

University of Leeds

Sustainable buildings design, construction and refurbishment standard. 2017 – 2020.

This document must be referred to for minimum sustainability standards for construction project over £2m.

1. General requirements

Issue	Standard to be achieved
BREEAM	New developments must achieve a BREEAM Excellent rating.
Sustainability Management	<p>The design team shall engage with the Sustainability Service, Estates Capital Development & Engineering from RIBA stage 1.</p> <p>From RIBA stage 2 a tracker document must be completed evidencing how minimum standards will be met, which will be updated at each RIBA design stage. The tracker document will also evidence compliance against related technical standards (see section 12). A template will be made available.</p> <p>At tender:</p> <ul style="list-style-type: none"> A minimum 10% weighting will be included for sustainability assessment. Adequate time (min. 6 weeks before tender) must be allowed by the design team for the Sustainability Service to develop questions. An up-to-date copy of the tracker document must be provided to the Sustainability Service & Estates Engineering pre-ITT and will be included as part of the ITT documentation The sustainability standards set within the tracker document will be mandatory within the contract. <p>At contract award the contractor will take responsibility for updating the tracker document & evidencing that minimum standards have been met or exceeded at project hand-over.</p> <p>Main contact: j.dixon-gough@leeds.ac.uk</p>
Considerate Construction	The Contractor must be registered with the Considerate Constructors scheme and must achieve a score above 40 by the end of the construction phase of the works.
Inclusion in contract	Providing adequate proof of meeting the energy and performance standards below will be a factor in granting Completion. Standard retention against the value of work done will be withheld and will not be halved until the standards are achieved. If the University has to occupy the relevant premises for business continuity purposes this will not absolve the contractor from the requirement.
Building User Guide	The project team will develop a template for a simple building user guide that shall be drafted by the design team and completed by the contractor. The guide will be handed over on Completion and will be ready to use before building occupation.

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12706	1	19 Jun 2019	25 Sep 2020 10:44	John Moore	14 Jun 2021	14 Jun 2019 15:12	James Dixon-Gough
Title	Post-June 2019 Sustainable Construction Standard				Owner Name	Michael Howroyd	

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	<p>The guide shall include clear information on the use of controls & additional sustainability information of use / interest to building users.</p> <p>The guide will be in pdf or electronic format that can be e-mailed to users and printed where necessary.</p>
Living lab	The design team and / or contractor shall work with Sustainability Service to seek opportunities to integrate sustainability related research, innovation and education into the design and construction of projects in line with the Living Lab Programme.

2. Energy efficiency and climate change mitigation

Issue	Standard to be achieved
Net Zero Carbon	<p>A decision will be taken at stage 1 – 2 whether to target a Net Zero Carbon building. If not, a clear trail of decision-making must be demonstrated and documented.</p> <p>If targeting a Net Zero Carbon building, these steps shall be followed:</p> <ul style="list-style-type: none"> • Reductions in energy demand and consumption shall be prioritised over on-site and off-site generation. • On-site renewable energy consumption shall be prioritised over off-site generation. • Any off-site generation (if aiming for Net Zero Carbon) shall demonstrate additionally. <p>If a Net Zero approach is agreed, all relevant standards must be updated in the tracker.</p>
Passivhaus	<p>A Passivhaus feasibility assessment should be completed at stage 1.</p> <p>If it is decided to adopt the Passivhaus Standard a Passivhaus Designer/Consultant should be appointed from Stage 1. They will be retained client-side for the duration of the project to guide the University on the feasibility of full certification and monitor compliance against agreed standards.</p> <p>All appropriate standards will be updated in the tracker if a Passivhaus Standard is followed.</p>
Regulated Energy	<p>Office / teaching space: minimum standard of 40kWh/m²/yr</p> <p>Research intensive building: target is less than 50 kWh/m²/yr (<i>standard for research intensive building to be agreed at stage 1 & signed off by Director of Sustainability & Deputy Director of Operations</i>)</p> <p>Refurbishment (office / teaching space): minimum standard of 70 kWh/m²/yr</p> <p>Refurbishment (research intensive): target is less than 100 kWh/m²/yr (<i>standard for research intensive building to be agreed at stage 1 & signed off by Director of Sustainability</i>)</p>

