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Property Development & Refurbishment

Statement of Achievement 2022

ROYAL LONDON
ASSET MANAGEMENT


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Contents

Executive Summary

Climate records are showing a continual warming trend with human activities such as buildings and construction contributing a large percentage of CO_2 emissions, with around 36% of global energy related emissions generated from this sector.[1] National Policy is continually under review with targets and performance of buildings under scrutiny to reduce resource demand and consumption.

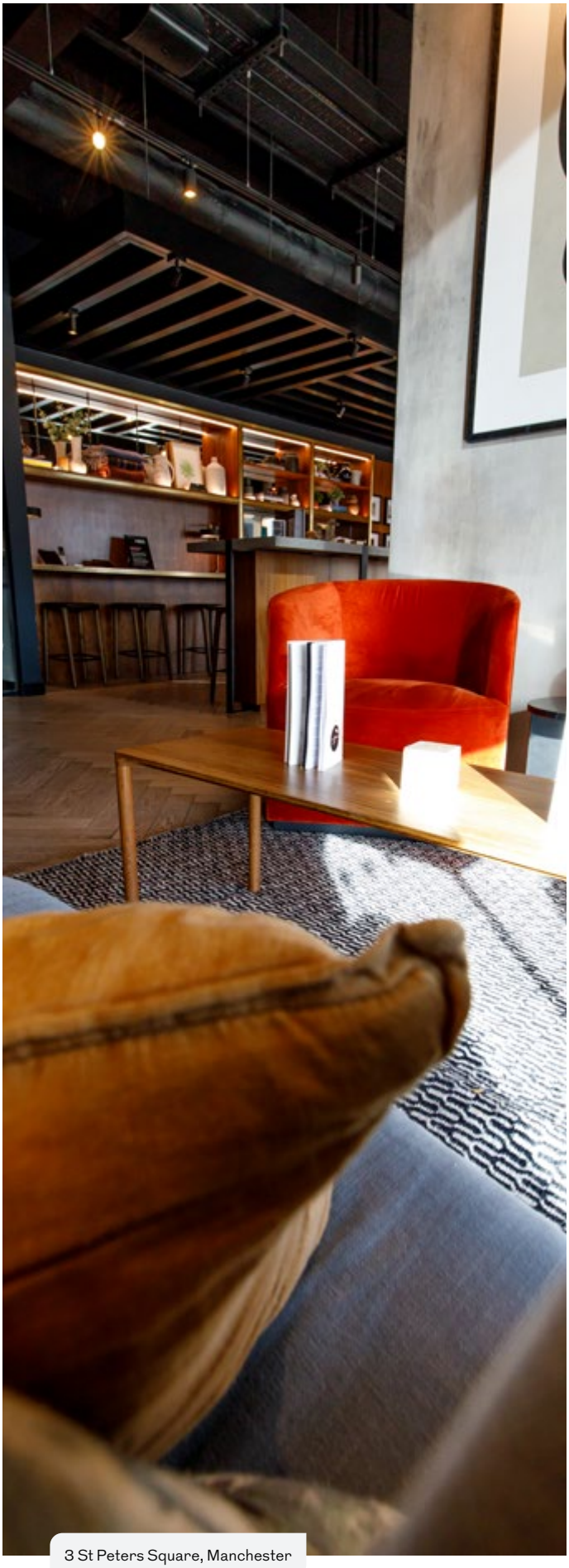
We recognise that the Royal London properties contribute towards climate change and that we have a responsibility to minimise the impact that our properties have on the local and global environment.

Our funds aspire to be leading in their performance. With this in mind, we have developed our Responsible Property Investment (RPI) strategy 2021-2025 and our Net Zero Carbon Pathway which sets out a plan to enable us to achieve our goals.

We aim to create thriving buildings and places which have enduring appeal for occupiers and add value to local communities.

This annual Statement of Achievement forms part of the RPI strategy and sets out how our development portfolio is performing against Sustainability Standards.

Our new 2023 Standards apply to all development and refurbishment projects that are early enough in design to be able to incorporate these targets (e.g. up to RIBA Stage 2). Buildings that have progressed beyond RIBA Stage 2, or are in construction or completed are subject to being reviewed under the respective standards at the time of their design (e.g. the Royal London Asset Management standards for 2020, 2021 or 2022).



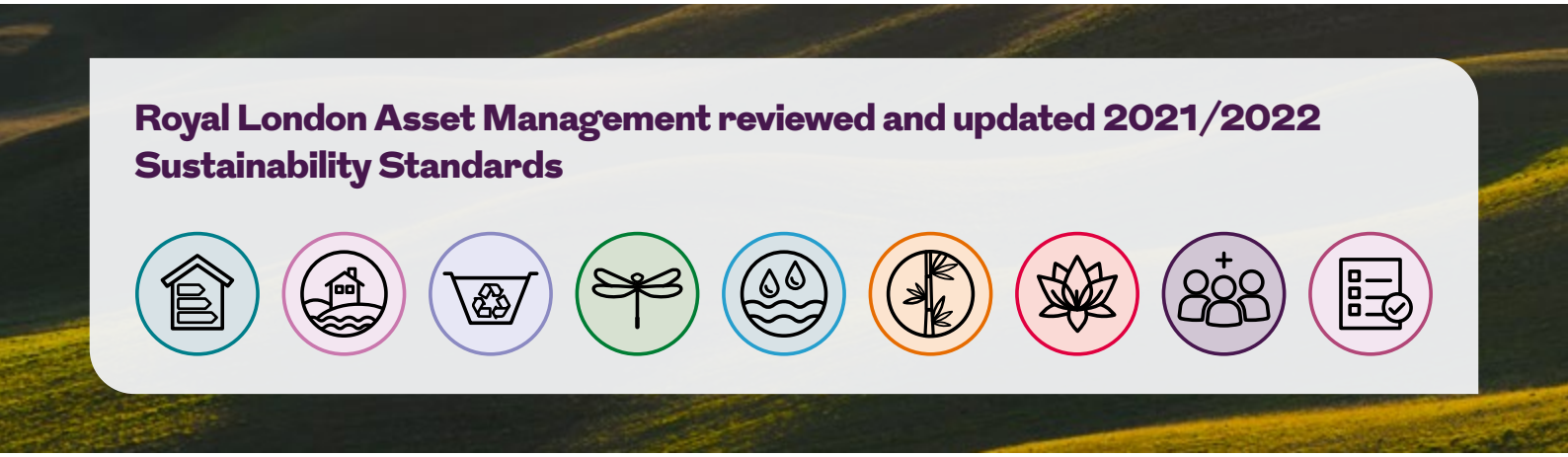
3 St Peters Square, Manchester

1. IEA (2019a), World Energy Statistics and Balances

2022 Headlines

In 2022, we reviewed and updated our Property Development Sustainability Standards to reflect best practice industry updates. This included the creation of new targets such as developments under £3 million developments tracker and updating targets to apply to specific typologies, making these more applicable to our projects.

In the past year, Royal London Asset Management has maintained and accelerated presence across a number of industry initiatives including; Gold Lead members of the UK Green Building Council (UKGBC), submitting benchmark data to Better Building Partnership (BBP) Real Estate Environment Benchmark (REEB) database and being shortlisted for the Embodied Carbon Award in the CIBSE Building Performance Awards 2022.



Royal London Asset Management reviewed and updated 2021/2022 Sustainability Standards

GRESB REAL ESTATE

RLPPF achieved a 5* GRESB & RLUKREF achieved a 4* Rating against GRESB standards within the development category[2]

UK GBC Gold Leaf Member

Royal London Asset Management are UKGBC Gold leaf members[3]

BBP BETTER BUILDINGS PARTNERSHIP

Active member of the BBP that has made a Climate Commitment to deliver Net Zero Carbon buildings by 2050

CIBSE BUILDING PERFORMANCE AWARDS 2022

Shortlisted for the CIBSE Building Performance Awards 2022

2. The GRESB Rating is based on the GRESB Score and the quintile position an entity occupies relative to all entities participating in the GRESB Assessment. If an entity is placed in the top quintile, it is recognized as a GRESB 5 Star rated entity.
3. UKGBC Gold Leaf membership is available to organisations who want to demonstrate their commitment to the UK-Green Building Council and be seen by industry and government as playing a leading role in the campaign for a sustainable built environment.

Sustainability Standards Development & RPI Alignment

In 2020, we initiated a thorough review of our Development Sustainability Standards to ensure they are robust, considering global trends regarding the climate and biodiversity emergency. The review included a benchmarking exercise, comparing our performance with regards to sustainability, against our leading industry peers. This process led to the creation of a new set of targets, which we consider to be both aspirational and market-leading.

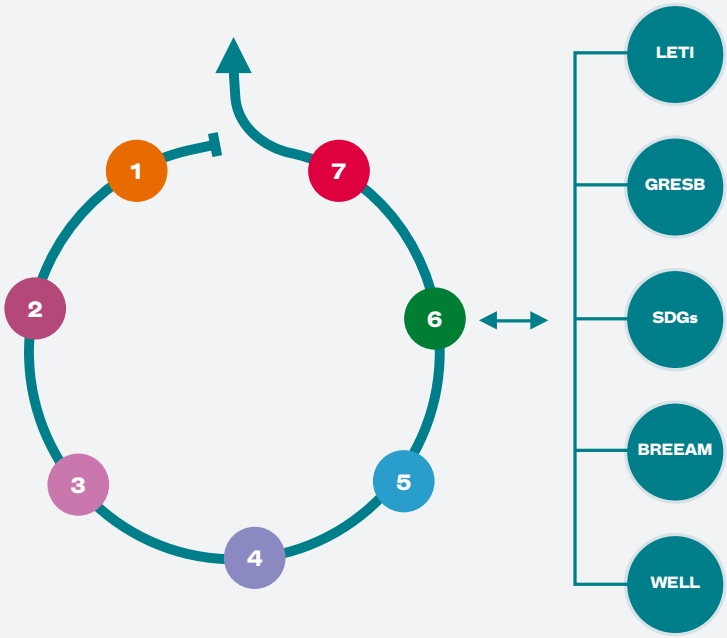
Sustainability Framework Inputs were selected through a review of our existing relevant commitments, as well as a wider review of global trends, well-established environmental assessment metrics and indicators.

This process included a detailed Gap Analysis review of our peers and review of recognised sustainability frameworks and organisations such as GRESB, United Nations (UN) Sustainable Design Goals (SDGs), Fitwel[4] WELL[5], BREEAM[6] and LETI[7].

An appraisal of key drivers and challenges for sustainable design was also completed, through focused engagement sessions with relevant stakeholders.

In 2021, we reviewed and updated our 2020 standards to reflect best practice industry guidance, to align with our RPI Strategy 2021-2025 and our Net Zero Carbon Pathway. This led to the inclusion of an additional theme.

