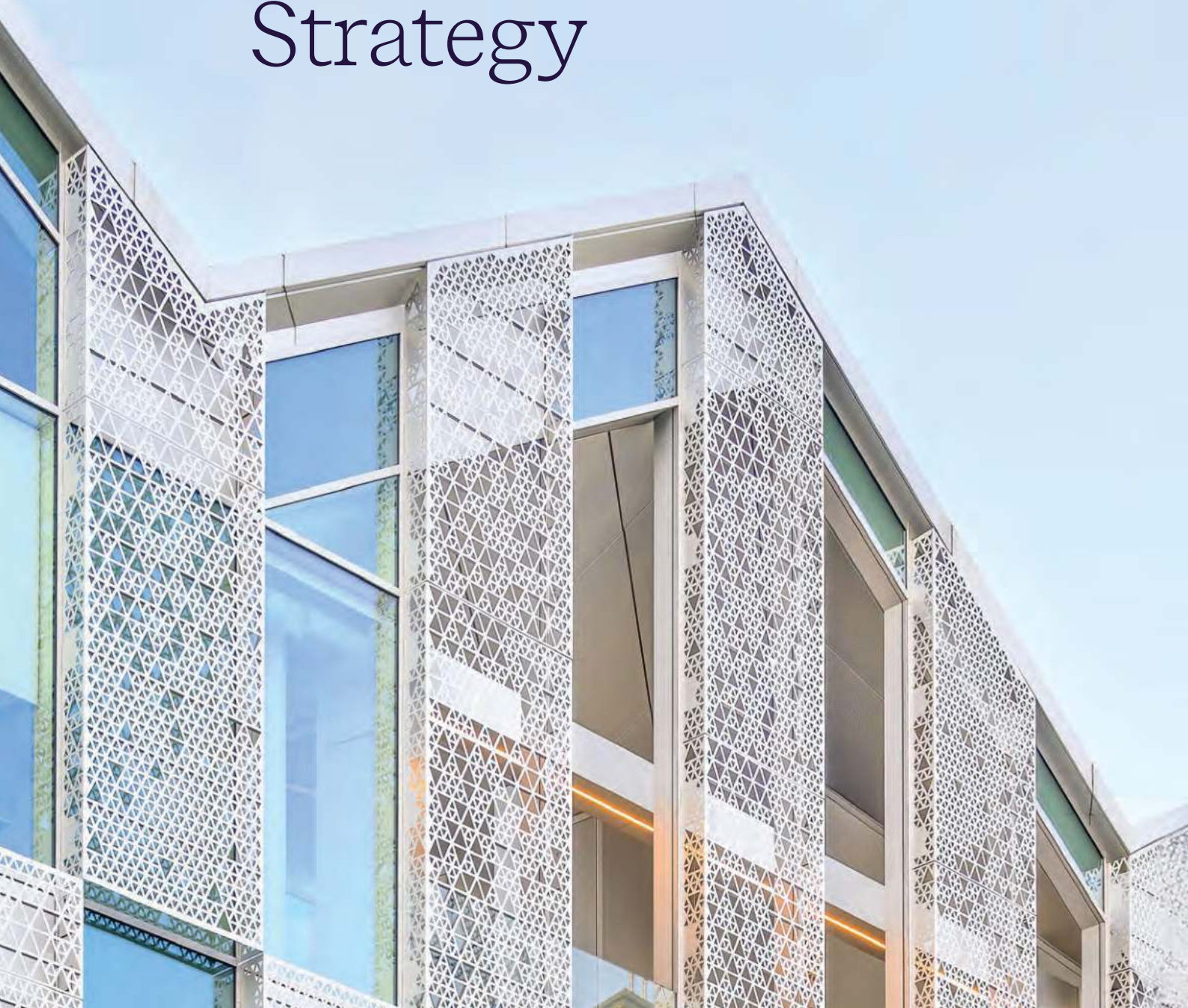




2024 - 2030

Sustainable Built Environment Strategy



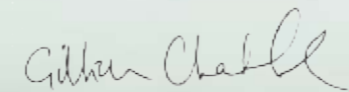
Contents

COVER IMAGE:
**22 HANDYSIDE STREET,
LONDON**

This building's perforated screens, which extend six inches from the façade, protect the interior from both heat loss and solar gain. This reduces the load on internal services and helped the building achieve a BREEAM Outstanding rating.

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Foreword



GILLIAN CHARLESWORTH
CEO



For over 100 years, BRE has been shaping built environment safety and sustainability to positively impact the economy, environment, and society; however, we know that buildings and construction can also have significant negative impacts.

Buildings are globally responsible for around 39% of energy and process-related carbon emissions, 50% of all extracted materials, 33% of water consumption and 35% of generated waste. Buildings and construction can affect natural ecosystems and transform or eradicate long standing habitats. There is also significant impact on social wellbeing and the livelihoods and prosperity of local communities and individuals.¹

Our purpose at BRE is to contribute to a thriving and sustainable world by developing science-led solutions to built environment challenges. We set ambitious targets to reduce our harm to the environment and help others do the same. The success in our approach is largely attributed to our passionate colleagues who are empowered to create and lead sustainability initiatives. Our approach also embodies principles found in BREEAM – holistic sustainability assessments for master planning, infrastructure and buildings.

As we move forward, there are many lessons learnt that we can build on. We want to continue being ambitious to stretch ourselves. We want to continue empowering colleagues to embed sustainability in day-to-day operations. It's important to us for colleagues to have the policies, training, and tools necessary to support our ambitions. We are also placing more focus on disclosure that goes beyond outputs and outcomes to capture the longer-term impact we are making.

This strategy is just a first step. The world is rapidly and sometimes unexpectedly changing as we have seen in the last few years and we must accelerate our progress on climate action. Our strategy to 2030 has therefore been prepared with adaptability and agility in mind. We are confident that our collective efforts, with colleagues, customers, partners, suppliers, and our wider community will take us to net zero carbon and beyond.

Our vision to 2030 and beyond

This strategy outlines our environmental ambitions to 2030 not only for ourselves but for our customers, partners, suppliers, and our wider community. We want to help amplify positive impact from built environment activities and eliminate and reduce harms to our environment. We want to help overcome barriers to the adoption of safe and sustainable construction practices and improve our ability to adapt the built environment to changing conditions.

Our holistic approach reflects the topics covered in our sustainability assessment certifications for master planning, buildings and infrastructure -BREEAM- to comprehensively capture the attributes that define high performing assets.

We comply with internationally recognised management systems such as ISO14001 environmental management, ISO 45001 occupational health and safety, and ISO 9001 quality management. We also maintain Cyber Essentials Plus.

We developed our strategy through research on best practice; input from internal and external experts; internal focus groups; a company-wide consultation process; review of stakeholder surveys and general customer feedback.

Our responsible business team will monitor and report on the impact of our operations. This includes quarterly Executive reviews and annual public disclosure. We will review our approach in 2027 or earlier and a new strategy will be produced in 2030.



