University of Bath Sustainable Building Standard

1. Vision for a Sustainable Campus

University of Bath recognises the importance of a sustainable campus (and estate) in support of its academic mission. It is important that the campus develops and evolves in order to enable the Institution to successfully deliver its core activities in line with the expectations of our staff, our students, our research partners, and the local community. But in doing so, we must ensure that the decisions which we take on the development of the campus are consistent with the need to balance the environmental, social, and economic limitations we face as an institution and society.

Integration of environmental health, climate action, social equity, and inclusion to create thriving, healthy, diverse, and resilient places will be necessary for this generation and generations to come. This is consistent with the direction of planning policy in the local authority which is increasingly seeking higher building sustainability performance. Moreover, the recent launch of the Concordat for the environmental sustainability of research and innovation reinforces this necessity.

The University of Bath Sustainable Building Standard sets out our ambition to encourage greater focus on sustainable placemaking and buildings across these pillars:

- Environmental Health and Climate Action
- Social Equity and Inclusion
- Economic Sustainability

2. Sustainable Building Standard Policies

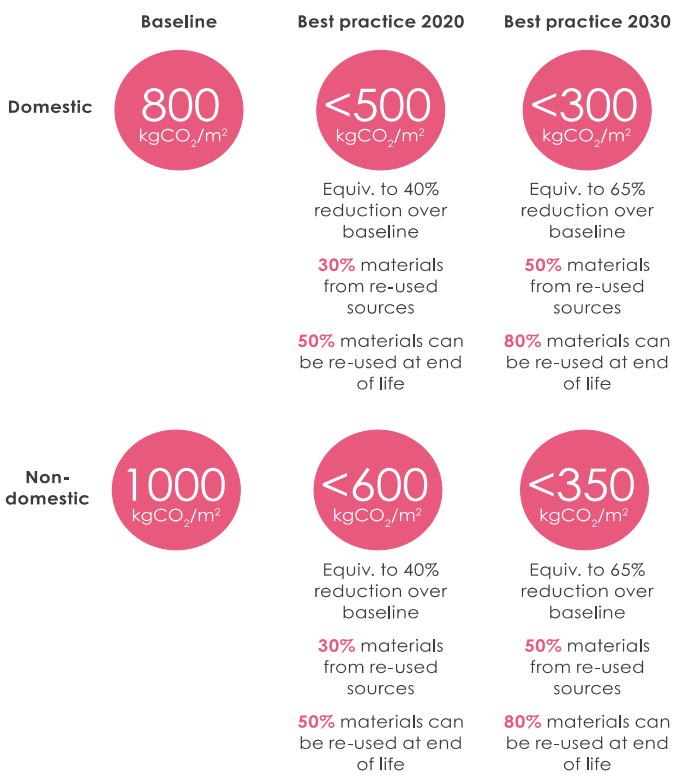
The Sustainable Building Standard has been framed around a set of policies which seek to address environmental health, climate action, social equity and inclusion whilst recognising the need for economic sustainability. The policies should be considered at the start of all new building projects and major refurbishments and agreement reached on which ones are to be targeted as part of the works. The policies are consistent with good to best industry practice, but we recognise that there will be challenges in delivering these on a complex operational campus. As such, it is important that we approach these with a level of pragmatism.

Alongside the policies, this document also sets out when we expect key activities to be undertaken within the project lifecycle to realise our agreed sustainability outcomes, and the roles and responsibilities of those involved in campus place-making.

Major Refurbishment here is defined as projects > £5million total budget. A scaled down, pragmatic approach will be adopted for smaller scale projects (see SBS5.1).

Policy Number	Theme	Detail
SBS0	Master planning principles	**Any new campus developments will go through an initial process of assessing the University's current assets to prioritise building refurbishment over new build**. This is an early fork in the road that defaults to retrofitting/repurposing. Where new build is subsequently proposed, whole life carbon analysis should be an important consideration in the decision process. The lowest carbon building is the one which is not built. An established methodology for this should be used e.g. London Plan Guidance - Circular Economy Statements, March 2022 – Decision tree for design approaches for existing structures/ buildings (fig 4). https://www.london.gov.uk/sites/default/files/circular_economy_statements_lpg_0.pdf
SBS1.1	Net Zero ambition	**All new build and major refurbishment should aim to be net zero carbon**, to be approached with reference to the UKGBC net zero carbon framework definition, and supporting guidance. This framework definition was only introduced in 2019 so the following approach will be taken to achieve net zero carbon buildings, building on standards that have been in use for several years across the construction industry, and are therefore well understood, and increasingly becoming mainstream. In 2024, a 'UK Net Zero Carbon Buildings Standard' is set to launch - https://www.nzcbuildings.co.uk/ and is expected to be widely used.
SBS1.2	PassivHaus/ EnerPhit	New build will aim to be formally certified to PassivHaus standard, and major refurbishments formally certified to EnerPhit standard. Unless, in exceptional circumstances, it can be proven that a single specific element of the project does not represent value for money under whole life costing, or that the carbon gain is immaterial under whole life carbon assessment.
SBS1.3	BREEAM	New build and major refurbishment will aim to achieve BREEAM Excellent and be formally certified (to the newest version of this standard), with new build aiming for BREEAM Outstanding.
SBS1.4	Minimising Embodied Carbon	Every project should demonstrably minimise embodied carbon through design decisions and material specifications. An independent review of design efficiency should be conducted to show this. Every project will provide regular embodied carbon and delivery transport reports to the University during the course of the contract. **New build should aim to achieve the following best practice 2020 upfront embodied carbon targets and aim to reach the 2030 targets, in line with the latest Low Energy Transformation Initiative (LETI) guidance. https://www.leti.uk/cedg**