Inputs to New Sustainability Standards Framework Development

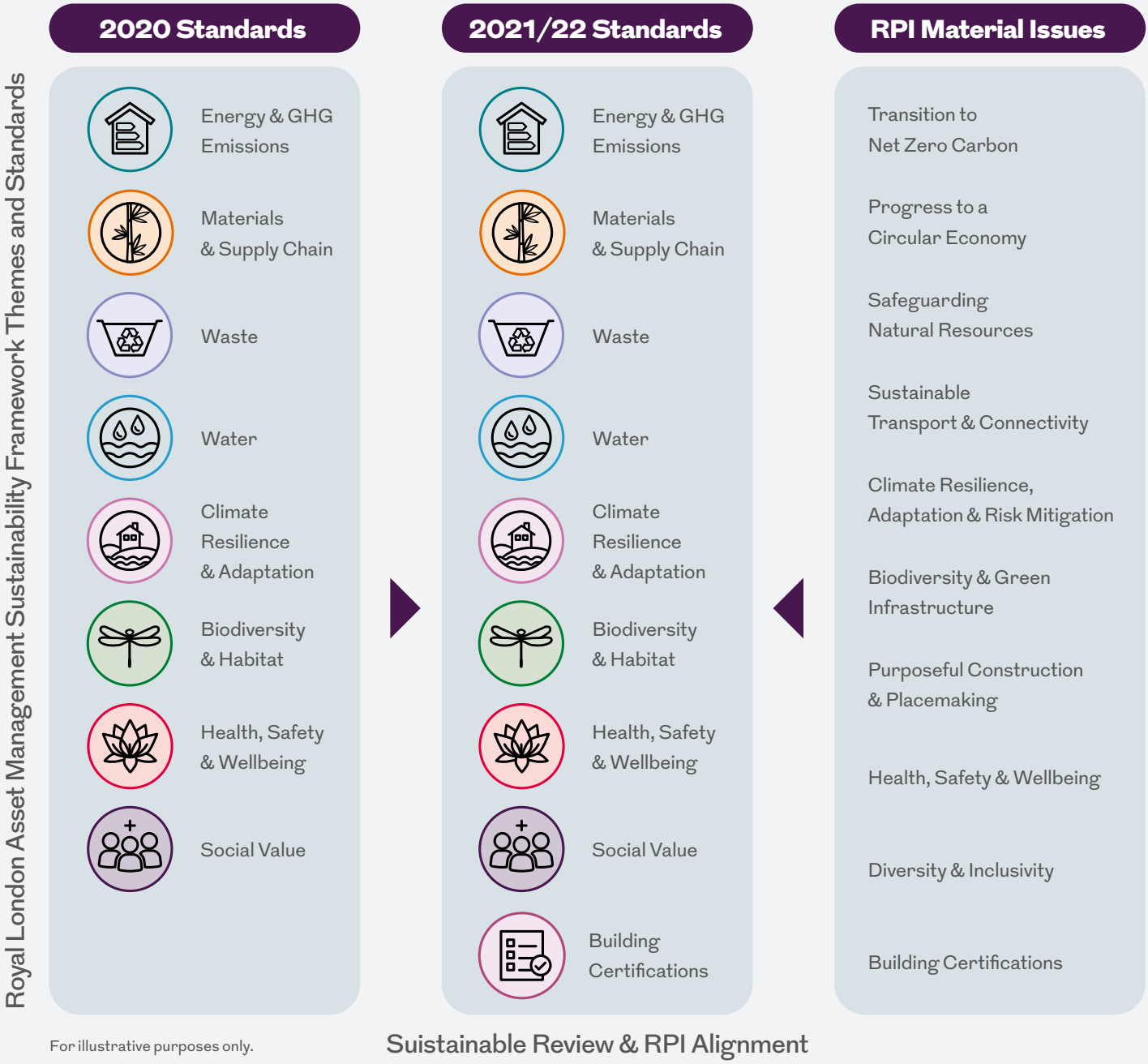


1. Understand Royal London Asset Management ethos and values
2. Review of Royal London Asset Management portfolio status (new/existing developments and masterplan)
3. Understanding current Regulations and relevant future trends
4. Review of relevant Local Policy changes
5. Key drivers for sustainable development
6. Gap analysis review
7. Understand end user needs and priorities through stakeholder engagement

For illustrative purposes only.

4. Fitwel is a Certification System Committed to Building Health for All. Fitwel Ratings are as follows; 1, 2 & 3 Star. Existing Building Pathway - This pathway is applicable to all occupied projects, including existing or recently completed projects and consists of one certification - Built Certification.
5. WELL is a tool for advancing health and well-being in buildings globally. WELL Ratings are as follows Certified, Silver, Gold and Platinum. Ratings are achieved following testing of the building in use.
6. BREEAM is an environmental assessment method for Ratings are as follows; Pass, Good, Very Good, Excellent and Outstanding. Interim certification can be achieved following completion of design with final certification being awarded post completion of the building.
7. London Energy Transformation Initiative is a network of built environment professionals working to put together a path to net zero, this includes setting industry operational and embodied carbon targets.

Sustainability Review & RPI Alignment



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Suistainable Review & RPI Alignment

Our Sustainability Standards have been reviewed annually since 2020. Our most recent update is our 2023 Standards that apply to all new developments and refurbishment projects that are in design prior to the end of RIBA Stage 3, within the year 2023.

Buildings that have progressed beyond RIBA Stage 2, or are in construction or completed are subject to being reviewed under the respective standards at the time of their design (e.g. the Royal London Asset Management standards for 2020, 2021 or 2022). The 2021/2022 standards can be found in Appendix C, with earlier versions available in previous Annual Statements of Achievement.

In 2021 our review included understanding the applicability of our standards against minor project refurbishments to ensure sustainability was being translated where practical into all aspects of refurbishment. This was developed throughout 2022, alongside investigating the impact of different building typologies and smaller investment developments on the suitability of the targets.

Our targets have been tailored to ensure that the targets can be adjusted depending on each specific project's typology and scope.

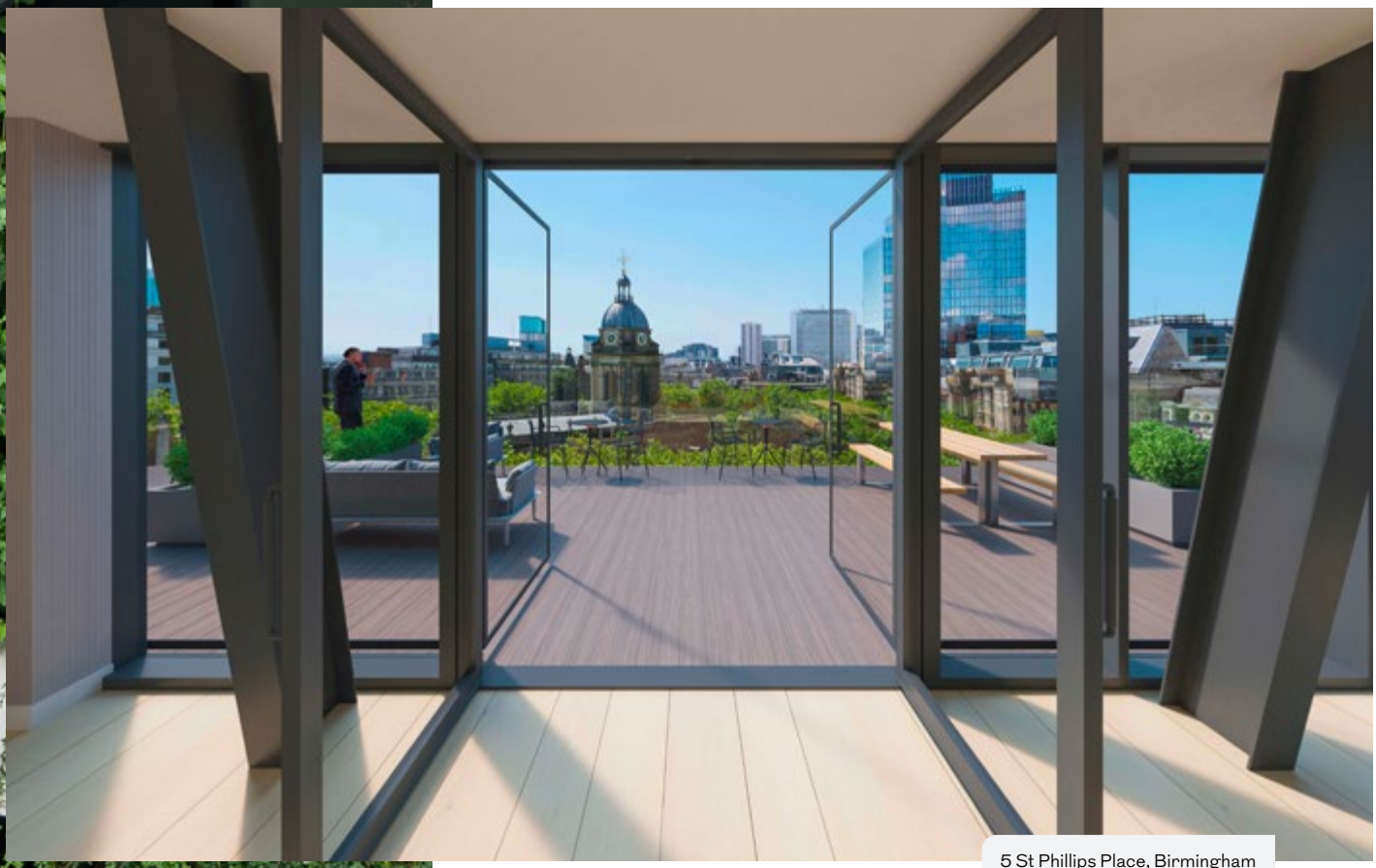
Embedding Standards

Our Sustainability Strategy and Framework is an integral part of our property development strategy and is supported by a wider suite of policies, documents and guidance notes to achieve it.

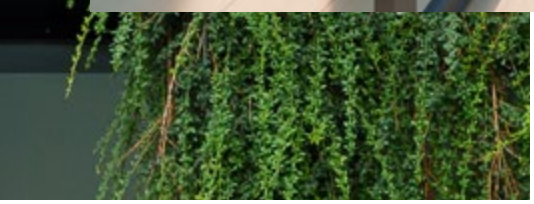
This diagram highlights the wider suite of documents, identifying how we have incorporated this into our Commitment, Strategy Documents (such as this one, the Sustainability Strategy), and how it filters down to aid projects.

Throughout 2022 and 2023, we have updated and established further project documents. These were created to support design teams and ensure the targets were more applicable to their building typology, as well as target benchmarks that should be aimed for.

Additionally, we have created an Under £3 million Development Standards Tracker. This tracker has been developed to focus on the sustainability aspects that are able to be addressed on refurbishments and extension projects.



5 St Phillips Place, Birmingham



Development and Refurbishment Sustainability Framework Suite of Documents

Commitment

- Development and Refurbishment Sustainability Standards

Strategy Document

- Development and Refurbishment Sustainability Strategy

Project Documents

- Sustainability Procurement Guide
- Sustainability Building Standards
  - Circular Economy Brief
  - Approach to Net Zero
  - BREEAM Alignment Document
  - Lessons Learnt Document
- Sustainability Standards Tracker
  - Sustainability Tracker (2021, 2022 and 2023 revisions)
  - Under £3 million Development Tracker
  - Sector Specific Sustainability Standards

Property Net Zero Carbon Pathway

In December 2021, we launched our Property Net Zero Carbon Pathway, this document highlights that we are aiming to achieve:

Net zero carbon by 2030 for directly managed property assets[8] and developments, and 2040 for indirectly managed property assets[9].

The property pathway highlights a detailed plan for achieving Net Zero Carbon, that has concrete actions for the short, medium and long term.