United Nations Sustainable Development Goals

The United Nations Sustainable Development Goals (UN SDGs) are a plan agreed to by all world leaders to build a greener, fairer, better world by 2030, and we all have a role to play in achieving them.

At BRE, we are committed to facilitating positive change at all levels. We will continue to work with all stakeholders to improve research, education, and practice in the built environment and reward best practice, contributing to the achievement of these Global Goals.



Energy and emissions

Achieve net zero emissions by 2045 and champion a fair and just energy transition



Materials

Increase reuse and recycling to help circulate products at their highest value



Water

Reduce water consumption and support responsible and sustainable water use



Resilience

Enhance ability to respond to external shocks and stresses



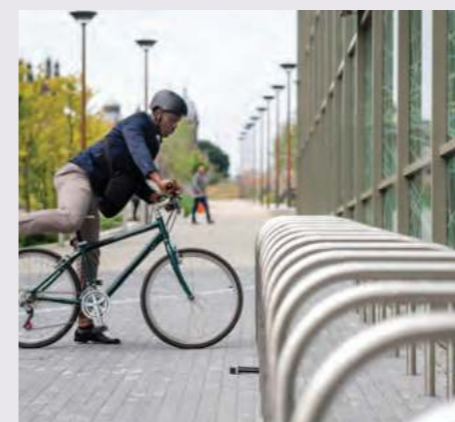
Biodiversity

Regenerate natural systems and restore biodiversity loss



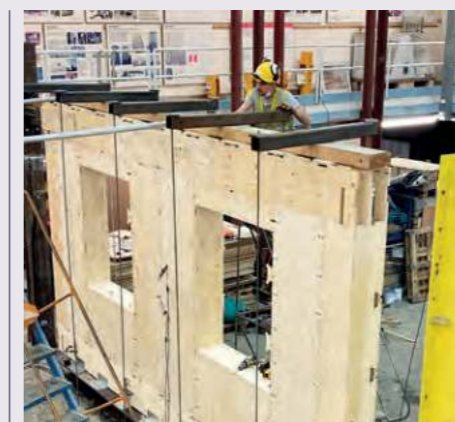
Health and wellbeing

Enhance occupant wellbeing and champion the delivery of healthy and resilient buildings



Travel and accessibility

Promote sustainable modes of transport and inclusive design



Procurement

Assess supplier sustainability performance and promote impact driven financing

Responsible leadership

At BRE, we deliver innovative and rigorous products, services, standards and qualifications that are used around the globe to make buildings better for people and for the environment. For a century we have provided government and industry with cutting edge research and testing to make buildings safer and more sustainable.



BRE Trust

At BRE, we aim to ensure that the built environment reflects both the current and future needs of our communities. We are 100% owned by BRE Trust, a charity registered in England, Wales and Scotland. Committed to facilitating positive change at all levels, we:

- inspire and empower colleagues and our wider community to improve building performance
- provide built environment education and capacity building globally
- collaborate with others on policies and practices that drive sustainability throughout the construction value chain
- conduct scientific research on creating sustainable buildings, infrastructure, and communities
- support meaningful monitoring and reporting that enables like for like built environment analysis
- showcase and reward best practice.

Let's continue to educate, inspire and empower our community to prioritise the sustainable enhancement of our built environment.



BRE Academy

BRE Academy provides online self-led learning and in-person and virtual classroom training on built environment fundamentals, sustainable building and infrastructure benefits and high-quality assessments, indoor environmental quality, building information management, fire safety and much more.

Most of the individuals and organisations that we support work in or with construction, manufacturing, real estate, infrastructure and the public sector. This ranges from asset owners, project managers, facility managers and contractors to policy makers and finance and insurance professionals. Our multi-disciplinary trainers support all stakeholders by enhancing their understanding of the role the built environment plays in improving our lives. This enables individuals and organisations to address skill gaps, seize growth opportunities and adapt to our evolving built environment needs.

Serving as a valuable learning and research hub for the built environment, the BRE Bookshop hosts over 40,000 publications.



Research and innovation

We work with a wide range of stakeholders to address built environment challenges and use the knowledge gained to create and enhance products that meet the sector's needs such as IMPACT® that enables the measurement of embodied environmental impact and life cycle cost performance of buildings. We are also one of the organisations developing the Built Environment Carbon Database (BECD) and the UK Net Zero Carbon Buildings (NZCB) Standard that aims to establish a universally accepted definition and methodology for industry.

Through the Construction Innovation Hub, we collaborated with over 600 organisations, policymakers, practitioners and academics to address performance and productivity challenges. We continue to take lead or participate in national, European and international research programmes.

We have over 40 years of experience supporting central and local governments with assessing the condition and performance of their whole housing stock. This has enabled us to create and now maintain a variety of tools such as our health impact assessment (HIA) that helps with understanding the impact of poor housing conditions on the health of occupiers.



Constructing Excellence

Constructing Excellence is our collaborative platform for industry improvement with thought leading members from the entire supply chain. In partnership with Kings College, we launched an independent verification scheme called 'Constructing the Gold Standard' to champion an integrated and collaborative approach to framework procurement, contracting and management. This public sector procurement standards verification scheme aims to ensure that Government and the wider public sector adopt urgent recommendations for improved value, reduced risks and achievement of net zero on all their construction projects.

The annual Constructing Excellence Conference held in the UK brings together key decision makers to help address our most significant built environment challenges. The annual Constructing Excellence Awards recognises industry leading innovation across the UK, inspiring others to embrace these principles. With a more global focus, our annual BRE Awards showcase exceptional contributions to sustainability through BREEAM and are held in the UK and China in partnership with various organisations. We are thankful to our network and welcome the growing international collaborative opportunities.

Our built assets

The long-term characteristics and legacy of real estate and infrastructure assets inherently require us to think beyond today's performance. Management practices are a key aspect of delivering the best built environment performance possible. Our built assets support the delivery of our products and services and form the core part of our operations that have an environmental impact.

