

# How to choose a low carbon office building checklist

Many businesses are taking steps to reduce their carbon footprint by choosing a low carbon office building. When searching for a new property, use this checklist to identify key considerations such as location, building design, materials, energy sources and transportation. By selecting a low carbon office building, your business can demonstrate its commitment to environmental responsibility and contribute to a more sustainable future.

## Reasons to choose: *a low carbon office building*

**Net zero goals:** A low carbon building reduces the carbon emissions associated with a building's energy consumption and embodied carbon from the materials used, helping you meet your net zero goals.

**Lower your operational carbon emissions:** Buildings with lower energy use will have lower energy bills and lower carbon emissions.

**Recruitment and retention:** Today's professionals want to work for organisations that share their values. Show that you care about the environment through your workplace and it'll go a long way to attracting and keeping the talent you're after.

**Better building performance:** Low carbon buildings are often designed and constructed to high performance standards, resulting in a building that is more durable and comfortable.

**Better reputation / investors:** Choosing a low carbon building can enhance your company's reputation as an environmentally responsible business and help with your ESG (environmental, social and governance) strategy.

**Increased market value:** Low carbon buildings have higher resale values, as demand for energy-efficient buildings continues to grow. Indeed, buildings with top environmental ratings (BREEAM Outstanding and Excellent) spent over two months less on the market in 2022 than their lower rated peers on average.

**Wellbeing:** Buildings that are constructed and fit out with natural materials emit fewer VOCs (volatile organic compounds), which are potentially harmful gases typically found in plastics, glues and finishes. Many VOCs are human made chemicals that are used and produced in the manufacture of paints, adhesives, flooring, composite wood and other construction products.

# How to choose a low carbon office building checklist

## What to look for: *certifications and credentials*

**Energy Performance Certificates:** New government regulations mean that from April 2023, it will not be possible for landlords to lease any building or space with an energy performance certificate rated E or below. This minimum requirement rises to C in 2027, so make sure you choose a building with an acceptable rating.

The building currently has an EPC between A and D (or C depending on length of your lease).

The building's EPC rating can be upgraded during the fit out but it's worth checking the EPC itself to see if improvements that could be made are within the scope of your lease.

**BREEAM:** The BRE's Environmental Assessment Method (BREEAM) is internationally accepted as a benchmark for sustainable buildings and infrastructure.

**NABERS UK:** A star-based rating system for third-party verification of the energy efficiency of office buildings in the UK.

**LEED:** Leadership in Energy and Environmental Design is another sought after standard. Issued by the US Green Building Council, the point system looks at different sustainable features of a building.

**SKA:** SKA evaluates the interior fit out rather than the building's structure. It's based on some 100 good practice measures across eight areas of sustainability – from energy to office furniture.

## What to look for: *a building with low operational carbon*

**Operational carbon** is the carbon emitted during the operation or use of a building via the energy that is consumed by the building. This includes the use, management and maintenance of a product or structure.

### **Energy Use Intensity**

Energy Use Intensity (EUI) is a metric that measures the amount of energy consumed by a building per unit of floor area. It is expressed in units of energy per square foot (or square metre) per year. EUI is a useful tool for comparing the energy efficiency of different buildings and for tracking changes in energy use over time.

Can you or the landlord measure the EUI of the building?

# How to choose a low carbon office building checklist

## Renewable energy

Can the building be supplied with renewable energy?

Are there solar panels?

Are there heat pumps?

Is the building connected to a district heating system?

Are fossil fuels used within the building e.g., gas boilers? For some 'net zero building' certificates in existence and under development, this may be a requirement.

## Lighting

Check for **energy efficient products** e.g., LED or CFL (compact fluorescent) bulbs. Also, look for products with high energy efficiency ratings, such as ENERGY STAR certified products.

Check for **lighting controls**: Look for occupancy sensors, timers and daylight sensors to automatically turn lights on and off, and dimmer switches to adjust lighting levels.

Choose a space which **maximizes natural light**. This will reduce the need for artificial light and therefore reduce energy use.

Check what blinds have been installed and review whether these reduce glare and excessive solar gain. Find out whether these are manual or automatically controlled.

Check whether the building has external solar shading, which will also reduce excessive solar heat gain.

## Heating, ventilation and air conditioning (HVAC)

Look for **naturally ventilated buildings** which will use less energy than mechanically ventilated ones. Review how this works operationally and in relation to sources of external pollution.

Check when systems were last **rebalanced and recommissioned** to better understand whether systems might be operating efficiently.