Notable targets within the Net Zero Carbon Pathway include:

- Reducing embodied carbon.
- Reducing operational energy use.
- Maximising on-site renewable energy generation.
- Exploring the opportunity in procuring high quality off-site renewable energy.
- Developing a high quality carbon offsetting strategy for residual emissions.

8. Directly managed property assets are those which Royal London Asset Management has complete operational control and greater than 50% equity share, and joint ventures where they would cover the proportionate amount of emissions. Developments are any new development or major refurbishment that comes online from 2030 onwards.
9. Indirectly managed property assets are either partially managed by Royal London Asset Management or managed wholly by the occupier.

Property Net Zero Carbon Pathway

At Royal London Asset Management, we aim to achieve Net Zero Carbon in advance of the 2050 deadline, set through the Paris Climate Agreement. To demonstrate our commitment, we have signed up to the Net Zero Asset Managers Initiative (NZAM), which is part of the United Nations-backed Race to Zero campaign.

STEP 1
Understand the drivers for net zero carbon

STEP 2
Define the scope and boundaries

STEP 3
Identify carbon footprint and trajectory

STEP 4
Reduce embodied carbon

STEP 5
Increase operational efficiency

STEP 6
Increase renewable energy supply

STEP 7
Offset residual emissions

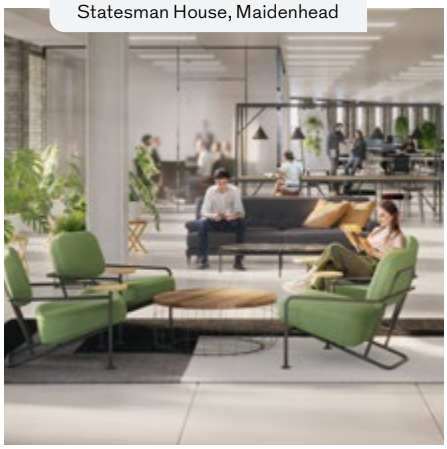
Net Zero Carbon in Practice

In 2022, we produced our 'Approach to Net Zero Carbon for developments and refurbishments' design standards now being applied to products. This supports Property's wider sustainability commitments of achieving Net Zero Carbon by 2030 for directly managed property assets and developments, and by 2040 for indirectly managed assets.

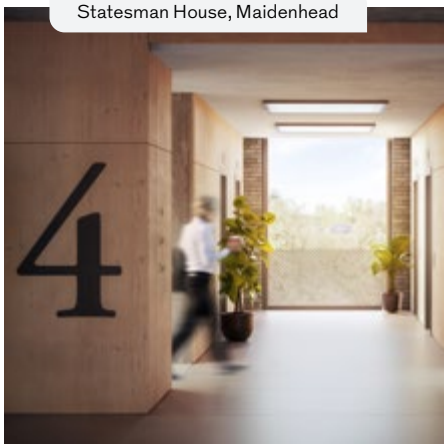
Having an approach to Net Zero for developments enables design teams to work towards achieving Property's wider sustainability commitments and targets. These standards include reducing embodied carbon impacts and operational energy, increasing on-site renewable energy capacity, and procuring renewable energy off-site.

Embedding this strategy in design projects will enable us to achieve our aspirations, and perform significantly better than typical buildings, as shown in the graph opposite.

Statesman House, Maidenhead



Statesman House, Maidenhead



Statesman House, Maidenhead

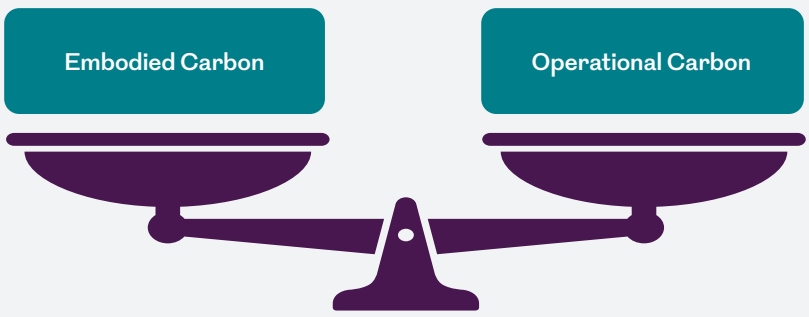
"We have been producing our Annual Statement of Achievement for over 10 years now. It demonstrates our commitment and track record as well as providing invaluable feedback about how well we do against our sustainability targets so we can see what we do well and what we need to focus on to improve our ESG performance"

Philip Sutton, Head of Developments

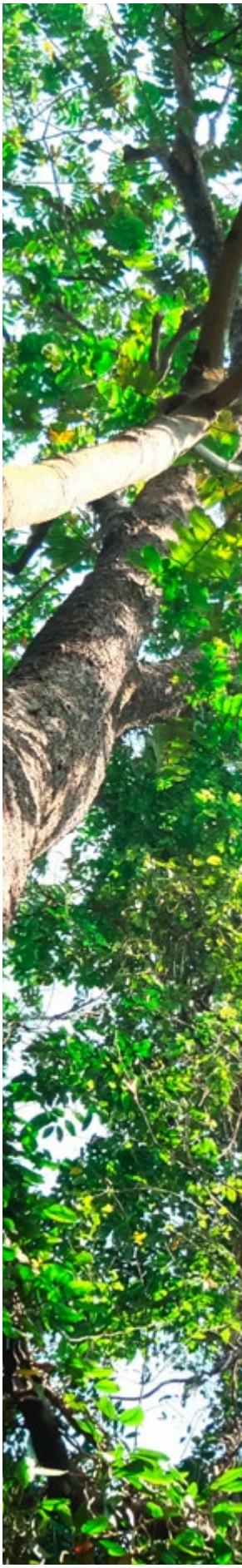
Royal London Asset Management's industry leading contributions to the Net Zero Carbon agenda

In the past year, Royal London Asset Management have maintained and accelerated presence across a number of initiatives aligned to latest thinking on Net Zero Carbon. Key initiatives include:

- Gold Leaf members of UKGBC providing the first option to partner on and steer industry frameworks and guidance.
- Benchmark data submitted to the BBP REEB database.
- BBP case studies have been produced sharing the lessons learned and modelling results for operational and embodied carbon on the Leonardo Hotel.
- The Statesman House, Maidenhead new-build office development is a Pioneer Project for the new NABERS UK Design for Performance scheme.
- Royal London Asset Management were shortlisted for the Embodied Carbon Award at the In the CIBSE Building Performance Awards 2022.
- Royal London Asset Management has submitted embodied carbon data to the new Built Environment Carbon Database (BECD). This new initiative is intended to form the backbone of the new Net Zero Carbon verification standard for the UK.



Balancing Embodied & Operational Carbon



Highlights of 2022

Royal London Asset Management are striving to ensure that the assets they invest in will fit the needs of occupiers and investors, now and in the future. They are introducing procedures to evaluate asset sustainability performance, post-acquisition, and setting targets to achieve 'best in class' environmental and social performance, across their portfolio by 2030.

Project teams involved in the design, construction, and operation, are committed to developing solutions that facilitate the achievement of Net Zero Carbon by 2030 within projects. This is assisted by the environmental risk screening.

This report captures the performance of our completed developments against our 2021/2022 Development Sustainability Standards.

Royal London Asset Management has circa 40 active design / construction development projects within our property portfolio. The majority are for commercial use, both new build and refurbishment. This includes offices, retail, hotel, industrial and residential developments of various size and complexity across the UK, with all of these at different stages of the development process from inception to completion.

Developments covered in detail within this Statement of Achievement, are those that have achieved notable milestones in 2022, namely:

- **Trafford Park, Manchester (completed)**
- **Spectrum, Abingdon (in construction)**
- **Holborn Viaduct (planning approval granted)**
- **Test Lane Southampton (Stage 3 complete)**

To further understand the sustainability credentials of these sites, selected case studies and an overview of these projects has been provided within this Statement of Achievement, highlighting their key sustainability features.

Royal London Asset Management Development Sustainability highlights

All projects have an Energy Performance Certificate (EPC) B or above targeted.

Sustainability targets updated to latest sustainability industry guidance.

Under £3 million Sustainability Developments Tracker now in rotation.

Sustainability Standards tailored to cater to additional building sectors.

Completed Projects Sustainability highlights

The Leonardo Hotel did a material efficiency review at each RIBA stage enabling the building to achieve an A1-A5 embodied carbon figure of 350kgCO_2e/m^2*

Trafford Park achieved a 34.57% improvement in fabric performance over Building Regulations Part L2A (2013)

The Distillery achieved a WiredScore[10] Platinum & Gold certification rating.

The Leonardo Hotel used low Volatile Organic Compounds (VOC) and efficient filters to improve air quality.

For superstructure and services, not including B1-B3 emissions*

10. WiredScore is a global digital connectivity rating scheme. Ratings are as follows; Certified, Silver, Gold, Platinum. Certification is achieved following completion of construction.

GRESB Performance

GRESB is a global benchmark rating system for the real estate industry. The rating system measures the sustainability performance of real estate property and funds. Performance is evaluated against seven different aspects, contributing to an overall score. The aim is to make the real estate sector more transparent with regards to sustainability issues, enabling prospective investors to assess investments with ease.

The twelve categories assessed by GRESB are; Stakeholder Engagement (development and non development), Leadership, Polices, Reporting, Risk Management, Environmental, Social and Governance (ESG) Requirements, Materials, Building Certification, Energy Consumption, Water Use and Waste Management.

The GRESB assessment is an holistic approach to sustainable development, covering environmental, social and corporate governance.

Royal London Asset Management's two development funds; The Royal London Pension Property Fund (RLPPF) achieved 5* and the Royal London UK Real Estate Fund (RLUKREF) maintained 4* ratings against GRESB standards within the development category.

Both funds achieved above the GRESB average for ESG.

RLPPF achieved second in Northern Europe diversified and RLUKREF achieved fifth.

Both funds increased their scores when compared to 2021. Since 2018 both funds have increased by a total of 25 points.

100% scores were achieved in Materials, Water and Waste across both funds. RLPPF also scored 100% in Building Certification and RLUKREF scored 100% for ESG Requirements.

The Earnshaw, London

Where opportunities exist to increase scores in future years these have been identified for actioning in next years GRESB update.

The GRESB rating system has become increasingly more rigorous and a driving force behind the move towards net zero buildings. GRESB has moved to collaborate with the World Green Building Council, which will help to further support pathways to Net Zero Carbon across real estate portfolios such as Royal London Asset Management.

Moving forward GRESB now assesses the proportion of projects completed designed to meet Net Zero Carbon covers operational and embodied emissions. This is a direction of travel we applaud and are starting to ensure that as developments, we are quantifying what this looks like in design and construction.