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	A copy of the BRUKL is to be provided to Engineering Services at Stage 3.
CO ₂	Office / teaching space: minimum standard of 15kgCO ₂ /m ² Research intensive building: target is less than 20kgCO ₂ /m ² (<i>standard for research intensive building to be agreed at stage 1 & signed off by Director of Sustainability & Deputy Director of Operations</i>) A copy of the BRUKL is to be provided to Engineering Services at Stage 3.
EPC rating	New build: EPC A Refurbishment (whole build): EPC B Refurbishment (part of building): Notional EPC B
Partial refurbishment / Fit out	EPC B Any derogation of partial refurbishment standard must be signed off by Director of Sustainability, Deputy Director of Operations & Deputy Director of Development and only after whole-life costing completed on potential fabric, lighting and service improvements.
U values (new build)	Roof: 0.10 Installed window total U value: 0.85 Floors: 0.10 Walls: 0.10
Passive Design	Passive techniques such as exposed thermal mass, solar shading and night time cooling should be used to avoid A/C, with emphasis on natural ventilation. A/C will not be allowed in office spaces. Any derogation from this must be approved by Director of Sustainability, Deputy Director of Operations & Deputy Director of Development.
U values (refurbishment)	20% improvement above building regulations where applicable e.g. required by consequential improvements.
Air Leakage	For new buildings the amount of air leakage shall be minimised to be below 2 m ³ /hr/m ² @50Pa to reduce the building heating / cooling loads as per best practice in CIBSE TM23. For refurbishments the amount of air leakage shall be minimised below 10 m ³ /hr/m ² .
Whole Life Costing	Whole life costing will be completed by the project team on key elements that are likely to have significant impact on energy use. This will include: Fabric Fenestration Lighting Heating systems Ventilation & LEV systems Cooling Renewable energy Controls BSRIA Whole Life costing methodology to be used. 30 year period for services & 50 years for fabric.

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	Where value engineering is being considered the whole life cost analysis must form part of the decision process.
Low & Zero Carbon (LZC) feasibility	A LZC report will be completed by stage 2. Report to be signed off by Deputy Director of Sustainability and Deputy Director of Operations, who will agree LZC technologies to be taken to stage 3.
TM54 operational energy performance	TM54 analysis should be completed at RIBA stage 2, to estimate operational energy performance & identify potential improvement areas.
Process & plug in load (client expectations)	<p>There is an expectation that future occupants will support low carbon design by reducing plug in process load. Items such as personal fridges, kettles, printers, electric heaters and personal A/C must not be moved into a newly refurbished building.</p> <p>Any equipment purchased as part of the project or move should be high efficiency e.g. fridge A+++.</p> <p>Electronic display equipment used for promotion / communication purposes should be minimised to reduced energy and associated resource impacts.</p> <p>Any opportunity to improve energy efficiency related to research equipment must be actively considered.</p>
Future Climate Adaptability	A 20% increase in service riser capacity should be factored into the design to account for future increases in requirements.

3. Sustainable use of Water

Issue	Standard to be Achieved
Improving Water Efficiency	<p>Designer/contractor must adhere to University Water Standards / guidance.</p> <p>This is to be achieved through the use of dual flush WCs, percussion low flow taps, automatic flow regulators and the design of systems etc.</p>
Rainwater harvesting	Rainwater harvesting must be assessed as part of the design process.
Flood Risk from Surface Runoff	Sustainable urban drainage (SUDS) solutions shall be assessed for potential use in design.
Landscaping permeability	Landscaping should be designed to reduce surface water run-off & maximise green infrastructure, with aim to reduce surface water run-off.

4. Minimise use of materials and optimise sustainable sourcing

Issue	Standard to be achieved
Plastic	<p>The design team should carry out an assessment at stage 3 to identify opportunities to reduce single use plastic on site.</p> <p>The contractor will submit a plan at tender stage to demonstrate methods for reducing single use plastic on site during construction.</p>
Recycled Content	<p>A minimum 30% recycled content by weight. This can include:</p> <ul style="list-style-type: none"> - Any aggregate used within the site - Building blocks - Recycled content within Cement - Fixtures & fittings including carpet

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	<ul style="list-style-type: none"> - Plasterboard or equivalent - Furniture - Steel Beams -
Sourcing of Basic Building elements	<p>All the main elements of the building must obtain an A rating from the Green Guide to Specification.</p> <p>Recycled content should be used where practical. The design team is expected to highlight materials in the specification that will include recycled content.</p> <p>All timber must be FSC or equivalent certified.</p> <p>Quarried materials (e.g. stone, concrete etc) will be certified to BES 6001.</p> <p>By stage 2 a summary of how this will be met must be completed within the tracker document, including how this has influenced design and material specification.</p> <p>By stage 3 there must be a detailed response on how this requirement is being met within the tracker document.</p>
Embodied Carbon in design and construction.	<p>An early stage assessment should be completed to establish a baseline carbon estimate for the project, to integrate whole life carbon into the design process and to identify carbon reduction potential while there is significant capacity to influence decisions.</p> <p>A whole life carbon assessment must be carried out before the commencement of the technical design (RIBA Stage 4 or equivalent) of the project.</p> <p>At least one other whole life carbon assessment will be conducted after practical completion to represent the 'as built' carbon position</p> <p>The 'Whole life carbon assessment for the built environment: RICS professional statement, UK' will be followed to complete the steps outlined above.</p>
Sourcing of Secondary Building and Finishing Elements	<p>The majority of materials in the secondary building and finishing elements shall be responsibly sourced.</p> <p>This means:</p> <ul style="list-style-type: none"> • Low and VOC free products • All timber must be FSC or equivalent certified • Made of recycled materials where appropriate (design team to highlight & specify elements that should include recycled content) • Consideration of future re-use or recycling of materials and avoiding use of composite materials • Materials are EMS certified (ISO14001, EMAS) for their manufacture and key supply base <p>By stage 2 a summary of how this will be met must be completed within the</p>