Owned and partially operated

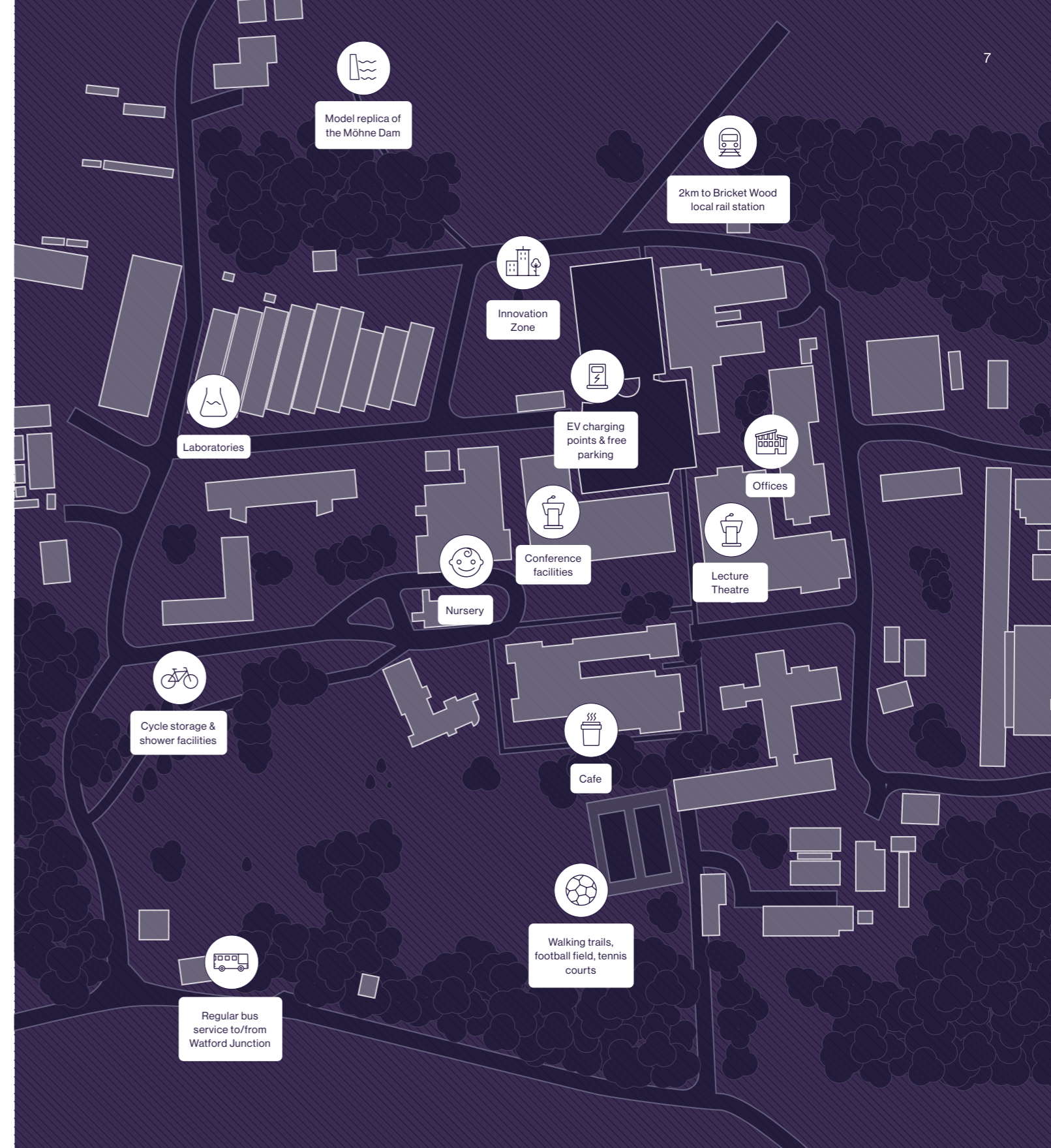
In 1917, the then Department of Scientific and Industrial Research (DSIR) proposed the creation of an organisation to investigate various building materials and methods of construction suitable for use in new housing following the First World War. In 1920, the Building Research Board met for the first time, and in 1921 a central, Government-funded laboratory – the Building Research Station (BRS) – was formed. Some of the earliest work of BRS studied the behaviour of reinforced concrete in floors, and the development of the British Standard for bricks – the UK's first standard for construction materials. Originally based at Acton in west London, BRS moved to Bucknalls in 1925 - a large Victorian house surrounded by 38 acres of land near Watford. BRE occupies that same site today and the area has expanded over the years, with Bucknalls itself still at the centre.

BRE's Science Park in Watford now sits on 50 acres. We are around 20 miles from Central London and are mainly surrounded by major motorways, residential properties, and Bricket Wood Common - a largely undisturbed semi-natural habitat that is rich in wildlife and designated as a Site of Special Scientific Interest (SSSI). Our Park contains 48 buildings of various sizes and functions totalling to around 31,000 sqm of floor area. The Innovation Zone, first launched in 2005, provides an evolving testbed for innovative and sustainable buildings, materials, technologies, and landscape designs.

We are also home to a community of around 25 organisations. Our expertise and facilities provide the opportunity to be part of a unique cluster. A variety of options are available to join our on-site community ranging from flexible co-working space and fully-fitted office suites to partnerships for state-of-the-art site redevelopment. We aim to collaborate with like-minded organisations and individuals to create a thriving ecosystem for leading-edge research, development and innovation in the built environment sector.

Upstream leased

We operate internationally through representatives and partners around the world. We are a lessee of commercial space in the UK, Ireland, USA and China.



Key Stats



BREEAM



Active BREEAM certificates in 75 countries



Improve asset performance at every stage, from design through construction, to use and refurbishment



Over 2.3 million buildings have been registered for BREEAM assessment

BREEAM is our science-based suite of validation and certification systems for a sustainable built environment. Established in 1990, BREEAM was the first scheme of its kind and has evolved into an internationally recognised standard of sustainability, quality and value that can be applied across the entire building lifecycle, to all assets, anywhere in the world. There are active BREEAM certificates in 75 countries as of March 2024 and registered assessments in over 100 countries.

BREEAM continues to shape the face of built environment sustainability by pushing beyond best practice, driving innovation, creating positive impact, and showcasing success.

↑
THE NRP ENTERPRISE CENTRE
The NRP Enterprise Centre in Norwich exemplifies the use of low embodied carbon materials. It achieved a BREEAM Outstanding rating and was described by BCO Awards judges as 'probably the UK's greenest commercial building'.

Energy and emissions

GOAL

Reduce Scope 1 and 2 emissions by 50% and Scope 3 emissions by 35% by 2030 towards achieving net zero emissions by 2045 and champion a fair and just energy transition.

Buildings are globally responsible for around 39% of energy and process-related emissions, contributing to global warming. To support limiting the increase in global average temperature, we conduct a wide range of energy efficiency research and encourage all stakeholders to adopt a more holistic perspective to asset management and performance. We will continue to provide science-based asset benchmarking by building function for various regions globally and align where possible with initiatives such as the Global Real Estate Benchmark (GRESB) and the Real Estate Environmental Benchmark (REEB). Benchmarking enables like-for-like comparison that is much needed for the built environment.

Within our operations, our target to reduce absolute emissions is against 2020 base year and in alignment with the Greenhouse Gas (GHG) Protocol and the Science Based Targets initiative.² Some of our projects to date include solar PV systems and energy efficiency upgrades to lighting, boilers, insulation, IT and lab equipment, and metering.