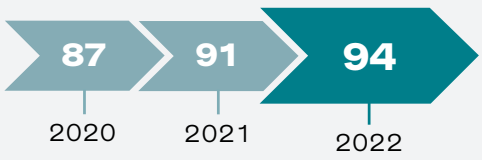
The Earnshaw, London

2022 GRESB Development Benchmark Report

Royal London Pension Property Fund (RLPPF) | Royal London

GRESB Rating ★★★★★

Participation & Score



Peer Comparison

United Kingdom | Diversified | Core

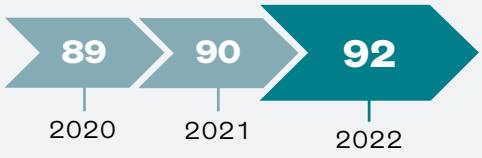
Out of 6

Status: Non-Listed **Strategy:** Core **Location:** United Kingdom **Property Type:** Diversified

Royal London UK Real Estate Fund (RLUKREF) | Royal London

GRESB Rating ★★★★☆

Participation & Score



Peer Comparison

United Kingdom | Office: Corporate | Non-listed

Out of 12

Status: Non-Listed **Strategy:** Core **Location:** United Kingdom **Property Type:** Office: Corporate

Healthcare Sustainable Development Brief

In July 2022, we created the Sustainable Development Brief specifically for the development of our healthcare assets. Our existing development sustainability standards were factored into this process, with specific adaptations and additions made for the healthcare sector. The purpose of this tailored, sector-specific brief was to set out our ESG aspirations for all healthcare developments, with the aim of providing a consistent development approach to sustainability whilst also ensuring all developments are fit-for-purpose in the future.

The Sustainable Development Brief sets out the healthcare programme's sustainability objectives of Net Zero Carbon, Health & Wellbeing, and Community, each which has its own set of Key Performance Indicators (KPI) and an action plan for the design team to achieve them. The action plan highlights the steps required to deliver and report the performance relevant for each sustainability objective, specifying at which stage that step is required, from feasibility analysis through to completion and operation.

As part of this process, a Sustainability Scorecard is also being developed, which will contain all KPIs for easy and transparent tracking of progress and success for each project. The scorecard will not only contain indicators from the design and construction stage, but will also allow for input on innovation, where the sustainability champion and design team from a particular project can document where they have gone above and beyond the required KPIs.

As the healthcare industry is typically not as advanced as some other sectors when it comes to ESG considerations, the creation of the Sustainable Development Brief highlights the potential for high positive impact for healthcare assets, bringing together our design and development partners to collaborate on shared ESG-related goals. We will be using the Sustainable Development Brief to assess and guide ESG measures for the development of all future healthcare assets.

Harlow Hall Care Home, Aldershot

> "We aspire to be a market-leader in ESG for our healthcare assets. Our Sustainable Development Brief has been created to ensure sustainability is embedded across all healthcare assets, with the aim to have a positive impact on both the environment and our occupiers through their design and delivery."
>
> Laura Thrower, Responsible Property Investment Analyst

Sustainable Development Brief - Objectives

Royal London Asset Management is committed to intergrating sustainability into all developments within the Healthcare Programme. The Programme's sustainability objectives, Net Zero Carbon, Health & Wellbeing and Community, are supported by a number of indicators that are linked to the UN SDGs.

Net Zero Carbon

Seek to reduce carbon emissions to net zero - by meeting both primary KPIs and offsetting any remaining emissions to zero.

Health & Wellbeing

Ensure any new developments enhance both the physical and mental health of all residents and care workers.

Community

Deliver a holistic sustainable development for people and planet.

Our strategy has been developed in consideration of the UNSDGs

Performance Requirements - Net Zero Carbon

Aim - Seek to reduce carbon emissions to net zero - by meeting both primary KPIs and offsetting any remaining emissions to zero.

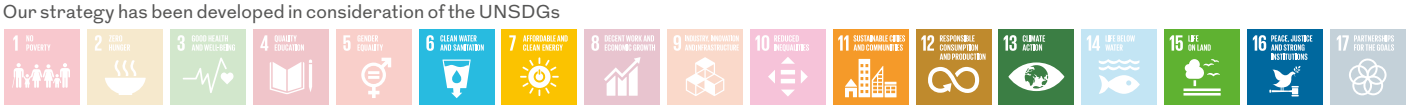
Primary KPIs

Indicator	Unit	Overview	Requirement	Aspiration	Validation Evidence
Upfront Embodied Carbon (A1-A5)	$kgCO_2e/m^2$ (GIA)	Project teams are required to limit the associated upfront embodied carbon of the development. Targets have been set to reward projects that embrace the principles of circular economy, retaining major building elements and utilising high levels of recycled content.	<500	<400	WLC Report
Operational Energy Intensity (B6)	$kWh/m^2/yr$ (GIA)	All developments will be designed to have a low operational energy intensity. The targets established represent industry best practice and align to the Paris Agreement. It is expected that Design for Performance or Passivhaus methodologies are used to remove the performance gap and accurately predict performance. Performance will be validated during operation.	<75	<55	Energy modelling/ Monitoring in-use

Supporting Indicators

Indicator	Unit	Requirement	Aspiration	Validation Evidence
Onsite energy generation	% of operational energy	>25%	100%	Drawing / Photo
Space heating demand	$kWh/m^2/yr$ (GIA)	<15	<10	Stage Reports
EPC rating	Rating	A	A+	Certificate
Whole life carbon (A-C)	$KgCO_2e/m^2$ (GIA)	<800	<625	WLC Report
Active electric vehicle (EV) charging spaces	% of parking spaces	>25	>50	Drawing / On-site Inspection
Operational water consumption (B7)	Litre / person / day	<100	<80	Water Calculation / Monitoring in-use

Our strategy has been developed in consideration of the UNSDGs



Royal London Asset Management's Healthcare Sustainable Development Brief (SDB) July 2022

Case study

Trafford Park, Manchester

Sustainable Sourcing:

- All timber installed was accredited by the Forest Stewardship Council (FSC) or Pan European Forestry Council (PEFC)
- Materials with Responsible Sourcing Certificates prioritised
- Prefabricated materials chosen where possible
- Materials with Environmental Product Declarations chosen where possible

Trafford Park is an Industrial new build development, located in Greater Manchester, completed in June 2022.

Trafford Park is a new build extension, located in the district of Greater Manchester. This shell-only development was able to achieve significant regulations in CO_2 emissions, according to Part L 2013 Building Regulations.

This included demonstrating a 16.5% reduction in the CO_2 baseline by focusing on a fabric-first approach. On top of this, the project was able to achieve a further 105.5% reduction from the CO_2 baseline through the installation of photovoltaic panels on the roof of the development. This will aid in reducing CO_2 emissions in operation. Solar photovoltaic panels were chosen through the design team undertaking a Low and Zero Carbon feasibility study, which determined that this was the most appropriate technology.

Completed

*Not including B6, B7.

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

In addition to this, the embodied carbon of the superstructure was measured at Stage 2 and Stage 4 of the design. This BREEAM optioneering assessment included reviewing ways the embodied carbon associated with the current design could be reduced at that stage.

The BREEAM assessment confirmed that the embodied carbon was 324kgCO_2e/m^2 at stage 2.

Five new electric vehicle charging points were installed within the existing warehouse car park. In addition to this, two spaces were provided in the new car park to account for the new development. Electric vehicle charging infrastructure is to be provided for an additional ten car parking spaces, this is to account for future provision.

BREEAM
'Very Good' targeted

Net Zero Carbon in operation feasibility study undertaken

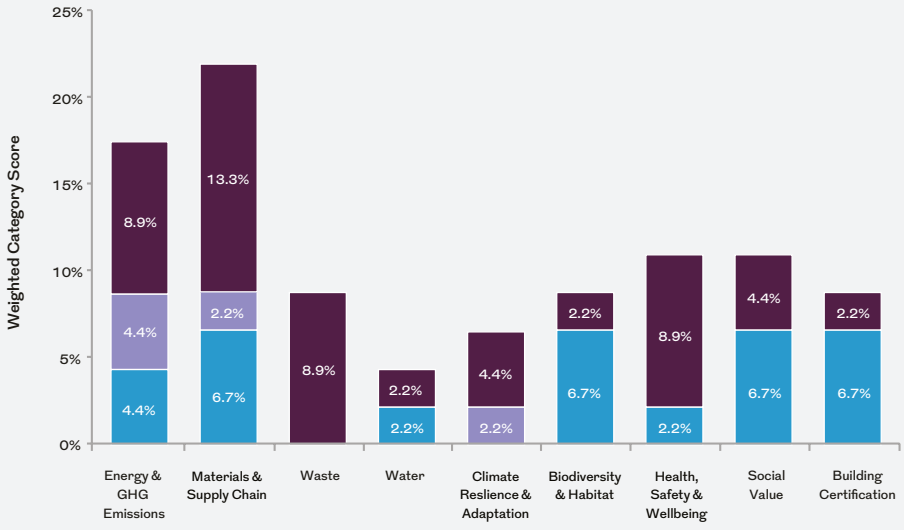
Significant reductions against Part L building regulations through the installation of photovoltaic panels

Responsible Sourcing considered within development

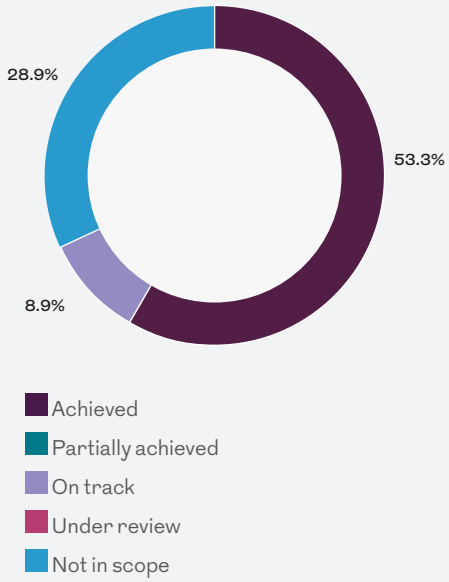
Trafford Park, Manchester

Performance against Royal London Asset Management's 2021/2022 Sustainability Standards

OVERACHING THEME PERFORMANCE



OVERALL PROJECT PERFORMANCE



Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

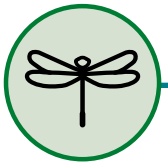
- Superstructure Embodied Carbon A1-A5 324 kgCO_2/m² – BREEAM Scope.
- EPC A+ rating.
- 122 % improvement on CO_2 emissions against the Part L 2013 Building Regulations.
- Solar photovoltaic panels installed on the roof of the development.

- All timber used in construction is from sustainable sources accredited by the FSC or PEFC.
- Prefabrication option chosen for gatehouses.
- Responsible sourced materials chosen where possible.

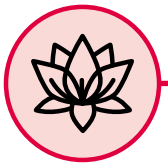
- Contractor targeted to achieve 95% of non-hazardous construction waste to be diverted from landfill.
- Design out waste workshop held with the design team.

- Rainwater harvesting feasibility assessment was undertaken for the development. Options were reviewed with the design team.

- Flood Risk Assessment and Sustainable Drainage Assessment was undertaken. This confirmed that the design allows for 1 in 100 year flood + 40% to account for climate change.



- Recommendations from the ecologist were included within the design, including native hedgerows, native trees and shrub planting, log piles and nest boxes.



- Low VOC requirements discussed within the design team to be incorporated within the design.
- Mental health first aider was available as part of the contractor's company.

- Contractor targeted to consider local community engagement activities and to incorporate training and skills initiatives for the local area where possible.

- A+ EPC rating designed to be achieved by the extension, over the EPC B target.
- BREEAM 'Very Good' targeted for the development under BREEAM New Construction 2018.

122% improvement on CO_2 emission Part L baseline through passive design and a large solar photovoltaic array.

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

Case study

Spectrum, Abingdon

Energy Performance

- Over 70% Improvement on Building Regulations Part L (2013).

Improved Energy Performance through:

- Fabric First Passive Design measures implemented.
- Installation of LED lighting, and low-power variable fans.
- Demand-controlled ventilation and high-efficiency VRF space conditioning system installed.

