

Building back better with BREEAM

Supporting the green recovery



Introduction



The COVID-19 pandemic has caused an unprecedented public health crisis and the most significant shock wave since the Great Depression, exposing weaknesses in our economy and society. It has also demonstrated what society can achieve by working for a common goal against a common threat.

Many regard this moment as a unique opportunity to reset and rethink the way our economy and society work. Demand for a return to a better normal is increasing with spotlights being shone on other global issues; the impending threat of climate change being most prevalent.

Without action the global climate change crisis will cause social and economic damages far greater than those caused by COVID-19.

Cities consume over 75% of the world's natural resources¹ and account for more than 70% of global greenhouse gas emissions².

Together, buildings and construction are responsible for 39% of all carbon emissions in the world³. Much like COVID-19, climate change is a global challenge which affects us all. It's agreed, we must build back better.

Governments and industry leaders are busy introducing policies, stimuli and investments needed to expedite recovery. If done correctly, these can be used to support the design, construction and operation of assets to deliver a cleaner, healthier, more equitable built environment and a more resilient future for our communities.

We are at a pivotal moment in history where our actions will determine the welfare of our society for many decades and centuries to come. As we rethink, restructure and reprioritise how our society works, we have a golden opportunity.



BREEAM is ideally placed to help the built environment deliver this in a meaningful way and help the sector seize this opportunity.

This means building back towards net zero carbon. Building back for public health and wellbeing. Building back for an equitable built environment. Building back better, right now, to give nature the attention and care that it deserves and needs. And above all, building back for resilience.

BREEAM has the solutions to support a better future by driving improvement in sustainable design of masterplanning projects, infrastructure and buildings measuring performance; and providing insight and assurance. We have the tools you need to **build back better**.

BREEAM provides solutions

BREEAM was the world's first sustainability rating and BREEAM standards are tailored to address the unique aspects of each life cycle stage in the built environment. Through their use, BREEAM standards support investors, developers, other clients and stakeholders to deliver and validate the sustainability value of their assets and, in doing so, create higher values and lower risks for business, people and our communities.

BREEAM's performance measures align to multiple sustainability frameworks, with the UN's Sustainable Development Goals being the foundational framework on the global stage. BREEAM supports real estate investors and occupiers to measure



and report their Environmental Social Governance (ESG) performance and other non-financial metrics such as climate resilience, following the guidance of frameworks like the Taskforce on Climate-related Financial Disclosure framework. Additionally, BREEAM supports those in the public sector seeking to create value through sustainable frameworks relevant to the local context (e.g. The Five Capitals framework: natural, human, social, manufactured and financial in the UK).

These spaces are in a continuous state of evolution driven by advancements in science and thinking, and the rapid diffusion of technology. Industry actors are adopting different methods to achieve their objectives with huge amounts of data now sourced via smart phones, wearables, smart buildings and Building Information Modelling (BIM). However, data has limited use unless translated into performance benchmarking and insight, which in turn is used to inform better decision making and the effective deployment of solutions.

This is at the heart of BREEAM with digital performance assurance increasingly seen as a risk mitigation practice as much as a means to user outcomes.



Registered projects
2,310,950+



Certificates
592,199+



Countries
87

1. <https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/cities/resource-efficiency-green-economy#:~:text=Why%20does%20resource%20efficiency%20matter%3F&text=Cities%20occupy%20only%202%20per,80%20percent%20projected%20for%202050.>

2. https://www.c40.org/why_cities

3. https://www.worldgbc.org/sites/default/files/UNEP%20188_GABC_en%20%28web%29.pdf

BREEAM works by bringing multiple disciplines together to focus on one common, holistic framework. It sets performance levels to support a consistent method but also offers tradeable measures to provide flexibility. It challenges project teams to review options through the multi-faceted lens of what can be competing objectives: for example, fabric efficiency balanced with over-heating and air quality, mechanical ventilation

balanced with operational energy use and/or the optimisation of land with the need for nature recovery.

With a continuous release of new digital features, toolkits and platform improvements, certified projects are able to continue to improve their operational performance.

How does this directly translate into a cleaner, healthier, more equitable built environment?

NetZero Carbon

BREEAM standards strongly incentivise carbon emission reduction, with flexible benchmarks relating to operational and embodied performance.