HERMES BUSINESS CAMPUS (HBC)

Developed by Atenor, the campus achieved BREEAM New Construction "Excellent" in 2018. After being acquired by Adventum Group's QUARTUM fund, the campus achieved BREEAM In-Use "Excellent" in 2023 for both asset and management performance. Adventum acquires standing assets with a strategic focus on improving energy efficiency and reducing whole lifecycle carbon



PLANS

Operations

- Assess our capability to increase on-site renewable energy generation, incorporate other low carbon and climate positive technologies, and procure 100% renewable electricity.³
- Continue energy performance upgrades to existing assets and seek partnerships for innovative building improvements that limit the need for mechanical heating and cooling and prioritise refurbishment over demolition.
- Encourage operational and behavioural change with a focus on energy reduction, load shifting and occupant engagement initiatives that help optimise building energy performance.
- Ensure building systems use low to zero global warming potential (GWP) refrigerants.⁴

Value chain

- Develop a complete Scope 3 emissions inventory to further identify and understand risks and opportunities associated with our upstream and downstream emissions. We will review our emissions targets after data collection to ensure they are robust and meet our decarbonisation commitment.
- Conduct collaborative research on retrofit intervention strategies, the performance of heat pumps in various conditions, and the future for grids with heat pump integration.
- Trial innovative smart solutions that advance in-use performance measurement and assurance.

MEASUREMENT

- Electricity and gas consumption (kWh).
- Absolute GHG emissions (kgCO₂e).
- Building carbon intensity by floor area (kgCO₂e/sq m).
- Renewable on-site generation as % of total energy consumption.

39%

Buildings contribution globally to energy and process-related emissions

1,739
tCO₂e

BRE baseline Scope 1+2 emissions: April 2019 - March 2020

2045

Net zero emissions target



THE SEISMIC COMMERCIAL BUILDING

Demonstrating offsite construction methods for more efficient, sustainable developments.

- ✓ 75% faster to complete
- ✓ 70% lower in carbon impact
- ✓ 47% better in value





RECYCLED TIMBER

The main desk in our reception area was created using 120 linear metres of timber studs from old internal partition walls that were salvaged when we refurbished one of our office buildings.



50%

Buildings consumption globally of all extracted materials

2012

BRE achieved zero waste to landfill

75%

Reuse and recycling target

REDUCE THE USE OF VIRGIN MATERIALS

Our collaborative work during the EU Horizon 2020 projects Buildings as Material Banks and Circular Construction in Regenerative Cities (CIRCUT) provided several avenues for reducing the use of virgin materials. One example is waste timber from demolition sites in London that were upcycled to new glue laminated (glulam) beams.

Materials

GOAL

Eliminate waste and circulate products and materials at their highest value to help restore, preserve and enhance natural capital.

Buildings are globally responsible for around 50% of all extracted materials and 35% of generated waste. Material resource efficiency is therefore critical across a construction project's life cycle, with significant opportunities during early project stages to design out waste and investigate material choices.⁵ We developed a comprehensive Environmental Product Declaration (EPD) scheme, in line with the European standard EN 15804, which provides quantified data on products' environmental impacts. We also conduct product testing, including bespoke testing, and support our customers to achieve zero avoidable waste in construction⁶ through using management tools such as SmartWaste.

At BRE, we have maintained zero waste to landfill since 2012 and our recycling rate (excluding energy recovery) has reached 50%. The highest tonnage is from construction and demolition materials (separated and mixed) and we optimise the use of skips to reduce the impact of transport. We do not create physical products or purchase raw materials for direct testing or research purposes but we will continue to enhance our approaches to the responsible and circular use and management of materials.



CONCRETE RESEARCH

BRE undertakes concrete research and testing including recycled concrete and the use of alternative materials and additives.



PLANS

Operations

- Formally monitor reuse activity and encourage others to do so, creating a baseline and establishing improvement plans.
- Enhance on-site sorting and storage facilities to improve material separation and reuse.
- Use training and resource inventories to ensure that relevant teams understand the condition and value of our assets to contribute to extending building and product lifecycles.
- Raise awareness through behavioural change campaigns around reuse, higher value recycling, and designing out waste from processes.

Value chain

- Conduct research on the cradle-to-cradle impact reduction potential of sustainable construction materials and practices, including investigating the incorporation of AI solutions.
- Support policies and procedures for selecting materials (further outlined in procurement) such as requirements around low embodied carbon, recycled content, reusability, toxicity, etc.

MEASUREMENT

- Total mass of waste (tonnes) by type and disposal method.
- Reuse and recycling rate excluding energy recovery.
- Waste-related emissions (kgCO₂e).
- Uptake of circular processes.

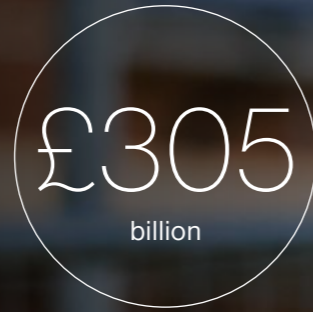
SmartWaste®



Carbon emissions - 1.45 million tonnes of energy related CO₂ reported over last 10 years



89 million tonnes of waste reported with 90% of that diverted from landfill



Over 27,000 projects completed with over £305 bn in contract value

SmartWaste is a comprehensive environmental, social, and governance (ESG) monitoring software used across the construction, buildings, and infrastructure sectors. SmartWaste simplifies ESG reporting by enabling customers to monitor performance in real time and identify areas for improvement across waste and resources, energy use, carbon, responsible sourcing of materials, transport, biodiversity and social value outcomes.

SmartWaste enables organisations to establish baselines, set sustainability goals, and monitor against net zero carbon reduction plans, whilst complying with environmental regulation and supporting the circular economy. By integrating SmartWaste into project management practices, organisations can demonstrate their commitment to sustainable development, enhance their environmental credentials, and contribute to a more sustainable future.



Water

GOAL

Reduce total water consumption by 15% and support responsible and sustainable water use throughout the operations of assets and associated sites.

Water is a finite resource in growing demand and over one billion people across the world still live in severely water-constrained areas. Many of our water systems have become stressed – rivers, lakes and aquifers are drying up or over polluted.⁷ If we maintain current consumption levels, we will increasingly face water shortages and our ecosystems will suffer.⁸ Responsible and sustainable water use and management are embedded in our sustainability products as shown in the BREEAM In-Use water category example.

BRE's main source of water use is in the UK where water is pumped, purified, treated and heated before it reaches our homes and offices. This process increases the amount of energy that we use. When we waste water, we are also wasting energy. We aim to reduce the use of potable water over the lifetime of our buildings, including minimising losses through leakage. We also aim to improve our monitoring capability so that we can compare performance against best practice. Some of the demonstrators in our Innovation Zone incorporate sustainable drainage and rainwater harvesting solutions. Further relevant plans are presented in the 'Resilience' section.



BREEAM IN-USE

Dutch real estate investor Vesteda assessed 27,500 residential assets using BREEAM In-Use. The process provided greater insight into the sustainability performance of their residential complexes. This supported Vesteda's focus of prioritising resident satisfaction through a sustainable portfolio and staying ahead of the industry through continuous learning.



PLANS

Operations

- Expand our sub-metering to better understand trends in water usage and enable normalised target setting such as annual water use in cubic metres (m3) per employee or per square meter (sq m) of occupied space.
- Complete our leak detection programme and install additional water control devices as needed.
- Identify process related water usage, such as in laboratories, and create targeted reduction plans including trialling alternative equipment that does not rely on water.

MEASUREMENT

- Total water use (m3).
- Building water intensity m3/person or by occupied space (sqm).