Spectrum, Abingdon an industrial major refurbishment within Abingdon Business Park, located near Oxford.

Spectrum completed an operational energy study using the CIBSE TM54 methodology to obtain predicted operational energy figures of the office building once fully occupied. Best Case, Expected Case and Worst Case values have been predicted for the building. This Industrial development is expected to perform better than the TM46 and BEIS Building Energy Efficiency Survey benchmarks by 25% and 5%, respectively. This is based on assumptions for occupation and as-built building services information.

The development is targeting and is on track to achieve a BREEAM 2014 Refurbishment and Fit-out certification rating of 'Excellent'. The main highlights of credits being in the management, energy and material categories.

Stage 4/5

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

An embodied carbon assessment was undertaken on the concept design to understand the carbon intensity that the refurbishment is adding.. The review covered new materials being installed as part of the core and local services, as well as the interior design changes. The additional embodied carbon for Spectrum, Abingdon was 50kgCO_2e/m^2 for A1-A5 upfront emissions. The industrial refurbishment works are mainly composed of service upgrades. The most intensive material for the baseline design, at concept design, being the refrigerant type used within the mechanical systems.

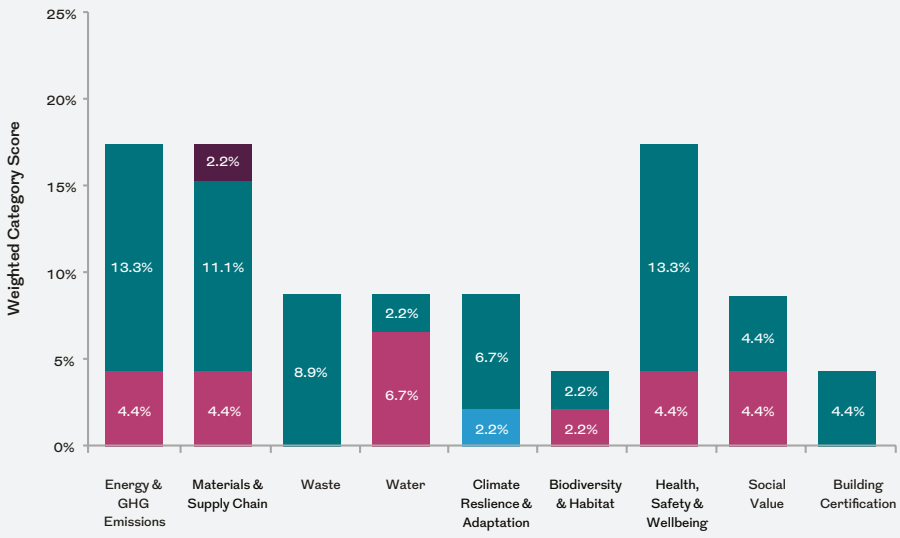
Through discussion with the project team, it was decided to install refrigerant leak detection to reduce the carbon intensity of the refrigerant. This reduced refrigerant embodied carbon by 72%. This saved 45 kgCO_2e/m^2 throughout stages A-C* .

- Over a 80% reduction in annual energy usage compare to the existing building
- Up to 47% cement replacement in structural concrete
- 72% reduction in refrigerant embodied carbon due to the inclusion of a leak detection system
- Development is on track to achieve an 'Excellent' rating under BREEAM 2014 Refurbishment & Fit-out

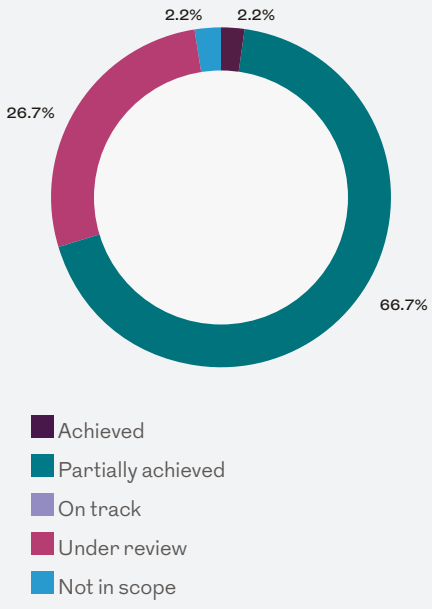
Spectrum, Abingdon

Performance against Royal London Asset Management 2021/2022 Sustainability Standards

OVERACHING THEME PERFORMANCE



OVERALL PROJECT PERFORMANCE



*Not including B6, B7.

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

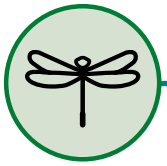
- Embodied carbon A1-A5 50 kgCO_2/m^2.
- Currently achieving EPC B rating and route to EPC A+ identified.
- 70% improvement on the existing building expected through existing Building Regulations Part L (2013) Building Emission Rate (BER) and proposed Building Regulations Part L (2021) BER.
- 100% of electricity is backed by Renewable Energy Guarantees Origin certificates.

- Circular Economy and designing out waste methods implemented through template completed.
- All timber used in construction Is from sustainable sources accredited by the FSC or the PEFC.

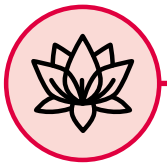
- Areas where waste could be designed out was identified with the design team to lower construction waste and increase reuse.

- Water efficiency measures were implemented to reduce mains water use are in place.
- Monitoring of water will be sub-metered and connected to the building management system.

- Low risk of flooding due to being located in a Flood Zone 1.
- Thermal comfort modelling against future weather files to be undertaken by the contractor.



- Ecological survey of the site was undertaken at the early design stages.
- Bird and bat boxes have been proposed to be installed on-site.



- Design adheres to British Council for Offices (BCO) and CIBSE Guide A, including ventilation rates in line with BCO guidance at 12 L/s/p plus 10%.

- The project site is registered with the Considerate Constructors Scheme.

- The development is on track to achieve a BREEAM Refurbishment and Fit-out 'Excellent' rating.

70% improvement of the energy performance, compared to the pre-existing building.

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

Case study

Holborn Viaduct, London

Waste:

- Foundation retained to reduce carbon footprint
- Building materials will be reused from demolition
- A third of cement based materials will be replaced by low carbon alternatives during construction
- Targeting 95% of waste to be diverted from landfill
- Targeting 20% recycled content across development by value as a minimum

Holborn Viaduct will see the demolition of three buildings to create 36,000m² offices over 10 floors on Holborn Viaduct and 12 floors on Farringdon Street.

Holborn Viaduct will see the creation of 36,000m² office spaces. The building will sit between the intersection of Holborn Viaduct and Farringdon Street.

The development has just achieved detailed planning and is commencing RIBA Stage 3.

The development is aspiring to achieve BREEAM 'Outstanding', whilst aligning with the London Plan by achieving a 54% reduction in carbon emission. Through the maximising of low and zero carbon technologies, efficient systems and offsetting, the development is targeting net zero carbon in operation. In addition to this, Holborn Viaduct will keep the existing foundations, to reduce the embodied carbon.

The building is considering using modular methods of construction and a circular economy workshop and statement has been undertaken in line with the 2020 Greater London Authority (GLA) Guidance.

RIBA Stage 3

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

As part of the circular economy workshop, the project has identified and eliminated major areas of waste, including embodied waste.

Targets have been set around circular economy, to continue to be implemented as the design progresses.

In addition to the building carbon reduction measures, Holborn Viaduct has placed great emphasis on the need to retain biodiversity and use green infrastructure. The building is on track to install appropriate habitats for native species, by introducing bird boxes, bat boxes and insect walls. It is also incorporating green roofs on all appropriate roof space and green walls. These interventions seek to maximise biodiversity net gains.

From a wellbeing perspective, the project is targeting to achieve a WELL 'Platinum' rating, the highest rating available for the scheme, showing that this a priority for the development.

The contractors will be aiming to support a minimum of three community engagement activities each year, this will benefit the local community and ensure that there are apprenticeship or work experience opportunities on the project.

BREEAM 'Outstanding' Certification rating targeted

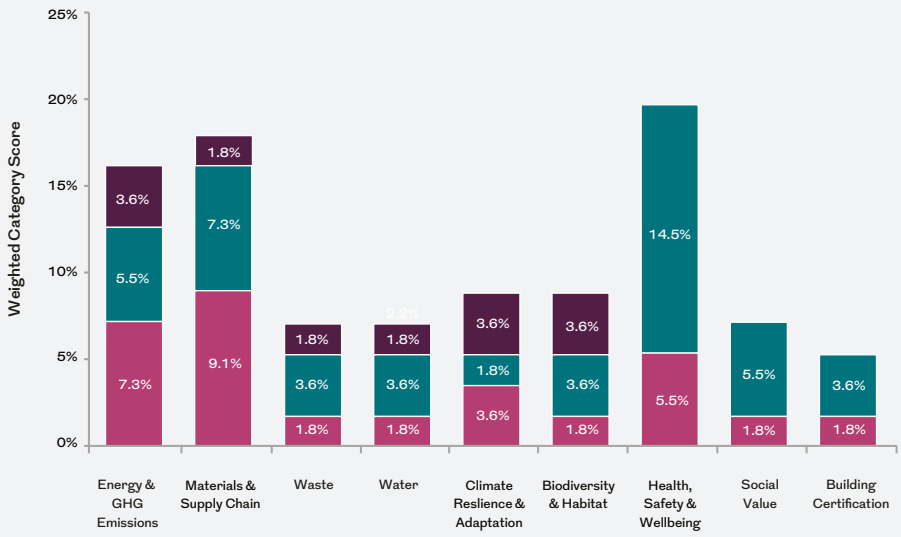
WELL 'Platinum' Certification rating targeted

Designed in line with 'Design for Performance' principles

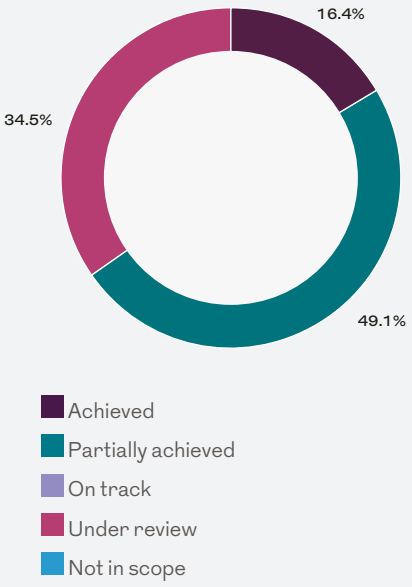
Net Gain in Biodiversity targeted

Performance against Royal London Asset Management 2021/2022 Sustainability Standards

OVERACHING THEME PERFORMANCE



OVERALL PROJECT PERFORMANCE



Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

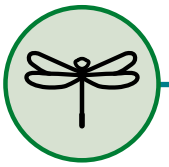
- Embodied carbon A1-A5 658 kgCO_2/m^2.
- EPC A rating.
- Car-free development with one DDA space.
- BREEAM Ene04 feasibility study taken place including district heating networks, and renewables.

- Circular Economy Statement produced and workshop undertaken.
- All timber on site will be from shall be from sustainable sources accredited by the FSC or PEFC.

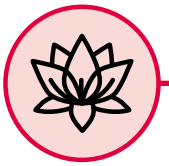
- Design out waste workshop to be held with the design team by the end of stage 2 completed.
- Contractors to reduce single use plastic packaging from material importation on site.