Circular Economy

Circular economy principles relating to sustainable physical resource use are rewarded through a range of credits across the family of schemes

Health

A number of health related measures including air quality, visual and thermal comfort, active and healthy lifestyles, ecological enhancements and proximity to the outdoors are addressed in the BREEAM standards



Social Impact

BREEAM aims to shape standards to proactively encourage positive social impacts that provide universal and equal access, dignity and fair treatment to people

Resilience

Mitigation to climate change and natural resource depletion, as well as providing resilience towards physical risks stemming from natural hazards or climate change, are covered in the BREEAM standards

Natural Environment

BREEAM provides a meaningful and evolving pathway towards ecological protection, mitigation and recovery

Quality and Whole Life Performance

BREEAM rewards planned handover and commissioning processes as well as sustainable management practices throughout the life cycle of the asset

Case Study



Project Mint, London, UK

1 Triton Square is a 34,000 sqm re-development at Regent's Place in London. The original building was completed in the 1990s and the scope of this re-development was to double the floor area and create an exemplary sustainable and healthy workplace.

Working with an existing building on site, the team set ambitious goals for circular economy and carbon reduction with the aim of achieving the most sustainable outcome.

Triton Square has set industry-leading targets regarding circular economy and reduction of embodied carbon in materials. By refurbishing rather than demolishing the existing building, approximately 6,000 vehicle movements were prevented in the local area. 35,000 tonnes of concrete and nearly 2,000 tonnes of steel have been reused from the existing structure, as well as the cladding system and both granite and limestone blocks from the existing building and landscaping. Together, these measures have contributed to embodied carbon savings of 57,000 tonnes – equivalent to powering 14,000 homes or driving 150 million miles.

www.breeam.com/case-studies/project-mint-triton-square-london



Net Zero Carbon



The race to Net Zero Carbon is on! The 2016 Paris Agreement states that mankind should aim for a limit on global warming of 1.5°C to avoid the worst threats from climate change. A rise beyond 1.5°C will significantly increase the rate of climate change and make it even harder to adapt in time. The scientific consensus reached by the IPCC is that this may be reached within 11 years if the current rate of increase continues. To avoid exceeding 1.5°C the IPCC calls for “rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems”. With buildings generating nearly 40% of annual global greenhouse gas emissions, meaningful action by the real estate and construction industries is critical to ensure this target is met.

Amidst the COVID-19 panic during Quarter 1 2020, the financial sector saw sustainable funds experience a net inflow of £37 billion (USD \$45.6 billion)⁵ globally and real estate firms continued signing up to the World Green Building Council’s Net Zero Carbon Buildings commitment, with Goldman Sachs and Hudson Pacific Properties being some of the more recent.

There is still variation in the specific definitions and recognition of Net Zero Carbon however. For example, the extent to which offsetting is considered viable and requirements for including embodied carbon vary considerably. Some look for an immediate reduction to net zero carbon whilst others facilitate a longer-term, tailored pathway to it. Either way, if we are to limit global warming to 1.5°C, then radical reductions in emissions are needed across the entire built environment and all options to deliver it need to be considered.

All BREEAM’s standards strongly incentivise carbon emission reduction, with flexible benchmarks relating to operational and embodied performance.

In addition, BREEAM’s assessment methodologies always evolve and adapt to reflect the latest science and industry thinking and are tailored for building/asset type and life cycle stage to better support challenging but achievable emission reductions.

Furthermore, as part of BREEAM’s commitment to always tackling all important environmental issues holistically and collaboratively, BREEAM is optimising net zero carbon performance reporting to directly map against other initiatives. For example, BREEAM digital platforms could map performance and ratings directly against pathways and carbon reduction trajectories to better manage assets, and portfolios more widely, and design effective intervention strategies.

In doing so, industry players will have, through BREEAM, clear pathways to achieve Net Zero carbon; pathways which have relevance within the BREEAM scheme portfolio as well as externally within localised markets.



Circular Economy



The circular economy refers to an economic state where resources are kept in a continuous circle of use so that:

- Virgin resources are no longer extracted (e.g. from mining);
- Existing products, once used, are reused or recycled to make new products without loss of value;
- No resources are disposed of and no value is lost (e.g. in the landfill of incineration).