BREEAM IN-USE V6 WATER CATEGORY

Asset Performance

- Wat 01 water monitoring
- Wat 02-06 water efficient equipment: toilets, urinals, showers, white goods
- Wat 07 leak detection system
- Wat 08 leak prevention
- Wat 09 isolation valves
- Wat 10 reducing utility-supplied water consumption

Management Performance

- Wat 11 water consumption
- Wat 12 water recycling
- Wat 13 water consumption reporting
- Wat 14 water strategy



Litres of water per day is the potential shortfall England faces by 2050 between supply and expected demand



Environment Act 2021 reduction target for non-household water use by 2037-38 from 2019-20 baseline



BRE's reduction target by 2030 from 2019-20 baseline



LONDON'S CITY HALL, THE CRYSTAL

The Crystal is one of the world's greenest buildings, achieving BREEAM Outstanding certification. Originally commissioned by Siemens and designed by WilkinsonEyre, the glass clad all-electric building uses solar energy and ground source heat pumps as well as rainwater harvesting, black water treatment and automated building management systems. The image shows an example of the building's water use metrics.



litres of water have been consumed so far today.

Over the year, this is expected to add up to, 1,261,000 litres of potable water. The average UK citizen uses 54,750 litres of water per year.



% of the water consumed so far today has been provided by the black water recycling system.

Over a year this system is expected to provide around 1,300,000 litres of water.



23%

Global population directly exposed to 1-in-100-year floods based on World Bank analysis

14%

UK rivers meet Good Ecological Status under the Water Framework Directive

2,170
MtCo₂e

CO₂e generated by global wildfires (hazardous air pollutants) in 2023 according to Copernicus estimates

Resilience

GOAL

Enhance our collective ability to respond to external shocks and stresses through increasing the resilience of physical assets, protecting natural assets, and reducing human vulnerability.

Resilience is the ability of assets, networks and systems to anticipate, absorb, adapt and/or rapidly recover from a disruptive event. BRE drives resilience improvement through providing mechanisms to measure progress. BREEAM In-Use, for example, integrates resilience assessment and aligns with the Task Force on Climate-related Financial Disclosures (TCFD). Key considerations are exposure to physical risks such as floods and other natural hazards that can cause severe damage; implications around climate change and transitioning to a low carbon economy; impact of surface water run-off on local watercourse pollution; and safety and security as the fear of crime has a major impact on quality of life for building occupants.

Within our operations, we aim to proactively manage these risks to minimise their impact and identify opportunities that enhance the resilience of our assets and surrounding communities. We see future readiness as a core design focus for all built assets.



FLOOD RESILIENT REPAIR HOUSE

Be Flood Smart – The Property Flood Resilience (PFR) immersive experience by Flood Re uses the Flood Resilient Repair House in our Innovation Zone at the Science Park to demonstrate practical and affordable adjustments you can make to your property to make flooding much less destructive and distressing.



PLANS

Operations

- Review our flood risk assessment every 5 years, including all flood sources and allowance for climate change from a robust Climate Model, and implement mitigation measures where feasible.
- Review our natural hazard risk assessment, including climate-related physical and transition risks, and update or develop relevant emergency plans.
- Schedule building specific campaigns during summer and winter that provide occupants with guidance around controlling overheating and optimising natural ventilation.
- Assess capability for additional durable and resilient features to our Science Park and seek partnerships that help improve building durability and maintenance approaches.

Value chain

- Introduce new BRE rating systems as needed - assuring the built environment is ready for current and future security challenges.
- Collaborate with industry on ways to assure sustainable construction materials and approaches not yet covered by standard test methods.
- Expand our flood resilient design research through partnerships and increase dissemination activities that help provide assurance to suppliers, installers and insurers.
- Champion continuous improvement across industry regarding moisture performance,⁹ resulting in better indoor health and wellbeing.
- Engage in collaborative research that helps to ensure the cybersecurity of building control systems including fire and security systems.
- Explore wildfire mitigation in the built environment and resilience to climate change in terms of temperature, air quality and usability.

MEASUREMENT

- Costs incurred to mitigate obsolescence risks (functional obsolescence – asset no longer useful for a required purpose; economic/external obsolescence – asset no longer competitive due to market).
- Unexpected repair/replacement costs not covered by insurance.

Biodiversity

GOAL

Raise awareness of our Science Park's natural environment and enhance its ecological value to help regenerate natural systems and restore biodiversity loss.

The global rate of species extinction is significantly higher than it has ever averaged in human history. Around 25% of species in assessed animal and plant groups are threatened, which translates to around 1 million species facing extinction, mostly within decades, unless we reduce the intensity of activities that drive biodiversity loss.¹⁰ Furthermore, the fulfilment of a broad range of human rights depends on thriving biodiversity.¹¹ We support customers and our wider community with reducing the negative impacts of asset operation on ecological value – ultimately aiming to ensure that construction or refurbishment work has a net positive impact on biodiversity.

BRE Science Park comprises 19 acres of woodland and ecological improvement is integral to our strategic long-term planning. We protect wildlife including any European Protected Species on our site. We aim to maintain the health of our woodland stock, enhance its biodiversity, and deliver appropriate intervention that won't harm its character or appearance.



THE GREAT CRESTED NEWT

Also known as warty newts, the great crested newt is the UK's largest and rarest species of newt. They are listed as European Protected Species due to worrying decline.



PLANS

Operations

- Review our species inventory, considering habitat area, distinctiveness, condition, and strategic significance.
- Create a biodiversity map for Science Park occupants and visitors.
- Preserve and enhance the model replica of the Möhne Dam at our Science Park.
- Preserve wildflower meadows and retain deadwood arising from vegetation clearance in log piles within woodland areas to benefit solitary bees, wasps and saproxylic beetles.

Value chain

- Collaborate with special interest groups to help raise biodiversity awareness amongst colleagues and our community, control hazards and enforce (as required) non-interference with plant or animal life, water courses or any other aspect of the natural environment – ultimately enabling and encouraging safe access to the woodland for enjoyment.
- Continue to encourage our customers and partners to enhance the ecological value of a site as a result of development, such as through BREEAM Land Use and Ecology credits. This supports the prioritisation of nature-based solutions and biodiversity net gain (BNG).¹²

MEASUREMENT

- Number and variety of wildlife species recorded as present on our Science Park.
- Area of spaces with improved biodiversity.
- Description of significant impacts of activities on biodiversity in protected areas and areas of high biodiversity value outside protected areas.



Of species in assessed animal and plant groups are threatened



Tree cover loss globally from 2001-2022, World Resources Institute



Acres of woodland at BRE Science Park



BRE SCIENCE PARK WOODLAND

BRE Science Park is home to a variety of species and is neighbour to Bricket Wood Common - a largely undisturbed semi-natural habitat that is rich in wildlife. The image shows the small apiary – beekeeping area – at the Science Park. Bees pollinate many crops, trees and flowers that support other species but UK bees are in severe decline. Farmed honey bees can also impact native species, so consultation with national wildlife/woodland groups is recommended.