- Cost benefit review of Greywater and rainwater within the design for development completed.

- Mixed mode ventilation, fully natural ventilation was assessed.
- Passive design measures integrated and thermal comfort has been modelled against future weather files.



- Biodiverse green roofs on all appropriate roof space, for new and major refurbishment schemes and integration of green walls with native species.
- Areas have been left free of planting and that are targeted for food growing on the level 11 roof terrace.



- Contractor required to commit to achieving zero reportable health and safety incidents as part of the works.

- Contractor will be involved in community engagement activities each year to support local community.

- BREEAM 'Outstanding', WELL 'Platinum' and 5* NABERS Star certifications rating are targeted.

Car-free development, bar one disabled access car parking space.

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

Case study

Test Lane, Southampton

Material Efficiency & Flexibility

- Modular systems such as block paving, suspended ceilings, to enable ease of construction and to help minimise the impact of waste on site.
- Orientation maximises the existing site boundaries and allows for the most efficient use of space available on the site.
- Steel frames built off-site, and composite wall panels cut to length to minimise waste on site as well assisting the speed of construction.
- Units designed to be flexible in their use: The buildings can easily be subdivided should end users require it as the portal frame is designed for this purpose.
- Fireboard and intumescent paint proposed to reduce the need to double up on plasterboard and reduce the time required to construct the building

Test Lane, a new industrial and logistics scheme being developed in Southampton.

The development is currently in the process of finalising its sustainability and environmental certifications and is expecting to achieve a BREEAM 2014 'Excellent' rating.

Royal London Asset Management have completed an embodied carbon assessment, including a n optioneering assessment in line with Mat01 to explore and understand the carbon emissions of various modern methods of construction such as CLT or modular structural and landscaping design options. The analysis was completed in the lead up to stage 2 design. The review covers substructure, superstructure, façade, internal finishes and building services. The embodied carbon for Test Lane is 412 $kgCO_2e/m^2$ for A1-A5 construction emissions.

RIBA Stage 3

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

Material efficiency and flexibility are important to this project, and Royal London Asset Management have designed the industrial units with the transition to a circular economy in mind.

By using modular building elements, the speed of construction can be increased, and the wastage of material onsite decreased. Steel frames will be built offsite, and composite wall panels cut to length.

The design team are working to minimise material use where possible, and allowing for flexibility of use. For example, fireboard and intumescent paint have been proposed to eliminate the need to double up on plasterboard while reducing the time required to construct the building.

BREEAM 'Excellent' certification targeted.

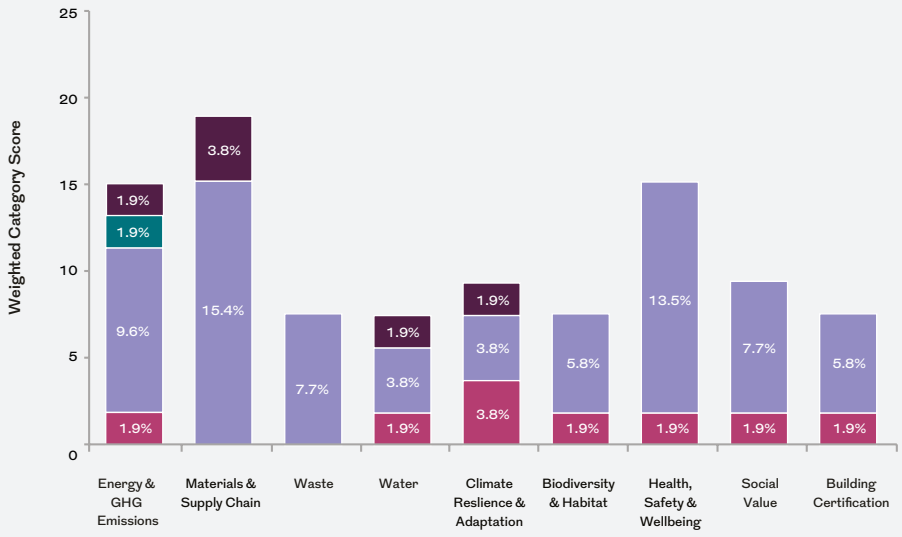
Minimum EPC 'A' rating targeted.

Circular Economy Statement in line with GLA guidance.

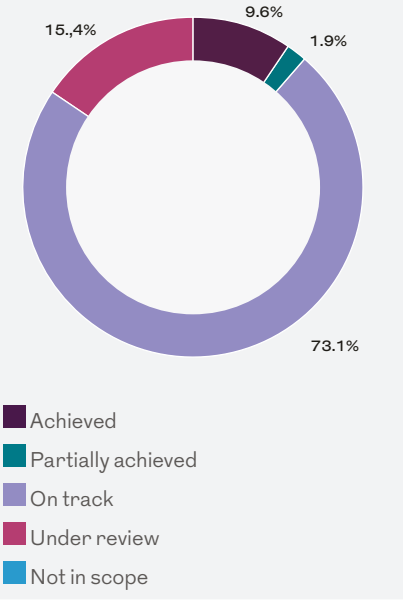
106% Net gain in biodiversity targeted.

Performance against Royal London Asset Management 2021/2022 Sustainability Standards

OVERACHING THEME PERFORMANCE



OVERALL PROJECT PERFORMANCE



Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

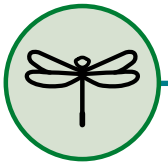
- Embodied carbon A1-A5 412 kgCO_2/m^2.
- EPC A has been targeted by the design team.

- Design teams to explore modern methods of construction such as CLT or modular construction techniques during the lead-up to Stage 2 design.
- Circular Economy Statement and workshop completed.

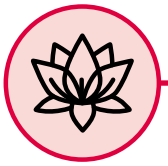
- 95% of non hazardous demolition, strip-out, excavation, construction and fit-out waste by weight to be diverted from landfill and recycled or recovered for purposes other than energy generation.

- Water efficiency measures and/or water recycling to reduce mains water use by 40% compared to the BREEAM Baseline.
- Cost benefit review of greywater/rainwater determined an annual water saving of 1.1m litres.

- Passive design measures incorporated to reduce the current cooling demand against current weather files.
- Proposed design solutions tested against future 2030 weather files to demonstrate how the building is adaptable in the future using further passive design solutions.



- 106% biodiversity net gain targeted.
- Green roofs considered in the design.
- The scheme proposes mixed native planting together with wildflower meadow and the introduction of bat boxes.



- Low VOC specification for finishes.
- Considerate Construction Scheme certification will be undertaken within construction.
- Mental Health First aider is present on site and this is communicated to all construction workers.

- Social Value Consultant to carry out community engagement workshops with local community and underrepresented demographics.
- Project team liaising with Council Employment & Skills plan Coordinator. An Employment & Skills Plan was agreed for the demolition phase.

- Minimum EPC rating of A being pursued.
- BREEAM 'Excellent' rating targeted, with a pathway being developed to demonstrate how an 'Outstanding' rating could be achieved.

106% biodiversity net gain targeted, through inclusion of green roof.

Source: Royal London Asset Management/Buro Happold as at 31/12/2021.

RLPPF and RLUKREF Development

Atlantic Park (Phase 1), Liverpool

RIBA Stage 3

Industrial

BREEAM 'Excellent' target

EPC 'A' rating target

Air Source Heat Pump technology incorporated within the design and site is PV enabled

20% of car parking spaces targeted to be designated to electric vehicles

Net Zero Operational Carbon Feasibility Study was undertaken

3 St Peter's Square, Manchester

RIBA Stage 7 (complete)

Hotel

EPC rating of 'B' achieved

Site waste management plan governing excavation, demolition and construction

Pre-fabricated and pre-cast elements used

Leafy green entrance guides you to a set of lifts to the lobby lounge on the ninth floor

Attenuation tank for rainfall events up to the 1 in 100 year storm event plus a 40% allowance for climate change

Chelmsford Springfield Park

RIBA Stage 7

Industrial

BREEAM 'Very Good' target

Low and zero carbon technologies installed within the scheme

Pre-fabricated elements to be used

Flood protection allows for 1:100 year + 30% event

Mains water use reduced by 25% compared to the BREEAM baseline

The Earnshaw, London

RIBA Stage 5

Commercial Office

BREEAM 'Outstanding' target

WiredScore 'Platinum' rating targeted

Landscaping features include seasonal, herbaceous and edible planting

EPC 'B' rating target

Accessible roof garden space to be incorporated

2023 Key Focus Initiatives

Royal London Asset Management have updated their 2021/2022 targets. These targets are reviewed on an annual basis to demonstrate forward thinking and to facilitate continued sustainable development. The key focus areas for 2023 include Net Zero Carbon, Circular Economy, Certifications, Social Value and Biodiversity.

Circular Economy

- Target 20% of the total value of construction and fit out materials derived from recycled and reused content in the products and materials used.
- Insitu concrete specification to be targeted to contain a minimum of 30% cement replacement such as Ground Granulated Blast-furnace Slag (GGBS) or similar
- Maximum refrigerant limit and refrigerant leak detection requirement target included.

Building Certifications

- Aim to achieve 5* NABERS rating on applicable buildings included.
- Feasibility assessments for WELL Standard and Fitwel.
- Target for residential projects to undertake a HQM pre-assessment at early stage design.

Net Zero Carbon

- Operational Energy Targets updated to be specific building typologies.
- Lean energy efficiency target added for domestic buildings.
- External contractor to procure 100% green tariff energy for construction works.
- CO_2 reduction target updated to be against the latest Part L 2021 building regulations.
- Embodied carbon benchmark target included for Life Sciences, Student Accommodation and Retail.

Biodiversity

- Biodiversity Net Gain target updated to Environment Act requirements.
- Urban Greening Factor updated to align with the London Plan.

Social Value

- Use of UKGBC 'Guide for Delivering Social Value on Built Environment Projects' for selected pilot studies.
- Promote Inclusive Design in the project, beyond meeting regulations into best practice and design for all protected characteristics under the Equality Act.