The global COVID-19 pandemic is being regarded as a unique opportunity to rethink how our economy and society work. The current ‘take–make–waste’ linear economies seen around the world consume large quantities of virgin resources to make products, only to permanently dispose of them at the end of their use. According to National Geographic Magazine⁶ “two-thirds of the material flowing through the economy, 67.4 billion tons in 2015, gets emitted as pollution – the carbon from fossil fuels, for example – or otherwise scattered or disposed of as waste.

This represents a colossal loss of value in terms of the resources that the products contain and the extraction, energy and processes invested in them.

Governments are beginning to realize this and, in response, are promoting a transition towards a more circular economy. Companies and organisations around the world are identifying the linear economy as a risk and are changing their business models to reduce exposure.

BREEAM is a powerful enabler for a circular economy in the construction and real estate sectors. Circular economy principles relating to sustainable physical resource use are rewarded through a range of credits across the family of schemes offered by BREEAM.

This includes:

- **Life Cycle Assessment** – recognising and encouraging measures to optimise construction product consumption efficiency and the selection of products with a low environmental impact;
- **Life Cycle Cost and Service Life Planning** – promoting the business case for sustainable buildings and to deliver whole life value by encouraging the use of life cycle costing to improve design, specification, through-life maintenance and operation;
- **Responsible Resource Procurement** – facilitating the selection of products that involve lower levels of negative environmental, economic and social impact;
- **Designing for Durability and Resilience** – reducing the need to repair and replace materials resulting from damage to exposed elements of the building and landscape;
- **Material Efficiency Performance** – avoiding unnecessary material use arising from over specification;
- **Construction and Operational Waste Performance** – by encouraging reuse, recovery and best practice waste management;

4. <https://www.ipcc.ch/sr15/resources/headline-statements/>

5. <https://www.morningstar.co.uk/uk/news/202274/investors-back-esg-in-the-crisis.aspx>

6. <https://www.nationalgeographic.com/magazine/2020/03/how-a-circular-economy-could-save-the-world-feature/>

- **Designing for Disassembly and Adaptability** – avoiding unnecessary materials use, cost and disruption arising from the need for future adaptation works as a result of changing functional demands and to maximise the ability to reclaim and reuse materials at final demolition;
- **Maintaining a Resource Inventory** – to enable asset owners to recognise, maintain and benefit from the value of resources in the asset whilst increasing the reuse and recycling of resources and reducing the use of virgin materials.

As standards are updated, BREEAM will continue to review and include circular economy principles inspiring the built environment to build back better by rethinking current paradigms.



Health



BREEAM has previously and continues to collaborate and align with international standards focused on Health and Wellbeing. Find the latest crosswalks at www.breeam.com/resources

In a post COVID-19 world and in the current absence of a vaccine, where we work and play must be future proofed against a possible resurgence. This will likely mean adapting to better accommodate social distancing requirements, cleaning for health instead of for appearances, providing confidence in air quality (internal and external) and increasing levels of physical and mental wellbeing support.

Furthermore, 90% of an organisation's typical operating outgoing can be attributed to staff related costs. Improvements in occupant wellbeing have been found to increase productivity, reduce absence in the workplace and differentiate employers of choice in the competition for talent acquisition. In addition, those living in western societies are estimated to spend 90% of their lifetime indoors with wider ranging implications for public health; both physical and mental, and public support services.

Therefore, an asset's health related performance is more relevant, more crucial even, than ever before.

Since the first BREEAM standard was launched to address the design and construction of offices in 1990, improving indoor environmental quality and occupant health has been a main objective. Over the years the breadth of performance measures covered has also grown including those directly related to:

- **Air quality** – best practice ventilation rates, regular maintenance of ventilation system components, regular cleaning of building interiors, etc;
- **Visual and thermal comfort** – supporting project teams in creating optimum working and living environments;
- **Active and healthy lifestyles** – walkability and sustainable transport options;
- **Ecological enhancements and proximity to the outdoors** – installation and management of external amenities, recreational and public spaces to promote better physical and mental health, and to create greater ecological value and connections to nature;
- **Asset and site management** – appropriate commissioning, handover and operational management ensuring healthy internal and external environments.



Social Impact



Recent global events have drawn a spotlight on the deep-rooted inequalities that still exist in all communities and societies around the world.