Testing, inspection and certification



LPCB:
A mark of trust



LPCB certified products,
systems, and services



BRE Global
Certification Mark*

BRE offers testing, inspection, and certification services, in an international market, providing confidence that a product or service will perform as expected, benefiting manufacturers and their customers. Our product testing and certifications are carried out by recognised experts in our world-renowned testing laboratories.

Through the Loss Prevention Certification Board (LPCB), which is part of BRE Global, we certify a range of fire safety and security products and services.

BRE also offers certification and testing across the wider built environment sector, including construction, Building Information Modelling (BIM), and Environmental Technology Verification (ETV).

* Certification Marks may only be used by organisations holding a valid certificate of approval issued by BRE Global.



Health and wellbeing

GOAL

Provide spaces that enhance our occupant health, safety, and wellbeing and champion the delivery of healthy and resilient buildings.

The built environment is critical to our health, safety and wellbeing as we spend most of our lives in and around buildings and moving between them. Poor air quality and excessive noise have a detrimental effect on all of us. Access to daylight and sunlight is vital for our bodies and the correct amount of light can make a significant difference to the health of our eyes. Various building factors have an impact on such key considerations. At BRE, our services aim to ensure that the built environment reflects the current and future needs of the people and communities it serves.

At our Science Park we aim to provide a healthy and safe environment and expect this from our leased spaces. We embed occupational health and safety considerations in our processes to help reduce workplace incidents, reduce absenteeism, and create a proactive health and safety culture. We provide a variety of amenities such as our onsite café, lounge areas, football field, tennis courts and walking trails. Reducing the distance travelled for typical services helps reduce dependence on driving and increases active travel as further outlined in the 'Travel and accessibility' section.



AIR QUALITY TESTING

BRE is a global leader in indoor air quality research and monitoring, helping to ensure the wellbeing of people in a wide range of building types.



PLANS

Operations

- Regularly maintain and upgrade ventilation systems and monitor indoor air quality, maintaining CO2 and CO sensors in relevant spaces.
- Review and eliminate and/or reduce emissions from combustion on site and reduce fugitive emissions such as dusts, which have an impact on the respiratory system, even in small amounts.
- Actively control noise to protect not only our colleagues but to ensure that we are good neighbours, including to the wildlife in the area, some of which are already endangered.
- Monitor thermal and acoustic comfort, especially within older buildings and when working outside, towards making improvements where necessary.
- Provide adequate daylighting and lighting levels and views, sunlight glare control, and comfort control in relevant spaces to enable asset users to perform visual tasks safely, efficiently and comfortably.
- Continue to provide hot and cold drinking water in regularly occupied spaces.

Value chain

- Collaborate on people-centred building standard development and raising awareness on human factors and ergonomics applied to construction and building services.¹³
- Continue to investigate factors that influence fuel poverty, the impact of improving poor housing, and pathways to alleviation.
- Expand our indoor environmental quality (IEQ) services through partnerships and increase dissemination activities that raise awareness for occupants.
- Explore approaches for equitable energy transitions such as estimating equitable demand side response (DSR) participation and holistically investigating unintended consequences of retrofit interventions.

MEASUREMENT

- Indoor environmental quality reports for relevant spaces – air, temperature, lighting.
- Occupant surveys.
- Feedback from local groups and neighbourhood meetings.



Creating positive and healthy environments

BRE Academy offers an introduction to the standard BS 40102-1 (Health and well-being and indoor environmental quality (IEQ) in buildings), which helps to ensure that buildings are not only compliant with regulations, but also provide a positive and healthy environment for all users.

Implementing the guidelines could provide benefits such as improved occupant health and well-being, enhanced productivity, reduced absenteeism, and increased satisfaction among building users.



The cost of poor housing to the NHS ↑

We have produced four briefing papers on the cost of poor housing to health and the NHS: in 2023, 2021, 2015 and 2010.

Poor housing is causing significant cost to the NHS. Our reports provide economic justification for investing in improvements. Local authorities and other agencies would reap the greatest health benefits by focusing on the most cost-effective improvements to the poorest housing occupied by the most vulnerable people. Continuing to raise housing standards in existing and new housing stock will also accrue health benefits, which the NHS and entire society will benefit from.

We estimate that it is costing the NHS £1.4bn a year to treat people affected by poor housing. This represents the first year treatment costs to the NHS of leaving people in the poorest 15% of housing stock in England.

When expanded to include all homes that have a significant Housing Health and Safety Rating System (HHSRS) hazard, this figure rises to £2bn per annum for England. Estimates for the UK equate to £2.5bn and are still an underestimate of the true picture.



Of global energy-related carbon dioxide emissions are from transport



Travelled to work by foot, bicycle, or public transport in England and Wales in 2021



People in England and Wales travelled over 10km to their main place of work

ENCOURAGING MORE SUSTAINABLE COMMUTING

- BRE bus stop at our Science Park
- Frequent nearby local bus routes that provide access to the site and the wider public transport network
- Eleven bus stops and Bricket Wood rail station are within a 2km walking distance
- Within 5km (typical cycling catchment), there are a range of residential areas, ideal for persons traveling to site who start/end their journey in the catchment. There are also 5 train stations, allowing for cycling to form part of a continuing journey.

Travel and accessibility

GOAL

Promote the use of sustainable modes of transport and provide sustainable travel measures that reduce costs, congestion and emissions and generate wellbeing benefits.

Transport is a vital part of sustainable development with considerations ranging from infrastructure, public transport, goods delivery, and pollution to affordability, efficiency, convenience, and health. Our approaches to sustainability assessment and certification support transport planning by holistically considering these factors within the wider community and surrounding environment.

BRE operates globally with a direct workforce in the UK, USA, and China. For business travel, we have embedded a sustainable travel hierarchy¹⁴ in our travel and expenses policy. This promotes walking and cycling and reduces carbon emissions by prioritising rail travel over air travel.

For commuting, due to the nature of our business, around 30% of our colleagues are based at our Science Park and another 30% visit almost weekly. Travel to work by region of workplace 2021 statistics showed that for East of England, 76% used a car or van, 16% used active travel measures and 7% used public transport.

To reduce the negative environmental impact of BRE-related travel and to encourage active travel, we aim to provide and promote a diverse range of sustainable travel measures and flexible working arrangements.



GLASGOW AIRPORT INVESTMENT AREA

Glasgow Airport Investment Area sustainable infrastructure work achieved CEEQUAL Excellent. It includes many new and improved pedestrian and cyclist routes for enhanced connectivity.



PLANS

Operations

- Raise awareness amongst colleagues, tenants, and visitors on the sustainable travel hierarchy and benefits as outlined in our travel and expenses policy.
- Support the transition to electric transportation through onsite EV charging spaces and colleague schemes for electric cycles and vehicles.
- Conduct a new colleague travel survey in 2024 and every 2 years after to help guide decision-making on sustainable travel measures and enhance our Scope 3 emissions monitoring.
- Reduce vehicle travel (single occupancy car use) based on survey results through increased car sharing, public transport, cycling and walking - benchmarking our results using local data.
- Promote and maintain our colleague 'bike pool', which consists of folding bikes and related gear, and join/promote local car/bike sharing schemes.
- Update our cycle route maps and enhance our on-site walking network to be safe, inclusive, and attractive.