Appendix A – Glossary

Acronym	Explanation
ASHP	Air Source Heat Pump
BBP	Better Buildings Partnership
BCO	British Council for Offices
BREEAM	Building Research Establishment Environmental Assessment Method
BRUKL	Building Regulations United Kingdom Part L
CCS	Considerate Constructors Scheme
CHP	Combined Heat and Power
CIBSE	Chartered Institution of Building Services Engineers
CLT	Cross Laminated Timber
CO_2	Carbon Dioxide
EPC	Energy Performance Certificate
EPD	Environmental Product Declaration
ESG	Environmental, Social & Governance
ETI	Ethical Trading Initiative
EU	European Union
Fitwel	Fitwel®
FSC	Forest Stewardship Council
GGBS	Ground Granulated Blast-furnace Slag
GHG	Greenhouse Gas
GIFA	Gross Internal Floor Area
GRESB	Global Real Estate Sustainability Benchmark
GWP	Global Warming Potential
KPIs	Key Performance Indicator
LETI	London Energy Transformation Initiative
LZC	Low and Zero Carbon Technologies
PV	Photovoltaic
RIBA	Royal Institute of British Architects
RLPPF	Royal London Pension Property Fund
RLUKREF	Royal London UK Real Estate Fund
RPI	Responsible Property Investment
SDGs	Sustainable Development Goals
UKGBC	United Kingdom Green Building Council
UN SDGs	United Nations Sustainable Development Goals
VOC	Volatile Organic Compounds
VRF	Variable Refrigerant Flow
WELL	WELL Building Standard®
WIRED	WiredScore®

Appendix B – Royal London Asset Management 2023 Development Sustainability Standards

Sustainability theme	Ref	Sustainability standards	SDG mapping
 Energy & GHG Emissions	EG1	All developments to reduce CO_2 emissions by at least 35% less than the level required by Building Regulations Part L (2021) or the existing building for Major refubishments, with at least 15% (non-domestic) or 10% (domestic) achieved through a passive, fabric first approach including efficient building system designs and the remainder delivered through low and zero carbon technologies. Residential developments should be aiming to achieve a benchmark improvement over Part L 2021 of 50%.	
	EG2	A feasibility study of low and zero carbon technologies, including district heating networks, and renewables shall be undertaken for new-build projects and major refurbishment projects.	
	EG3	Undertake operational energy modelling using the CIBSE TM54 methodology as part of the design process. New build and major refurbishments to target the following operational energy performance in line with UKGBC Net zero pathway: Commercial Office 130 kWh/m²/yr (GIA) aiming for 90kWh/m²/yr (GIA) Hotel: 55 kWh/m²/yr (GIA) Residential: 35 kWh/m²/yr (GIA) Industrial: 60 kWh/m²/yr (GIA) shell & core Retail: 45 kWh/m²/yr (GIA) Life Sciences: 325 kWh/m²/yr (GIA) shell & core Student Accommodation: 75 kWh/m²/yr (GIA)	
	EG4	All new build and major refurbishment projects at RIBA Stage 2 through to RIBA Stage 4 to undertake a whole life carbon assessment (excluding modules B6 & B7) of materials for developments, and contractors to map and monitor the footprint during the delivery phases to establish an as built whole life carbon assessment.	
	EG5	All new build and major refurbishment projects to aim for a construction A1-A5 embodied carbon target as follows: Office 600 kg/CO_2/m² Hotel 400 kg/CO_2/m² Retail 550 kg/CO_2/m² Residential 400 kg/CO_2/m² Industrial 600 kg/CO_2/m² shell & core Life Sciences 700 kg/CO_2/m² shell & core Student Accommodation 450 kg/CO_2/m²	
	EG6	External contractor to procure 100% green tariff energy for construction works. Ofgem recognised green energy suppliers to be chosen where possible. Where agreed not feasible and generators are used the contractor should confirm the environmental credentials of such systems (e.g. gross efficiency, locality of fuel source)	

Sustainability theme	Ref	Sustainability standards	SDG mapping
 Energy & GHG Emissions	EG7	For all new build and major refurbishment projects an operational energy Net Zero Carbon feasibility assessment is to be provided prior to planning. This should set out how the scheme can achieve or be readily adapted in the future to attain Zero Carbon in line with UKGBC guidance. Refer to 'increased leadership position' in the UKGBC Net Zero Carbon Buildings: 'Levels of performance' primer (Tables 1 & 2), or other latest UKGBC guidance.	
	EG8	All applicable new building and major refurbishment projects to undertake Post Occupation Evaluations 12 months after full occupation. Contractor to take on role of Soft Landings champion during construction, commissioning and handover.	
	EG9	A target of up to 20% of vehicle spaces to be designated to electric modes of transport with the appropriate infrastructure capacity to convert 100% of vehicle spaces into electric vehicle spaces in the future for all new developments and major refurbishments. Where there is no vehicle spaces, this target is achieved by default.	
 Materials & Supply Chain	MS1	All timber and timber products used in construction (including site timber) shall be from sustainable sources accredited by the Forest Stewardship Council or the Pan European Forestry Council.	
	MS2	All new and major refurbishments to target the supply of materials with ISO14001 and where possible BES 6001 Very Good certification for plasterboard, aggregates, concrete, cement, asphalt, block-work and rebar.	
	MS3	Design teams to explore modern methods of construction such as CLT or modular construction techniques during the lead up to Stage 2 design.	
	MS4	Insitu concrete specification to be targeted to contain a minimum of 30% cement replacement such as Ground Granulated Blast-furnace Slag (GGBS) or similar product where possible and explore using higher value of cement replacement for pre-cast element.	
	MS5	Suppliers outside of the EU to be checked against fair pay and labour standards.	
	MS6	All granite / stone to be sourced through ETI (Ethical Trading Initiative) accredited companies.	
	MS7	Where possible, the design team is to specify structures and MEP products with Envrionmental Product Declarations (EPD's).	
	MS8	Design team to review and adopt the Living Building Challenge materials Red List where possible. Where products specified do not meet this requirement, this should be flagged to the client.	
	MS9	Undertake a workshop and produce a Circular Economy Statement, by the end of Stage 3, in line with 2020 GLA guidance.	
	MS10	Target 20% of the total value of construction and fit out materials derived from recycled and reused content in the products and materials used.	
	MS11	Where the use of refrigerants is necessary, limit the amount of refrigerant through system type and design, and select systems using low impact refrigerants prioritising ultra-low ←50 GWP where possible and no greater than 750 GWP. Leak detection is to be included on systems with refrigerant charge above 6kg.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
 Waste	WS1	95% of non hazardous demolition, strip-out, excavation, construction and fit-out waste by weight to be diverted from landfill and recycled or recovered for purposes other than energy generation.	
	WS2	Construction Waste shall not exceed 7.5 m^3/6.5 tonnes per 100 m^2 GIFA for new-build development projects, and not exceed 4.5 m^3/1.2 tonnes per 100 m^2 GIFA for refurbishment projects.	
	WS3	Design out waste workshop to be held with the design team by the end of stage 2 to identify and eliminate major areas of waste (including embodied waste). This must be documented and the outcomes measured at RIBA stages following this.	
	WS4	Contractors to reduce single use plastic packaging from material importation on site. Contractors are to report on single use plastic figures, highlighting reduction measures undertaken as part of construction.	
 Water	WA1	All new-build and major refurbishment projects shall incorporate water efficiency measures and/or water recycling to reduce mains water use by 40% compared to the BREEAM Baseline. Residential targets to target less than 105 litres/person/day. Offices designed to achieve ←13 litres/person/day.	
	WA2	Complete a cost benefit review of Greywater and rainwater within the design for new developments.	
	WA3	Meet threshold requirements for fundamental Water Quality in line with WELL. V2. Testing to be carried out at the start of design and at post completion to verify compliance.	
	WA4	Reception spaces and changing rooms to have water bottle refilling stations.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
Climate Resilience & Adaptation	CR1	Full flood protection review undertaken and appropriate measures implemented within design. This should allow for 1:100 year + 30% event at a minimum. Major refurbishments to undertake feasibility study.	
	CR2	Explore the opportunity for natural ventilation within developments. Where natural ventilation is being pursued the design shall limit the risk of overheating in accordance with CIBSE TM52 and appropriate future weather files. For buildings with specialist functions where natural ventilation is not permitted, office areas and amenities such as breakout areas and receptions to consider these requirements.	
	CR3	For air-conditioned developments incorporate passive design measures to reduce the current cooling demand against current weather files. Design team to test proposed design solutions against future 2030 weather files and demonstrates how the building has been designed to be easily adaptable in the future using further passive design solutions.	
	CR4	Select materials for external horizontal surfaces that have a high albedo (SRI of 65 or higher) or are covered in vegetation to reduce local overheating and the urban heat island effect.	
	CR5	No new residential developments to be built on Flood Zones with high possibility of flooding.	
	CR6	Landscape design to incorporate appropriate native, or of adding to wildlife, drought-tolerant planting. Planting that is not native should be sourced from within Europe.	
Biodiversity + Habitat	BG1	All new and major refurbishments to maximise biodiversity net gains with a minimum of 10% in accordance with the Environment Act and DEFRA methodology. Urban Greening Factors of 0.4 for predominately residential and 0.3 for predominately commercial developments should be targeted.	
	BG2	Actively consider, and where possible, incorporate biodiverse green roofs on all appropriate roof space, for new and major refurbishment schemes.	
	BG3	Climbers, incorporating native species where possible, to be considered for available vertical surfaces to provide simple green walls for visible green infrastructure.	
	BG4	Install appropriate habitat for native and identified species (e.g. bird and bat boxes and insect walls).	
	BG5	Assess the opportunities to incorporate occupier organic food growing initiatives.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
Health, Safety + Wellbeing	HS1	All new-build and major refurbishment projects shall incorporate materials with lower levels of harmful emissions (e.g. low VOC content) specified. Ambient testing in line with BREEAM to be undertaken after practical completion on the basebuild.	
	HS2	The Contractor shall be required to commit to achieving zero reportable health and safety incidents as part of the works.	
	HS3	All new-build and major refurbishment sites shall be registered under the Considerate Constructors Scheme and the Contractor shall be required to achieve a CCS score of 40 with a minimum score of 7 achieved in each scoring section of the scheme.	
	HS4	Ventilation system designed in line with requirements for fundamental Air Quality (Parts 1 & 3) in line with WELL V2 where PM2.5 and PM10 levels exceed limiting concentrations. For buildings with specialist functions, office areas and amenities such as breakout areas and receptions to consider these requirements.	
	HS5	Active stairwells to be designed that are aesthetically pleasing to encourage active movement within the buildings.	
	HS6	Adhere to BCO and CIBSE Guide A guidelines for ventilation rates. Life sciences buildings to adhere to relevant HSE guidelines for ventilation with consideration for air change rate setbacks and use of VOC or other monitoring appropriate to lab usage at Containment Level 1 & 2 to improve energy efficiency. Residential buildings to meet ventilation air intake and ventilation rates from '4.6 Ventilation crit 2, 4' in Home Quality Mark.	
	HS7	Incorporate design features into the development that promote the 5 ways to wellbeing (Connect, Be Active, Take Notice, Learn, Give). Highlight how the design incorporated wellbeing features at the end of Stage 2. 'Give' to be assessed and implemented as part of social value strategy.	
	HS8	Contractors to ensure that one Mental Health First aider is present on site and this is communicated to all construction workers.	
	HS9	Shower and changing room provision to be in line with BCO best practice requirements for offices, and BREEAM shower and changing provision, for all other building types.	
	HS10	As part of the Post Occupancy Evaluation, after 12 months of full occupancy, occupant health and wellbeing to be assessed. Building Evaluation Survey Use Studies (BUS) Wellbeing Survey (WELL Compliant) to be used.	
	HS11	Contractors to comply with the real living wage rates and to work collaboratively with the Gangmasters and Labour Abuse Authority (GLAA) to share information that will help stop or prevent the exploitation or abuse of workers.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
Social value	SV1	Contractor to support at least three community engagement activities each year, where team members give time to a project that benefits and supports the local community.	
	SV2	Major new build and major refurbishment developments will support and promote the provision of training and skills initiatives in the local area during the construction phase, with a minimum of two apprenticeships or work experience students during construction, and one site visits for local schools/residents.	
	SV3	Development and implementation of a communication plan and community monitoring plan during the design and construction phases.	
	SV4	Promote Inclusive Design in the project, beyond meeting regulations into best practice and design for all protected characteristics under the Equality Act. Projects with inclusive design consultants to report fully on this issue. Where there is no inclusive design consultant having a meeting/workshop to discuss the principles to identify particular design strategies would be sufficient, with teams providing commentary in the tracker.	
	SV5	In collaboration with RLAM and for applicable pilot projects, utilise a Social Value Consultant to develop a social value strategy for the project in line with UKGBC 'Guide for Delivering Social Value on Built Environment Projects'. Design team to input into Social Value assessment, in addition to any other qualitative design outcomes, prior to planning and at PC. Where there is no social value consultant having a meeting/workshop to discuss the principles to identify particular design strategies would be sufficient, with teams providing commentary in the tracker.	
Building Certifications	BC1	A minimum Energy Performance Certificate (EPC) rating of 'A' is targeted for all new-build development projects and a 'B' targeted for all refurbishment projects.	
	BC2	Allapplicable new build and major refurbishment developments to undertake UK NABERS Design for Performance Certification, aiming to achieve a NABERS 5* rating. For applicable building types listed other than offices, incorporate a NABERS UK approach (i.e. advanced simulation modelling with sensitivity testing, a NABERS compliant metering strategy, IDR review and advanced commissioning approach).	
	BC3	All new and major refurbishment projects to achieve a Building Research Establishment Environmental Assessment Method (BREEAM) Excellent and develop a pathway to achieving BREEAM Outstanding for review by Project Director or strategic sustainability consultant. Residential projects to undertake an HQM pre-assessment during Stage 1-2.	
	BC4	Design team to review the feasibility of applying WELL Core 'Platinum' and Fitwel shell and core '3* Rating' on all new build commercial office developments and pursue certification in accordance with one system. For applicable building types listed other than offices, incorporate a WELL ready approach enabling all relevant preconditions.	