**Inspect the HVAC equipment** to ensure it is in good working order and free of leaks.

**Review the controls**: Check that the HVAC system is equipped with programmable thermostats, zone controls and other energy management systems.

**Evaluate insulation and airtightness**: Ask the landlord to confirm whether an airtightness or thermographic survey has recently been completed and if so, ask to see the results.

# How to choose a low carbon office building checklist

## Check the water efficiency which can include:

Low-flow toilets, faucets and showerheads.

A tenant's water meter system to track usage.

Drought-tolerant landscaping.

Rainwater harvesting systems to reduce demand on potable water.

A greywater system to reuse water from sinks and showers.

Water efficient cooling systems.

Sensors that automatically turn off faucets after a certain amount of time to reduce waste.

Leak detection systems for water.

## What to look for: reducing scope 3 emissions

Scope 3 emissions includes all indirect emissions that occur in a company's value chain, like transport and waste.

Look for a building/space that is **Shell and Core**. That will save you from having to reconfigure or strip out a CAT A fit out, saving a large amount of carbon emissions.

Is the building **near public transport** reducing the need for employees to drive, which can reduce emissions and lower the demand for parking spaces?

Is there access to a **bike network or good walking routes**, promoting physical activity and reducing emissions? Look out for a local bicycle network and landlord facilities which support active travel such as cycle racks, showers and lockers.

Look for how **accessible** the building is both generally, and from public transport points for people with disabilities or mobility challenges, making the building more inclusive.

Is there access to **electric vehicle charging** stations, promoting the use of electric vehicles?

Is the building walking distance to **local amenities** such as shops and eateries, reducing the need for people to use cars during lunchtime hours?

Does the building have **onsite recycling**, to reduce emissions associated with removing waste from the site?

Is there **composting** on site, to reduce transport associated with food waste?

Is there **food production** locally or on site such as a vertical farm or rooftop garden?

# How to choose a low carbon office building checklist

## What to look for: *planned landlord improvements*

Upgrades to HVAC systems for increased energy efficiency.

Updating electrical and lighting systems to LEDs for energy efficiency or installation of timers or presence/daylight detectors.

Adding bike storage, lockers and/or showers for commuters who bike or jog to work.

Upgrading the facade to improve building air tightness and thermal efficiency.

Adding green spaces such as rooftop gardens or indoor plants.

## The fit out: *an opportunity to lower carbon emissions*

After you've chosen your building, there's a lot you can do to reduce your carbon emissions, both in the materials you choose, as well as the operation of the building. There's a lot to consider, and if you want more detail, see our [Low Carbon Fit Out Insight Paper](#).

According to LETI, (a network of over 1,000 built environment professionals, working together to put the UK on the path to a zero carbon future) you should consider the following concepts when building for low carbon:

**Build less** – e.g., spatial efficiency, reuse existing materials and structure.

**Build light** – reduce structure, reduce quantities, consider whole life e.g., replacement and maintenance.

**Build wise** – know where your big ticket carbon items and repeating smaller ticket items are. Explore standard modules. Test design for manufacture and assembly options (DFMA).

**Build low carbon** – spec low carbon, renewable, bio based, reused, recycled.

**Build for the future** – durability, adaptability, flexibility. Design for disassembly and circular economy.

**Build collaboratively** – measure, verify, disclose, share lessons learned.

## The fit out: *design and build for low operational carbon*

**Energy modelling:** right at the design stage, use an energy model, such as TM54, to understand the anticipated operational energy needs of your new workspace. Then work with your project team to find ways to reduce this.

**Conduct an HVAC audit:** Request an energy audit to assess the current systems to better understand the remaining service life of any on-floor HVAC equipment .

# How to choose a low carbon office building checklist

Plan to install an Energy Management System (EMS) to set limits on heating controls and turn off equipment that's not in use. On a smaller scale, you could set individual timers to switch off appliances.

Consider savings from OpEx budgets when budgeting for capital expenditure during your fit out.

Consider energy metering according to criteria set out in BREEAM or NABERS.

Consider operational carbon reductions that come with BREEAM, LEED, NABERS or Ska certification.

Take advantage of funding opportunities from organisations such as the Carbon Trust or the Energy Saving Trust, which provide support for energy efficiency projects in the UK.

Claim capital allowances when you buy energy efficient, or low or zero carbon technology for your business. This reduces the amount of tax you pay.

## The fit out: *plan for low embodied carbon*

**Do your calculations:** Consider an embodied carbon assessment to measure the impact of specific design decisions. Identify where you could swap out materials with lower-carbon alternatives or rethink the design to remove high-carbon elements altogether.