Value chain

- Conduct research and partner with demonstrators on inclusive building design features such as adaptable lifetime homes.
- Investigate the improvement of functional design for human outcomes such as for learning in schools.

MEASUREMENT

- Reduction in carbon emissions from business related travel (kgCO₂e/year).
- Increase in sustainable modes of Science Park commuting such as % of people not arriving by private car.

Sustainable procurement

GOAL

Benchmark supplier sustainability performance through exceeding 70% spend coverage analysis by 2026, support our suppliers with their sustainability programmes, and promote impact driven financing.

From locating the products and services our organisations need to negotiating supplier contracts, we can all identify sustainability risks and opportunities to help create well targeted and impactful supply chain interventions. Responsible sourcing principles are critical for safeguarding human rights and labour standards, more efficient and effective use of natural resources, enabling futureproofing, and delivering sustainable value for money. Larger organisations and financial providers will increasingly require reliable sustainability data to verify that funds are being used as agreed.

At BRE, we will continue to work with our customers and suppliers to develop and improve their responsible and sustainable management strategies and programmes. We will enhance our own approaches to sustainable sourcing and procurement through wider training and more effective internal utilisation of our expertise and products.



BES 6001 RESPONSIBLE SOURCING

Developed by BRE, the BES 6001 Framework Standard for Responsible Sourcing of Construction Products provides a holistic approach to managing a product from the mining or harvesting of component materials, through to manufacture and processing. BRE also provides certification services along with several licensees. Certification is for the evaluated materials or products and not the organisation. Version 4.0 was released in 2022.

As of March 2024, there are active certificates for over 20 product groups ranging from concrete, bricks, steel, and glass to roofing, drainage, electricals and paints.



PLANS

Operations

- Provide training that helps relevant teams with understanding the economic, social and environmental impact of goods and services from a whole lifecycle perspective.
- Publish a Responsible Supplier Charter to support suppliers with creating/enhancing sustainability objectives, including the adoption of science-based targets. The Charter will also make clear any non-negotiable conditions and update sustainability criteria for various procurement processes.
- Develop/adopt a suitable and easy to use framework to monitor supplier and procurement performance.
- Develop and implement a Sustainable Catering/Food Policy that promotes meat-free consumption, reduces the number of meat-based meals offered at our on-site café and requires suppliers to demonstrate their responsible sourcing and resource management practices.
- Create a formal investment policy that governs our building projects - prioritising refurbishment over new build, considering sustainability at all construction stages, and aiming for at least BREEAM Excellent.

Value chain

- Conduct research on science-led solutions that support the growth of sustainable finance.

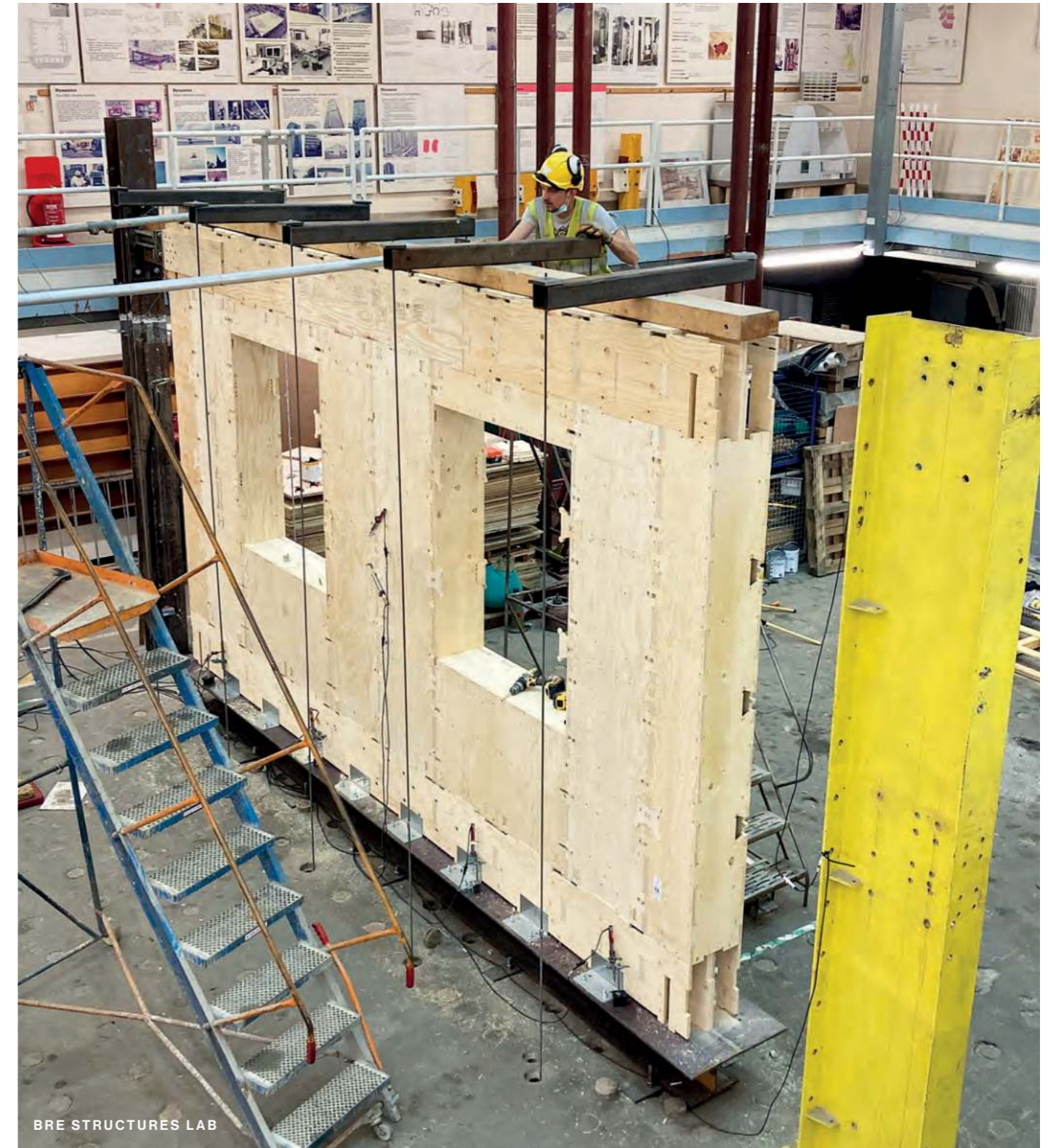
MEASUREMENT

- Supplier management performance such as average payment deadlines, % spend coverage for suppliers that meet sustainability criteria, and related initiatives identified/ in delivery (approach to be developed).
- Supplier sustainability performance such as carbon emissions and employee welfare (approach to be developed).