The expectation that the built environment should create tangible benefits to society has become widespread. Investors, owners, governments and other stakeholders increasingly recognise the need to better understand the social impacts from the built environment. However, there is currently no consistent framework that provides agreed definitions for or methodologies to measure built environment related social impacts.

BREEAM recognises that lower-income and marginalised communities are disproportionately impacted by negative social impacts when the built environment is unsustainable, inefficient, sometimes unsafe, often unhealthy and not resilient.

BREEAM acknowledges the significant role it plays in shaping decisions in the built environment around the world and aims to shape standards to proactively encourage positive social impacts that provide universal and equal access, dignity and fair treatment to people in addition to addressing and mitigating environmental impacts.

BREEAM will seek to deliver this through standards by:

- **Encouraging social impacts and equity** to be a key consideration at each life cycle stage of the built environment;
- **Driving the delivery of positive social impacts** and value as an output from the development and operation of built environment assets;
- **Contributing to and encouraging industry innovation** in the assessment and measurement of built environment related social impacts;
- **Rewarding built environment assets** that generate positive social impact and value;
- **Incentivising the development and operation** of socially equitable places.

BREEAM's vision for a socially equitable built environment goes beyond fit-for-purpose to one that is socially sensitive and consciously contributing to the long-term economic growth, health and wellbeing, resilience and cohesion of people and communities.

[Read BREEAM's Position paper on Social Impact and Equity.](#)



Resilience



The past few years have seen an increasing demand for information related to climate change and resilience by investors and other stakeholders in the built environment. The demand comes with a need for the information about risks and opportunities to be robust, comparable and consistent. Resilience is a key aspect of a holistic approach to risk management at an asset or portfolio level.

With the global COVID-19 pandemic the real estate sector is facing challenges with organisations reconsidering commercial and office space, seeking assurance around health and safety of their employees and consumer behaviour shifting towards online shopping, amongst others. Functional adaptability has become particularly important in this changing landscape. As the retail industry suffers, the necessity to adapt buildings to changing functional needs becomes more apparent than ever. Being able to adjust assets to new needs or to completely change their use with minimal cost, time and disruption is becoming a key ingredient when future-proofing an asset's value. BREEAM standards encourage establishing a functional adaption strategy to accommodate future changes of use of the building over its lifespan.

Resilience is not just about the capacity of a system or building to survive and adapt, but it is also about growing value, regardless of the challenges experienced. Resilience can also be seen as a risk management mechanism, where the physical risks are identified and mitigated, adaptation measures are implemented, and this process consequently decreases compliance risks and potentially insurance costs. This ultimately is of interest to investors and future occupants who can benefit from the resilience features of the asset.

Resilience has been part of the BREEAM standards since the beginning, though with a heavy focus on mitigation – mitigation to climate change and to the depletion of natural resources was one of the first elements linking to resilience. In more recent times, a significant number of adaptation aspects were integrated into the BREEAM standards to provide the balance needed as our climate changes. Flood management, the use of durable and resilient components, as well as adaptation to natural hazards and to climate change including thermal comfort aspects, all aim to provide resilience towards physical risks stemming from natural hazards or climate change.

BREEAM also encourages a focus on risks connected to the transition to a low carbon economy, by encouraging the assessment and mitigation of the relevant technological, policy and legal risks. At the same time, there are transition opportunities linked to energy efficiency and the use of low-carbon or renewable sources, with the resulting cost savings, and the development of new products or access to new markets that should be evaluated and maximised.

Considering not only how we can mitigate and adapt to risks, but also how we can build back better, the most recent BREEAM standards take this a step further and encourage stakeholders to explore social risks and opportunities, including public health and relevant social and environmental determinants.



Natural Environment



Our time in lockdown has given us a powerful reminder of the profound value that natural spaces provide as places to connect, revitalise and inspire. It is hard to overstate the value that nature gives us. We depend on it to survive and thrive, it provides us with our food, water, medicine, materials, the air we breathe, and supports our mental health and wellbeing.

Despite our reliance on nature, human activity has led to the alarming and growing rate of habitat and species decline with one million species currently threatened with extinction⁷. This brings an increasing risk of ecosystem collapse, in a time that many scientists refer to as a global mass extinction event, which threatens the very systems we depend on.