Meet upfront embodied carbon emission targets for building elements:



SBS1.5	Climate resilience	Projects should seek to assess the resilience of the building to future climate scenarios in line with ISO 14091: 2021, and BREEAM. Changing weather patterns e.g. rainfall, flooding, run-off and windspeeds should be considered, but in particular, overheating will be considered: here passive cooling should be maximised/mechanical cooling minimised. Adaptability of space should also be maximised to allow for future change of use – using e.g. Design for a Circular Economy, Greater London Authority (decision tree flow chart).
SBS1.6	Water Use	For new build projects with standard facilities at least 40% improvement over baseline water consumption should be targeted (calculated in the BREEAM Wat 01 Calculator).
SBS1.7	Lifetime circularity and waste	All our construction projects should aim for lifetime circularity and reduce lifetime carbon and costs through e.g. leasing, hiring, modularisation, digitalisation, and design for deconstruction and reuse, through alignment with the London Plan SI 7 policy requirements

		around circular economy practice. Projects should also target zero construction waste to landfill and provide clear documentation to demonstrate how this has been approached and achieved
SBS1.8	BNG	All major projects should aim to achieve a **Biodiversity Net Gain of +20%** whether subject to planning or not. The normal hierarchy of onsite gain over offsite should be applied.
SBS2.1	Wellbeing	All new build and retrofit projects must take a balanced approach which includes staff and student health and well-being. The project should seek to align to standards such as WELL or FITWEL (dependent on the project).
SBS2.2	Sustainable Transport	The University is in the process of developing a Sustainable Travel Plan; BREEAM credits for enabling active travel should be targeted in the meantime
SBS2.3	Social Value	All new build and major refurbishments should aim to have a minimum 10% Social Value weighting. The University will develop its own metrics and KPIs in future, but initially the Responsible Procurement Code of Practice Document (bath.ac.uk) should be used as a defining framework for this
SBS2.4	Inclusive Design	The project should aim to achieve the relevant elements of BS 8300 as a minimum along with PAS6463 Design for the Mind. Each project will also provide a pre-planning and post-completion 'inclusive design accessibility statement' to set out the aims and evidence the result.
SBS3.1	Whole Life Carbon Assessment	All new build and major refurbishment projects will aim to undertake an upfront whole life carbon assessment in line with up-to-date best practice standards (e.g. the RICS standard). Whole life carbon assessments will be estimated and updated throughout the design process before being finalised post construction. These will take place at the very earliest opportunity so the demolish/rebuild vs refurbishment decisions can be informed
	Internal Price of Carbon	A shadow carbon cost of £373/tCO2 (or the equivalent cost used by B&NES Planning) should be used for all building projects
SB3.2	Life Cycle Costing	For major projects, a formal life cycle costing (LCC) analysis must be conducted. This must be in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008 and conducted at elemental level (Stage 2) and component level (Stage 4). Project teams must be able to demonstrate, with evidence, how the LCC analysis has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value. Smaller projects are not required to conduct full LCC analysis. However, calculations must be conducted to determine potential life cycle savings and to justify investment in more efficient solutions
SBS3.3	Soft Landings	The full BSRIA Soft Landings Core Principles and Framework should be employed on all new build and major refurbishments including making a specific budget available for this purpose. In addition, the University will seek to appoint Independent Commissioning Managers, reporting to the Campus Infrastructure Operations team. A full Post Occupancy Evaluation process will be conducted to the standard recommended by RICS/BRE/RIBA.