Appendix C – Royal London Asset Management 2021/2022 Development Sustainability Standards

Sustainability theme	Ref	Sustainability standards	SDG mapping
 Energy & GHG Emissions	EG1	Non-residential and residential developments to reduce CO_2 emissions by at least 35% less than the level required by Building Regulations Part L (2013) or the existing building for Major refurbishments, with at least 15% achieved through a passive, fabric first approach including efficient building system designs and the remainder delivered through low and zero carbon technologies.	
	EG2	A feasibility study of low and zero carbon technologies, including district heating networks, and renewables shall be undertaken for new-build projects and major refurbishment projects.	
	EG3	Undertake operational energy modelling using the CIBSE TM54 methodology as part of the design process. New build and major refurbishments to target the following operational energy performance in line with UKGBC Net Zero Pathway: Commercial Office 130kWh/m^2 (GIA) /year	
	EG4	All new build and major refurbishment projects at RIBA Stage 2 through to RIBA Stage 4 to undertake a whole life carbon assessment of materials for developments, and contractors to map and monitor the footprint during the delivery phases to establish an as built whole life carbon assessment.	
	EG5	All new build and major refurbishment projects to target a reduction in embodied carbon in construction A1-A5 as follows: Office 600kg/CO_2/m^2 Retail 600kg/CO_2/m^2 Hotel 400kg/CO_2/m^2 Residential 400kg/CO_2/m^2 Industrial 600kg/CO_2/m^2	
	EG6	External contractor to procure 100% green tariff energy for construction works.	
	EG7	For all new build and major refurbishment projects an operational energy Net Zero Carbon feasibility assessment of stage B6 is to be provided prior to planning. This should clearly set out how the scheme can be readily adapted in the future to achieve Net Zero Carbon.	
	EG8	All new building and major refurbishment commercial office projects to undertake Post Occupation Evaluations 12 months after full occupation.	
	EG9	A target of up to 20% of vehicle spaces to be designated to electric modes of transport with the appropriate infrastructure capacity to convert 100% of vehicle spaces into electric vehicle spaces in the future for all new developments and major refurbishments. Where there is no vehicle spaces, this target is achieved by default.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
 Materials & Supply Chain	MS1	All timber and timber products used in construction (including site timber) shall be from sustainable sources accredited by the Forest Stewardship Council or the Pan European Forestry Council.	
	MS2	All new and major refurbishments to target the supply of materials with ISO14001 and where possible BES 6001 Very Good certification for plasterboard, aggregates, concrete, cement, asphalt, block-work and rebar.	
	MS3	Design teams to explore modern methods of construction such as CLT or modular construction techniques during the lead up to Stage 2 design.	
	MS4	Insitu concrete specification to be targeted to contain a minimum of 30% cement replacement such as Ground Granulated Blast-furnace Slag (GGBS) or similar product where possible.	
	MS5	Suppliers outside of the EU to be checked against fair pay and labour standards.	
	MS6	All granite / stone to be sourced through ETI (Ethical Trading Initiative) accredited companies.	
	MS7	Where possible, the design team is to specify structures and MEP products with Environmental Product Declarations (EPD's).	
	MS8	Design team to review and adopt the Living Building Challenge materials Red List where possible. Where products specified do not meet this requirement, this should be flagged to the client.	
	MS9	Undertake a workshop and produce a Circular Economy Statement, by the end of Stage 3, in line with 2020 GLA guidance.	
	MS10	Target 10% of the total value of construction and fit out materials derived from recycled and reused content in the products and materials used.	
 Waste	WS1	95% of non hazardous demolition, strip-out, excavation, construction and fit-out waste by weight to be diverted from landfill and recycled or recovered for purposes other than energy generation.	
	WS2	Construction Waste shall not exceed 7.5 m^3/6.5 tonnes per 100 m^2 GIFA for new-build development projects, and not exceed 4.5 m^3/1.2 tonnes per 100 m^2 GIFA for refurbishment projects.	
	WS3	Design out waste workshop to be held with the design team by the end of stage 2 to identify and eliminate major areas of waste (including embodied waste). This must be documented and the outcomes measured at RIBA stages following this.	
	WS4	Contractors to reduce single use plastic packaging from material importation on site. Contractors are to report on single use plastic figures, highlighting reduction measures undertaken as part of construction.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
Water	WA1	All new-build and major refurbishment projects shall incorporate water efficiency measures and/or water recycling to reduce mains water use by 40% compared to the BREEAM Baseline. Residential targets to target less than 105 litres/person/day.	
	WA2	Complete a cost benefit review of Greywater and rainwater within the design for new developments.	
	WA3	Meet threshold requirements for fundamental Water Quality in line with WELL. V2. Testing to be carried out at the start of design and at post completion to verify compliance.	
	WA4	Reception spaces and changing rooms to have water bottle refilling stations.	
Climate Resilience & Adaptation	CR1	Full flood protection review undertaken and appropriate measures implemented within design. This should allow for 1:100 year + 30% event at a minimum. Major refurbishments to undertake feasibility study.	
	CR2	Explore the opportunity for natural ventilation within developments. Where natural ventilation is being pursued the design shall limit the risk of overheating in accordance with CIBSE TM52 and appropriate future weather files.	
	CR3	For air-conditioned developments incorporate passive design measures to reduce the current cooling demand against current weather files. Design team to test proposed design solutions against future 2030 weather files and demonstrates how the building has been designed to be easily adaptable in the future using further passive design solutions.	
	CR4	Select materials for external horizontal surfaces that have a high albedo (SRI of 78 or higher) or are covered in vegetation to reduce local overheating and the urban heat island effect.	
	CR5	No new residential developments to be built on Flood Zones with high possibility of flooding.	
	CR6	Landscape design to incorporate appropriate native, or of adding to wildlife, drought-tolerant planting. Planting that is not native should be sourced from within Europe.	
Biodiversity + Habitat	BH1	All new and major refurbishments to maximise biodiversity net gains in accordance with DEFRA Metric 2.0 methodology, on site or nearby.	
	BH2	Actively consider, and where possible, incorporate biodiverse green roofs on all appropriate roof space, for new and major refurbishment schemes.	
	BH3	Climbers, incorporating native species where possible, to be considered for available vertical surfaces to provide simple green walls for visible green infrastructure.	
	BH4	Install appropriate habitat for native and identified species (e.g. bird and bat boxes and insect walls).	
	BH5	Assess the opportunities to incorporate occupier organic food growing initiatives.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
Health, Safety + Wellbeing	HS1	All new-build and major refurbishment projects shall incorporate materials with lower levels of harmful emissions (e.g. low VOC content) specified. Ambient testing in line with BREEAM to be undertaken after practical completion on the base build.	
	HS2	The Contractor shall be required to commit to achieving zero reportable health and safety incidents as part of the works.	
	HS3	All new-build and major refurbishment sites shall be registered under the Considerate Constructors Scheme and the Contractor shall be required to achieve a CCS score of 40 with a minimum score of 7 achieved in each scoring section of the scheme.	
	HS4	Design ventilation system in line requirements for fundamental Air Quality (Parts 1 & 3) in line with WELL V2.	
	HS5	Active stairwells to be designed that are aesthetically pleasing to encourage active movement within the buildings.	
	HS6	Adhere to BCO and CIBSE Guide A guidelines for ventilation rates.	
	HS7	Incorporate design features into the development that promote the 5 ways to wellbeing (Connect, Be Active, Take Notice, Learn, Give). Highlight how the design incorporated wellbeing features at the end of Stage 2. 'Give' to be assessed and implemented as part of social value strategy.	
	HS8	Contractors to ensure that one Mental Health First aider is present on site and this is communicated to all construction workers.	
	HS9	Shower and changing room provision to be in line with BCO best practice requirements for offices, and BREEAM shower and changing provision, for all other building types.	
	HS10	As part of the Post Occupancy Evaluation, after 12 months of full occupancy, occupant health and wellbeing to be assessed for commercial office. Building Evaluation Survey Use Studies (BUS) Wellbeing Survey (WELL Compliant) to be used.	
	HS11	Contractors to comply with the real living wage rates and to work collaboratively with the Gangmasters and Labour Abuse Authority (GLAA) to share information that will help stop or prevent the exploitation or abuse of workers.	

Sustainability theme	Ref	Sustainability standards	SDG mapping
Social Value	SV1	Contractor to support at least three community engagement activities each year, where team members give time to a project that benefits and supports the local community.	
	SV2	Major new build and major refurbishment developments will support and promote the provision of training and skills initiatives in the local area during the construction phase, with a minimum of two apprenticeships or work experience students during construction, and one site visits for local schools/residents.	
	SV3	Development and implementation of a communication plan and community monitoring plan during the design and construction phases.	
	SV4	Promote Inclusive Design in the project, beyond meeting regulations into best practice and design for all protected characteristics under the Equality Act. Design team to undertake a review and confirm how this has been implemented in the design.	
	SV5	Pilot on a development to employ a Social Value Consultant to carry out community engagement workshops with local community and underrepresented demographics, and undertake assessment. Design team to input into Social Value assessment with any strategies covered by the TOMs framework, in addition to any other qualitative design outcomes, prior to planning and at PC.	
Building Certifications	BC1	A minimum Energy Performance Certificate (EPC) rating of 'A' is targeted for all new-build development projects and a 'B' targeted for all refurbishment projects.	
	BC2	All new build and major refurbishment office developments to undertake UK NABERS Design for Performance Certification.	
	BC3	All new and major refurbishment projects to achieve a Building Research Establishment Environmental Assessment Method (BREEAM) Excellent and develop a pathway to achieving BREEAM Outstanding for review by Project Director or strategic sustainability consultant.	
	BC4	Design team to review the feasibility of applying WELL Core 'Platinum' and Fitwel shell and core '3* Rating' on all new build commercial office developments and pursue certification in accordance with one system.	

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