Businesses and the financial sector are increasingly recognising the intrinsic relationship between nature and people as more consumers and investors demand organisations and assets reduce their impacts on biodiversity as part of their operations. This comes at a crucial time as the economic impact of damage to ecosystems becomes more established, with forecasts suggesting this could cost the global economy as much as \$10 trillion by 2050 in 'business as usual' scenarios⁸. As ESG reporting gains more relevance in these turbulent times as a symbol of resilience, it is critical that biodiversity is a key part of this.

The built environment plays a crucial role in protecting and recovering nature, from the way it procures products and services, to the habitats and ecological networks that are lost, damaged or disrupted as part of the development and operation of buildings. It is critical that the built environment does much more for the natural environment to reverse this trend.

Indeed, where development needs to happen, it should be regenerative, restoring, renewing and revitalizing the natural environment. BREEAM provides a meaningful and evolving pathway towards ecological protection, mitigation and recovery as part of development and management by complementing industry good practice, approaches to biodiversity recovery and providing the added value of independent assurance.

Approaching ecological protection and recovery holistically can also bring multiple benefits to people and nature whilst tackling the climate crisis. BREEAM's approach recognises the value of nature-based solutions that do this by supporting flora and fauna, while providing functions that contribute to health and help people and their communities thrive.

7. https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_en.pdf

8. https://www.wwf.org.uk/sites/default/files/2020-02/GlobalFutures_SummaryReport.pdf



Quality and Whole Life Performance



The real estate and built environment sector are facing challenges with productivity, quality, performance and transparency which were widely recognised and documented before the pandemic.

Construction is a multi-trillion-dollar market (estimated by McKinsey⁹ at \$10 trillion annually, or 13% of global GDP). Despite this, and the expected global investment in infrastructure to support economic growth post-COVID pandemic, the sector is likely to remain woefully unproductive in comparison to others. For example, according to the same research, while overall labour productivity in Germany and Britain rose from 1995 by almost 30%, construction labour productivity in those countries rose by only 7% in that period.

Furthermore, construction outputs, buildings and infrastructure, come with defects and gaps in predicted and actual performance. The latter is particularly significant in respect to energy use with observed discrepancies of 34%¹⁰ between modelled and actual performance; sometimes higher. This can arise from differences in occupancy patterns and burdens on the equipment installed. However, there are other factors known to make a significant contribution to the gap which include:

- Issues with the installation of building systems and control strategies;
- Inadequate commissioning and hand over;
- Inadequate management and maintenance practices;
- Differences in the actual performance of building specifications and components;
- Lack of asset management skills and/or occupants needs and use of controls etc. being different to those initially intended.

A step change in production, one which uses the advancements in smart manufacturing and revolutionised processes in quality management, is needed to promote a zero defect, performance driven culture.

BREEAM encourages the adoption of sustainable management practices in connection with design, construction, commissioning, and aftercare reviewing planned handover and commissioning processes that reflect the needs of the building occupants and through the provision of aftercare to the building owner and occupants during the first year of occupation.

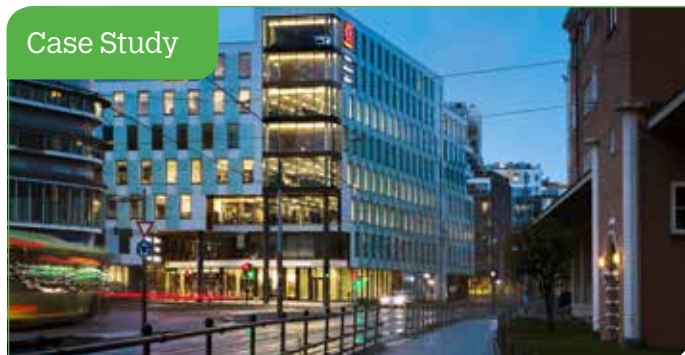
Moving onto the real estate and asset management, ESG typically represents the three central pillars drawn upon when measuring the sustainability and/or ethical impact of decision making. Historically, organisations have focused their ESG efforts around energy and associated emissions, water and waste. As cities and other global players continue to adopt more stringent ESG targets, asset owners and operators are seeing the need to integrate broader, holistic performance

measures into their business strategies. This is being brought to life by investors looking to ensure that they are investing in companies that are able to demonstrate responsible practices. For example, in a 2017 CFA Institute survey¹¹, 65% of investors said that their motive for taking ESG issues into consideration was to help manage investment risks whilst 45% saw it as a proxy for good management. However, the lack of quantifiable, verified data is currently a barrier limiting the use of non-financial data in robust decision making.

