchen and Prep		-	-	-	-	-	-	-	0.3	-	-	N/A
Kitchen		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 9		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 8		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 7		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 6		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 5		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 4		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 3		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 2		-	-	-	-	-	-	-	0.3	-	-	N/A
Standard Bay 1		-	-	-	-	-	-	-	0.3	-	-	N/A
Studio 72		-	-	-	-	-	-	-	0.3	-	-	N/A
Studio 72		-	-	-	-	-	-	-	0.3	-	-	N/A
VIP Bay		-	-	-	-	-	-	-	0.3	-	-	N/A
VIP Bay		-	-	-	-	-	-	-	0.3	-	-	N/A
Kitchenette		-	-	-	-	-	-	-	0.3	-	-	N/A
Office		-	-	-	-	-	-	-	0.3	-	-	N/A
Meeting Room		-	-	-	-	-	-	-	0.3	-	-	N/A
Large Boardroom		-	-	-	-	-	-	-	0.3	-	-	N/A
Male Staff Change		0.3	-	-	-	-	-	-	-	-	-	N/A
Consulting Room 1		-	-	-	-	-	-	-	0.3	-	-	N/A
Consulting Room 2		-	-	-	-	-	-	-	0.3	-	-	N/A
Consulting Room 3		-	-	-	-	-	-	-	0.3	-	-	N/A
Grooming		0.3	-	-	-	-	-	-	-	-	-	N/A
Female Staff Changing		0.3	-	-	-	-	-	-	-	-	-	N/A
Yoga Studio		-	-	-	-	-	-	-	0.3	-	-	N/A
Gym		-	-	-	-	-	-	-	0.3	-	-	N/A
Relaxation Room		-	-	-	-	-	-	-	0.3	-	-	N/A
Massage Therapy		-	-	-	-	-	-	-	0.3	-	-	N/A
Massage Therapy		-	-	-	-	-	-	-	0.3	-	-	N/A
DDA WC & Changing		0.3	-	-	-	-	-	-	-	-	-	N/A
Female WCs & Changing		0.3	-	-	-	-	-	-	-	-	-	N/A
Male WCs & Changing		0.3	-	-	-	-	-	-	-	-	-	N/A
Putting View		-	-	-	-	-	-	-	0.3	-	-	N/A

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
Circulation		110	-	-
Male and Female WCs		110	-	-
Stairwell		110	-	-

General lighting and display lighting		General luminaire		Display light source	
Zone name		Efficacy [lm/W]		Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95		80	0.3
Stairwell		110		-	-
Restaurant Bar		110		-	-
Store		110		-	-
Female WC		110		-	-
Male WC		110		-	-
Open Kitchen and Prep		110		-	-
Stairwell		110		-	-
Kitchen		110		-	-
Cellar		110		-	-
Food Store		110		-	-
Standard Bay 9		110		-	-
Standard Bay 8		110		-	-
Standard Bay 7		110		-	-
Circulation		110		-	-
Store		110		-	-
Standard Bay 6		110		-	-
Standard Bay 5		110		-	-
Standard Bay 4		110		-	-
Standard Bay 3		110		-	-
Standard Bay 2		110		-	-
Standard Bay 1		110		-	-
Studio 72		110		-	-
Studio 72		110		-	-
VIP Bay		110		-	-
VIP Bay		110		-	-
Circulation		110		-	-
Kitchenette		110		-	-
Office		110		-	-
Meeting Room		110		-	-
Large Boardroom		110		-	-
Circulation		110		-	-
Stairwell		110		-	-
Male Staff Change		110		-	-
Consulting Room 1		110		-	-
Consulting Room 2		110		-	-
Consulting Room 3		110		-	-
Grooming		110		-	-
Female Staff Changing		110		-	-
Infrared Sauna		110		-	-
Infrared Sauna		110		-	-
Infrared Sauna		110		-	-
Flotation Tank		110		-	-
Cryo Chamber		110		-	-