**Eliminate storage:** A company-wide nudge to electronic filing keeps physical storage units off the floor. That's one less thing to build.

**Design for adaptability:** Design with layering in mind – a concept that lets you peel off and replace certain layers of your fit out without damaging neighbouring components. It means you can refurb or reconfigure your space with less of an impact. Also look for modular systems which can be demounted and reused elsewhere as your office needs change over time.

**Look at product warranties** – it may be worth investing in a more durable product which may cost more up front but will last longer as a result.

**Design for deconstruction:** Consider the carbon impact of your workplace's end of life – how items will be disposed or reused. Some components may be dismantled and removed, while others may be able to stay put. Ask your design team to present the end-of-life options for what they are specifying so that you can avoid using materials which cannot be reused, refurbished or recycled.

**Product leasing:** Some items may be available for you to lease, rather than buy. This carbon-friendly concept incentivises manufacturers to create products that are easy to maintain and have residual value that can be extracted at end-of-life.

# How to choose a low carbon office building checklist

**Sustainable timber:** Using timber can be a lower carbon option but it must be sustainably sourced. Try to use reclaimed or locally grown timber. At the very least, make sure your timber is certified by the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC). Always take advice from your design team about the suitability of a product as timber isn't always the most appropriate choice when balancing carbon across the entire life cycle of a product.

**Choosing suppliers:** Use a local supply chain to reduce transport.

**Check the EPDs** (environmental product declarations) and ask your design team to present embodied carbon impacts of products alongside cost information.

Ensure any **value engineering** covers more than cost and ensure your team is challenged to review carbon-savings which could also be offered.

**Waste management:** Carry out a pre-refurbishment audit to understand what materials already exist that could be reused.

## The fit out: *consider the circular economy*

The circular economy is an alternative to the standard, linear economy of make, use and dispose. Instead, it aims to keep resources in use for as long as possible, and then recover or recycle the materials at end of life. If you want more detail, have a look at our [Circular Economy Insight Paper](#).

**Reuse and refurbish:** Instead of purchasing new furniture and equipment, consider refurbishing or reusing existing items where possible.

**Choose materials carefully:** Look for products made from recycled materials and those that can be recycled or repurposed at the end of their useful life.

**Consider the whole life cycle:** Think about the full life cycle of the products in your fit out, including production, use and disposal. Choose materials and products that have a low environmental impact throughout their life cycle.

**Promote closed-loop systems:** Encourage closed-loop systems where waste is reduced and materials and products are reused, refurbished or recycled.

## About Overbury: *environmental credentials*

**As part of the Morgan Sindall Group, we have set ambitious – but achievable – targets for our own business to help tackle climate change.**

### **Net zero by 2030**

We have set ourselves an ambitious target of net zero by 2030 and we are on track to meet it. Any residual carbon will be offset in the UK, in independently audited projects that we will help manage.

# How to choose a low carbon office building checklist

## Carbon reduction so far

As part of the Morgan Sindall Group, we have already achieved a 73% reduction in carbon emissions (Scope 1, 2 and operational Scope 3) since 2010, and our carbon intensity – the amount of carbon emitted per £m revenue - has been cut by 82% over the same period. In addition, we are currently working on ways of measuring our full Scope 3 emissions.

## Backed by science

We were one of the first companies in the world to gain accreditation by the SBTi, the Science Based Targets initiative and for over a decade our emissions figures have been independently audited by Achilles, under the Carbon Reduce scheme.

## Independently recognised

We have been independently recognised for our leadership by the CDP – the international not-for-profit that drives environmental disclosure to manage environmental impacts – getting an A score for both our leadership on climate change, and the engagement of our supply chain. Also, as part of the Morgan Sindall Group, we have a AAA ESG rating from MSCI, the leading provider of decision-support tools and services for the global investment community.

## Tools to measure carbon

Changing how we design and build demands new tools to help visualise, track and measure carbon at all stages of a project. As a group, we have developed our own in-house carbon calculator, **CarboniCa**. It enables project and site managers, as well as planners, clients and partners, to monitor the whole-life emissions of a building.

## Restoring land for wildlife, the climate and local community

Alongside Grown in Britain and the Blenheim Estate we are planting 250,000 trees. The nine new forests will be a diverse and self-sustaining ecosystem of 28 native species, absorbing 22,000 tonnes of CO<sub>2</sub> from the atmosphere over 25 years. In addition, through our partnership with the RSPB, we have supported the purchase of 54 hectares of land to enable them to restore wetlands at the Lakenheath Fen reserve in Norfolk.



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