SBS3.4	Living Labs	The University will seek to maximise the opportunity for all building projects to be used as a living laboratory for research and teaching purposes. To facilitate this the design and project resources are to be made open-source and available both during and after the project completion.
SBS4.1	Standard review	Research in low carbon design and the link between building performance, occupant's wellbeing and productivity, and energy use continues to evolve. This standard will be reviewed at least every 2 years to ensure we benefit from improved knowledge.
SBS5.1	Minor building work	The principles of this sustainable building standard will also be applied to minor refurbishment and maintenance projects (<£5m) but in a pragmatic way, using a scaled down approach where necessary (e.g. use of SKA rating). Minor refurbishments should aim to achieve SKA HE 'Gold' certification

3. Key Requirements mapped against the RIBA Stage

Achieving the best possible sustainability outcomes requires consideration of opportunities from pre-inception stage onwards. At the earliest stage, it is important that the policies above are considered and there is an agreement over the most appropriate goals/standards that the project will aim for. For some existing buildings or acquisitions, it may not be feasible or cost-effective to bring them up to the requirements set out above.

It is also essential to have a clearly defined approach to design management and environmental assessment as early as possible, and no later than Stage 1.

University project managers and external project managers will need to ensure that all relevant requirements are accounted for, and that initial responsibilities and actions are assigned to relevant members of the project team. Depending on the project scope, this may require specialist appointments. The Sustainability and Climate team will assist with this process wherever required.

RIBA stage	Detail
0 - 1	**Project Brief/ Business Case** Confirm sustainability objectives and targets are included in the project brief and any business cases and feasibility studies. Identify precedent projects and review lessons learned from past experiences (as per the Soft Landings process). For refurbishment projects, include provision for building fabric upgrades in the budget.
1 onwards	**Environmental Assessment** Identify the correct sustainability assessment method (e.g. PassivHaus, BREEAM, Ska) in conjunction with UoB Climate/Sustainability team. Complete pre-assessment(s) to embed strategies into the emerging cost plan. Agree principles for passive design, engaging with specialists where applicable.
1 onwards	**Soft Landings** Ensure the Soft Landings framework is fully embedded into the project to manage user consultation and inform project planning and design. This will help ensure that buildings are commissioned and managed to ensure optimum performance.
2 onwards	**Life Cycle Costing** All projects must demonstrate how capital expenditure is being balanced with ongoing operational and maintenance costs. Ensure that life cycle costing is not treated as a 'tick-box' exercise. Findings must have a visible impact on live design decisions and be presented/ reported as part of the project governance process.
2 onwards	**Carbon Appraisal** Projects which have an impact on energy consumption must calculate potential carbon and cost savings associated with different design/ specification options as part of business case development. The application of a 'shadow price' for carbon should support this. Options to be tested must be agreed in advance as part of the project governance process and in coordination with the Sustainability and Climate team.
2 onwards	**Energy Targets & Modelling** Commission appropriate building physics modelling (energy, comfort, daylight) to guide the design towards the most sustainable outcomes. During stages 3-4, energy modelling must extend beyond regulatory minimum compliance to predict more accurate and holistic building energy use (e.g. unregulated energy loads).
2 onwards	**Embodied Carbon**

	Calculate the embodied carbon impact of the project in $KgCO_2e$ per m^2 accounting for Life Stages A-C and building parts as defined within the embodied carbon section. Document design decisions undertaken to reduce embodied carbon impact.
4 - 5	**Specifications, Tender and Contract Documents** Embed specific, measurable sustainability targets and requirements in tender and contract documents. Ensure that the Contractor provides all necessary reassurances and operational plans (e.g. waste, site monitoring, materials sourcing) to confirm that sustainability requirements will be met.
5 - 6	**Construction and handover (Soft Landings)** Confirm that responsible construction practices are taking place. Ensure that stakeholders remain engaged throughout construction and handover processes to ensure a smooth transition into the building. The initial aftercare package should be planned in accordance with the Soft Landings Framework.
6 - 7	**Post Project Review (Soft Landings)** Ensure that lessons learned are documented following the University of Bath Post Project Review guidance and templates. For major projects, appoint an independent consultant to complete a post occupancy evaluation.

4. Roles and Responsibilities in Projects

Role	Responsibility
ESBAB	• Approves strategy, reviews progress and agrees derogations/ mitigation • Overall responsibility for compliance and audit
Project Sponsor	• Accountable for the project overall, including mandate, business case and realisation of benefits (including sustainability benefits) • Shares the narrative as the project's key advocate, acting as the voice of the University and providing link to the University's strategic outcomes (including the climate action/sustainability strategies) • Chairs project board and represents project at executive board level (or equivalent)
Climate and Sustainability team	• Sets overarching requirements; provides guidance and assurance • Oversees assessment, audit process, monitors progress • Requires provision of performance data for reporting purposes
University Project Manager/ External Project Manager	• Implements the requirements of the Sustainable Building Standard • Manages Soft Landings process/ appoints Soft Landings Champion • Ensures that requirements are included in project documentation • Ensures that the correct assessment methodologies are applied • Arranges sustainability meetings/ workshops
Sustainability Consultant/ BREEAM or Ska Assessor (where appointed)	• **Should be appointed no later than RIBA Stage 1 on all (major and minor) projects** • Ensures that the project is delivered in accordance with the SBS • Facilitates sustainability workshops; assigns responsibilities; sends reminders; and provides regular written updates. • Provides leadership on sustainability objectives and assessments • Challenges the project team to optimise sustainable design and construction and identify opportunities for innovation