General lighting and display lighting		General luminaire		Display light source	
Zone name		Efficacy [lm/W]		Efficacy [lm/W]	Power density [W/m²]
	Standard value	95		80	0.3
Yoga Studio		110		-	-
Oxygen Chamber		110		-	-
Oxygen Chamber		110		-	-
Circulation		110		-	-
Gym		110		-	-
Relaxation Room		110		-	-
Massage Therapy		110		-	-
Massage Therapy		110		-	-
Circulation		110		-	-
Circulation		110		-	-
DDA WC & Changing		110		-	-
Female WCs & Changing		110		-	-
Male WCs & Changing		110		-	-
Stairwell		110		-	-
Store		110		-	-
Putting View		110		-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Restaurant Bar	NO (-49.2%)	YES
Open Kitchen and Prep	NO (-54%)	YES
Kitchen	NO (-27.5%)	YES
Standard Bay 9	NO (-39.1%)	YES
Standard Bay 8	NO (-39.8%)	YES
Standard Bay 7	NO (-53.8%)	NO
Standard Bay 6	NO (-41.8%)	YES
Standard Bay 5	NO (-31.6%)	YES
Standard Bay 4	N/A	N/A
Standard Bay 3	N/A	N/A
Standard Bay 2	N/A	N/A
Standard Bay 1	N/A	N/A
Studio 72	N/A	N/A
Studio 72	N/A	N/A
VIP Bay	N/A	N/A
VIP Bay	N/A	N/A
Kitchenette	N/A	N/A
Office	NO (-12.1%)	NO
Meeting Room	NO (-50.5%)	YES
Large Boardroom	NO (-54.7%)	YES
Consulting Room 1	NO (-52%)	YES
Consulting Room 2	NO (-56%)	YES
Consulting Room 3	NO (-59.3%)	YES
Grooming	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Infrared Sauna	N/A	N/A
Infrared Sauna	N/A	N/A
Infrared Sauna	N/A	N/A
Flotation Tank	N/A	N/A
Cryo Chamber	N/A	N/A
Yoga Studio	N/A	N/A
Oxygen Chamber	N/A	N/A
Oxygen Chamber	N/A	N/A
Gym	NO (-36.4%)	YES
Relaxation Room	N/A	N/A
Massage Therapy	N/A	N/A
Massage Therapy	N/A	N/A
Putting View	N/A	N/A

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters			Building Use	
	Actual	Notional	% Area	Building Type
Floor area [m ²]	3033.2	3033.2		Retail/Financial and Professional Services
External area [m ²]	4132.7	4132.7		Restaurants and Cafes/Drinking Establishments/Takeaways
Weather	SOU	SOU		Offices and Workshop Businesses
Infiltration [m ³ /hm ² @ 50Pa]	25	3		General Industrial and Special Industrial Groups
Average conductance [W/K]	2121.11	1073.58		Storage or Distribution
Average U-value [W/m ² K]	0.51	0.26		Hotels
Alpha value* [%]	24.84	10		Residential Institutions: Hospitals and Care Homes
				Residential Institutions: Residential Schools
				Residential Institutions: Universities and Colleges
				Secure Residential Institutions
				Residential Spaces
				Non-residential Institutions: Community/Day Centre
				Non-residential Institutions: Libraries, Museums, and Galleries
				Non-residential Institutions: Education
				Non-residential Institutions: Primary Health Care Building
				Non-residential Institutions: Crown and County Courts
			100	General Assembly and Leisure, Night Clubs, and Theatres
				Others: Passenger Terminals
				Others: Emergency Services
				Others: Miscellaneous 24hr Activities
				Others: Car Parks 24 hrs
				Others: Stand Alone Utility Block

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	44.31	10.43
Cooling	0.72	1.55
Auxiliary	21.45	16.74
Lighting	13.32	14.12
Hot water	106.74	101.33
Equipment*	40.77	40.77
TOTAL**	186.54	144.15

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	15.4
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	0	15.4

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	193.03	82.08
Primary energy [kWh _{PE} /m ²]	284.5	190.42
Total emissions [kg/m ²]	26.49	17.64

HVAC Systems Performance									
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Unflued radiant heater, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	415.2	0	123.6	0	39.1	0.93	0	1	0
Notional	183.2	0	32.1	0	49.5	1.41	0	----	----
[ST] Fan coil systems, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	74.6	18.3	5.5	1.2	29.8	3.75	4.22	4.5	5.5
Notional	11.4	43.3	1.1	2.6	20.2	2.78	4.63	----	----
[ST] Unflued radiant heater, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	353.2	0	105.1	0	0	0.93	0	1	0
Notional	122.1	0	24	0	0	1.41	0	----	----
[ST] No Heating or Cooling									
Actual	0	0	0	0	0	0	0	0	0
Notional	0	0	0	0	0	0	0	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type



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