The suite of BREEAM In-Use products encourages sustainable management practices throughout the life cycle of the asset, ensuring that both technical and non-technical building operators and users have appropriate guidance on how they can help maximise sustainable performance. This is achieved through the provision of appropriate guidance for non-technical building users, by facilitating structured feedback and awareness that enables management staff and building occupants to understand how to better operate the building, encouraging best practice building maintenance and best environmental management provisions.

As we move forward into the post pandemic world, BREEAM's services will evolve to capitalise on automation, Building Information Modelling (BIM) and digital twinning, as well as bringing forth the development of more robust protocols for data capture and quality management. We have adopted a whole life performance driven approach; an approach that tackles the environmental and societal impacts across the whole life-cycle of a building from the materials, practices and wider specifications used in construction, to in-use, maintenance, retrofit and, finally, the end-of-life. In doing so, BREEAM will continue to create value for its stakeholders, value for the sector and value for society at large.

Case Study



Schweigaards gate 16, Oslo, Norway

Schweigaards gate 16 was constructed in 2015 in Oslo, Norway. The building is a 15,500 square meter office building with a small restaurant and a real estate agency on the main floor. The building project had high environmental ambitions and was certified against BREEAM-NOR 2012 New Construction scheme, achieving an "Excellent" rating. As there previously had been a gas station on site the site was significantly contaminated and the remediation of the site was a significant environmental challenge.

The goal for the BREEAM In-Use certification was to achieve an "Outstanding" rating for Building management. The building achieved a high score percentage in all the categories, with a full score in the categories Pollution and Land use & Ecology. The high score reflects that Entra has maintained the good foundation established when the building was constructed and continue to work with procedures and policies to maintain and reduce the environmental impact. Energy consumption has been of key importance the last couple of years.

www.breeam.com/case-studies/schweigaards-gate-16-norway

9. <https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/beating-the-low-productivity-trap-how-to-transform-construction-operations>

10. <https://www.frontiersin.org/articles/10.3389/fmech.2015.00017/full#:~:text=The%20significance%20of%20the%20regulatory%20underlying%20causes%20have%20been%20analyzed%3A&text=From%2062%20case%20study%20buildings,prediction%20of%20equipment%20energy%20use.>

11. <https://www.cfainstitute.org/-/media/documents/survey/esg-survey-report-2017.ashx>

Next steps

The BRE's Environmental Assessment Method (BREEAM), the Home Quality Mark (HQM) and Civil Engineering Environmental Quality Assessment and Award (CEEQUAL) are a family of certification schemes delivered by BRE across the entire built environment sector.

BREEAM[®]
delivered by **bre**

**HOME
QUALITY
MARK**
delivered by **bre**

CEEQUAL[®]
delivered by **bre**

For more information go to:



Visit our online Building Back Better Hub for more information:
www.breeam.com/building-back-better



Engage with us:
@BRE_BREEAM
@BREEAM-official



Find a licenced BREEAM assessor:
www.greenbooklive.com



Register a project with us:
New construction, refurbishments and fit-outs
<https://tools.breeam.com/projects>
In use
<https://breeaminuse.breeam.com>



Train with us:
www.bre.ac



For the details of our regional offices in Asia, Europe and the USA, please visit:
www.bregroup.com/contact

BRE Global Limited

Headquarters
Bucknalls Lane
Watford, WD25 9XX
United Kingdom
+44 (0)333 321 8811
www.breeam.com

With thanks to the BREEAM team and lead authors:

- **Charlene Clear**
Head of Products and Services
- **Rich Cobb**
Senior Housing Professional
- **Dan Doran**
Principal Consultant

- **Ana Mendonca**
National Scheme Operators & Partnerships Lead
- **Eleni Soulti**
Principal Delivery Consultant
- **Chris Ward**
Principal Consultant
- **Breana Wheeler**
Director of Operations, BREEAM USA