Role	Responsibility
	• Supports design team in putting sustainability requirements into specifications by others • Manages formal certification process (BREEAM/ Ska), collating and reviewing evidence to confirm compliance
Design and Delivery Teams	• Reviews and implements relevant requirements in the SBS, environmental assessment (BREEAM/ Ska) and project sustainability strategy. • Provides compliant evidence documents and highlights compliance risks, including alternative approaches. • Identifies additional opportunities for best practice/ innovation. • Organises/ attends sustainability review meetings
Energy/carbon Consultant	• **Should be appointed no later than RIBA Stage 1 on major projects, and RIBA Stage 2 in minor projects** • Provides project-specific advice on sustainable carbon solutions, with a view to minimising whole life (operational and embodied) carbon emissions. • Identifies opportunities for exemplar practice/ innovation • Undertakes energy modelling as part of the project energy strategy • Conducts additional modelling (e.g. daylighting, thermal comfort) as required/appropriate • Provides energy usage data to cost consultant for LCC analysis • Inputs into MEP specs to ensure energy efficiency is achieved in practice
Cost Consultant	• Accounts for life cycle benefits budgeting and value engineering • Accounts for value of existing building materials • Where required, conduct/ input into life cycle cost and carbon analysis, presenting to Climate and Sustainability team and the design team
Specialist disciplines	• Additional specialist inputs may be required to meet the requirements of the SBS and sustainability assessments (e.g. Passivhaus, access specialist, biodiversity/ecology, acoustician, security consultant, transport consultant, civil/ structural engineer, heritage, commissioning manager etc.)

Appendix 1: Local planning requirements.

BANES LPPU requirements

SCR6 – New Build Residential
Policy Targets • Total energy use (regulated and unregulated) = 40kWh/m2/annum • Space heating demand = 30kWh/m2/annum • On-site renewable energy generation to match total energy use (preference for roof-mounted solar PV) *Offsetting* (only for major development i.e. minimum 10 dwellings) • Offsetting is considered acceptable only in exceptional circumstances where all opportunities for on-site renewable generation have been maximised In these cases, the developer is to offset any residual on-site renewable energy generation to make up the difference to matching the total energy use
SCR7 – New Build Non-Residential
Applies to major development i.e. minimum 1000m2 Non-major development to comply with Building Regs (27% CO2 reduction) *Policy Targets* • 100% CO2 reduction (regulated only) from Part L 2021 (or any future standards – not particularly important as it is a 100% reduction i.e. net zero) • Developments must strictly follow the fabric first energy hierarchy *Offsetting* • Same principle applies as SCR6 – offsetting is only acceptable when all available fabric measures and renewable energy generation opportunities have been maximised • Offset any residual to carbon to a 100% reduction
SCR8 – Embodied Carbon
Applies to large scale development: • Residential = minimum 50 dwellings • Non-residential = minimum 5000m2 commercial floor space *Policy Target* • 900kgCO2e/m2 to be demonstrated for RIBA stages A1 – A5 (upfront carbon) • No option to offset
CP1 – Retrofitting
For extensions, conversions, change of use etc. Policy Target 10% CO2 reduction (regulated only) – for minimum 5 dwellings or 500m2

Considerations for future local requirements

The current BANES LPPU consultation shows likely future requirements – in summary, the existing standards will be expanded to more situations, may require BREEAM, and is looking to go beyond the legal minimum for Biodiversity Net Gain. Below are some of the key options being considered:

Policy C/NRD: Sustainable Construction for New Build Non-Residential Buildings
• Option 1 - retain existing standards but broaden the scope of the policy to minor developments.

• Option 2 - set space heating and energy use intensity standards for non-residential buildings. • Option 3 - retain the existing policy but also require all minor and major applications for new non-residential buildings to meet as a minimum BREEAM excellent.
Policy C/EC: Embodied Carbon
• Option 1 - retain existing standards but broaden the scope to include all new major and minor new building development. • Option 2 - major and minor new-build developments are required to submit an Embodied Carbon Assessment having regard to the Sustainable Construction Checklist SPD for the substructure, superstructure, and finishes
Policy N/BNG - Biodiversity Net Gain (BNG)
• Option 1 – maintain the national minimum standard of 10% • Option 2 – 20% for all projects • Option 3 – a staggered approach for different projects (20% for major projects, 10% minor)