WikiHouse, BRE Structures Lab

WikiHouse, a digitally manufactured building system, is an ongoing experiment by Open Systems Lab into the intersection of sustainable construction, digital fabrication, and online open-source communities. Unlike other modular approaches that require a large factory, WikiHouse can be manufactured by a distributed network of small, local microfactories using digital fabrication tools.

Independent testing was necessary for the pre-commercial prototyping process. Initial work was done with the University of Edinburgh to develop structural testing procedures and conduct small scale experiments. To build our empirical knowledge on the behaviour of CNC machined timber structures, particularly regarding timber-to-timber connections, we used our large-scale testing facilities at BRE to understand how this design performed as a whole interdependent system.



Environmental Product Declarations (EPD)

↓
100 LIVERPOOL STREET, LONDON
Designed by Hopkins Architects for British Land. This building achieved a BREEAM Outstanding rating and is British Land's first net zero carbon development.



Verified, transferable and comparable data



Sustainability performance monitoring



Increased transparency



Data driven decision-making for ecodesign and sustainable procurement

Environmental Product Declarations (EPD), which are a Type III environmental label, quantifiably demonstrate the environmental performance of a product. An EPD is generated based on data obtained through Life Cycle Assessment (LCA) and BRE is internationally recognised for its expertise in LCA. We consulted industry stakeholders to develop a comprehensive EPD Scheme in line with European standard EN 15804.

EPD can be used for the improvement of product manufacture, or process efficiency, and are recognised by building assessment schemes, such as BREEAM. This verification mark represents quality and illustrates that a product has gone through a rigorous verification process.

BRE also offers LINA, an online life cycle assessment tool that gives product manufacturers access to LCA data and a route to obtaining an EPD.

Goal	Annual measurement
Energy and emissions By 2030, reduce Scope 1 and 2 emissions by 50% and Scope 3 emissions by 35% towards achieving net zero emissions by 2045 and champion a fair and just energy transition.	<ul style="list-style-type: none"> Energy consumption (kWh) Building-related emissions (kgCO₂e) Building energy intensity by floor area kWh/sq m Renewable on-site generation as % of total energy consumption
Materials Eliminate waste and circulate products and materials at their highest value to help restore, preserve and enhance natural capital.	<ul style="list-style-type: none"> Total mass of waste (tonnes) by type and disposal method % of total waste sent to energy recovery Waste-related emissions (kgCO₂e)
Water By 2030, reduce total water consumption by 25% and support responsible and sustainable water use throughout the operations of assets and associated sites.	<ul style="list-style-type: none"> Total water use (m³) Building water intensity m³/person or by occupied space (sq m) Total water discharge by quality and destination
Biodiversity Raise awareness of our Science Park's natural environment and enhance its ecological value to help regenerate natural systems and restore biodiversity loss.	<ul style="list-style-type: none"> Number and variety of wildlife species recorded as present on our Science Park Area of spaces with improved biodiversity Description of significant impacts of activities on biodiversity in protected areas and areas of high biodiversity value outside protected areas
Resilience Enhance the ability to respond to external shocks and stresses through increasing the resilience of physical assets, protecting natural assets and reducing human vulnerability.	<ul style="list-style-type: none"> Costs incurred to mitigate obsolescence risks (functional obsolescence – asset no longer useful for a required purpose; economic/external obsolescence – asset no longer competitive due to market) Unexpected repair/replacement costs not covered by insurance
Health and wellbeing Champion the delivery of healthy and resilient buildings and spaces that enhance occupant health, safety, and wellbeing.	<ul style="list-style-type: none"> Indoor environmental quality reports for relevant spaces – air, temperature, lighting Occupant surveys Feedback from local groups and neighbourhood meetings
Travel and accessibility Promote the use of sustainable modes of transport and provide sustainable travel measures that reduce costs, congestion and emissions and generate wellbeing benefits.	<ul style="list-style-type: none"> Reduction in carbon emissions from business related travel (kgCO₂e/year) Increase in sustainable modes of Science Park commuting such as % of people not arriving by private car
Procurement Embed sustainable sourcing and procurement principles in supply chain management, support our suppliers with their sustainability programmes and promote impact driven financing.	<ul style="list-style-type: none"> Supplier sustainability performance (monitoring approach to be developed) No. of sustainability training course completions and relevant feedback Sustainability related initiatives identified and in delivery with supply chain

- World Green Building Council (WGBC) further explains environmental challenges and shares features of and principles for a [sustainable built environment](#), which are embedded in our products and services.
- In alignment with the [Greenhouse Gas \(GHG\) Protocol](#), Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect upstream and downstream emissions (not included in scope 2) that occur in the value chain of the reporting company. BRE has published how [BREEAM credits](#) help support the reduction of carbon emissions.
- UKGBC provides [guidance on renewable energy procurement](#) to support decarbonisation efforts.
- The GWP of a refrigerant is its global warming impact relative to the same quantity of carbon dioxide (CO₂) over a 100-year period. Some refrigerants are hundreds to thousands of times more detrimental to the environment than CO₂ but alternatives are now widely available.
- BRE publication on [material resource efficiency](#) further explains drivers and opportunities for typical building products and materials.
- As defined in 2020 by the [Construction Leadership Council's \(CLC\) Green Construction Board](#), zero avoidable waste in construction refers to waste prevention at every stage of a project's lifecycle, from the manufacture of materials and products, the design, specification, procurement and assembly of buildings and infrastructure through to deconstruction. At end of life, the next use should be at the highest value possible whilst minimising any other negative impacts.
- The World Wildlife Federation (WWF) identified [water scarcity as a major threat](#) to our existence given that only 3% of the world's water is [freshwater](#) (with 2/3 of that frozen in glaciers or otherwise unavailable for use) and our water systems have become stressed.
- The United Nations (UN) work on [water scarcity](#) states that it is an increasing problem on every continent - water scarcity intensifies as demand increases and/or as water supply is affected by decreasing quantity or quality. BRE provides expert guidance on assessing and treating dampness in buildings.
- BRE provides expert [guidance](#) on assessing and treating dampness in buildings.
- As reported in the 2019 summary for policymakers of the [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services \(IPBES\) global assessment report](#).
- United Nations Environment Programme (UNEP) 2021 report on [Human Rights and Biodiversity](#) highlights that biodiversity loss may disproportionately harm the human rights of indigenous peoples, local communities, women and girls, children and youth, the poor, and those in vulnerable situations.
- [Biodiversity net gain \(BNG\)](#) is a way to contribute to the recovery of nature while developing land. It is making sure the habitat for wildlife is in a better state than it was before development.
- For example, BS EN 17037 standard 'Daylight in Buildings' was released in 2019 and we subsequently worked with the Chartered Institution of Building Services Engineers (CIBSE) to provide [detailed guidance](#) for daylighting practitioners on applying the included daylight assessment methods – enabling designers to accurately model daylight in internal spaces.
- [Energy Savings Trust sustainable travel hierarchy](#) demonstrates ways to eliminate and reduce the environmental impact of our journeys. The higher up the hierarchy, the more sustainable the travel option.