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	<p>tracker document, including how this has influenced design and material specification.</p> <p>By stage 3 there must be a detailed response on how this requirement is being met within the tracker document.</p>
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5. Enhancing connectivity and sustainable transport

Issue	Standard to be achieved
Travel Plan	Development must refer to University Travel Plan and ensure that it meets its key objectives. Sustainability must be contacted at beginning of development.
Reducing the Need for Travel	Ensure that at least one meeting room in the building is suitable for video-conferencing.
Cycling Routes and Facilities	<p>Appropriate level of cycle parking aligned to travel plan cycling targets to be incorporated into development for new build and for refurbishments. Location and numbers must be agreed and signed off by the Sustainability Service.</p> <p>Showers with changing/drying areas & lockers as appropriate must be provided for the use of cyclists and walkers in all new developments and major refurbishments.</p> <p>There must be a net gain in cycle parking due to the development.</p>

6. Minimise Occupancy Waste / Maximise Re-use and Recycling

Issue	Standard to be achieved
Waste management throughout construction	<p>Site Waste Management Plans must be produced and shall include reduce/reuse/recycling targets that incorporate best practice.</p> <p>Capital projects must achieve a minimum 90% recycling rate.</p>
Waste management in use	Design team must agree internal and external waste & recycling sites with Cleaning Services Manager.
Re-use of materials	The designer/contractor must look for opportunities to re-use within the development and report on progress.

7. Biodiversity / landscaping

Issue	Standard to be achieved
Improving biodiversity on University owned sites	<p>All developments must have a net-positive impact on University biodiversity and compliment the University Biodiversity Standard and associated action plan.</p> <p>Landscape design must be developed in collaboration with and signed off by Head of Grounds & Sustainability Service.</p>
Tree management	Any trees within the site boundary or likely to be affected by traffic must be protected with a fenced boundary in accordance with BS 5837.

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	If tree loss within the site boundary cannot be avoided, removal must be agreed with Estates Services prior to any works. Trees must be replaced 3-1 in a location agreed jointly between the Grounds & Gardens Team Leader and the Sustainability Service.
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8. Wellness

Issue	Standard to be assessed
Well Building Standard	Assess Well-being Standard criteria for inclusion in the project and define which criteria will be included from stage 2. As a minimum, 3 of the 'mind' pre-conditions must be achieved.

9. Construction impacts

Issue	Standard to be achieved
Energy & carbon	The contractor will report on site based carbon emissions, electricity and water consumption and will provide a total figure at project hand over. Transport emissions shall be provided only if calculated by contractors as part of own sustainability reporting.
HGV deliveries	HGV deliveries onto site should be following the CLOCS Standard for Construction Logistics or working to implement the standard within its supply chain over the lifetime of the contract.

10. Social and economic value

Issue	Standard to be achieved
New entrants and skills development	The contractor will ensure that targets are agreed on the following at contract award and that final numbers are reported at project handover: 1) School/College/University site visits (no. of visits) 2) School/college workshops (no. of workshops) 3) Work experience under 18 years (no. of placements) 4) Work experience 18+ years (no. of placements) 5) Apprentices existing (no. of person weeks) 6) Apprentices project initiated (no. of persons) 7) Project Initiated Higher Level Skills- (no. of persons recruited) 8) Progression into employment (no. of persons)
Sourcing materials supplied locally	All developments must target sourcing at least 40% of the total value of the building's materials from local suppliers (defined as within 40 miles).

11. Post occupancy

Issue		Standard to be achieved					
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Post-Occupancy Evaluation	POE should be programmed in within 18 months of completion.
Seasonal re-commissioning	Seasonal Commissioning shall be undertaken as agreed by the Head of Engineering, after period of full-occupancy /full operation, based on guidance with BSRIA document B044/2013 so that systems are checked at full load and part loads as experienced during transitional seasons.

12. References

The following technical Standards, Procedures and Policies should followed throughout the RIBA design stages and compliance evidenced within the Tracker document and are available through Engineering Services:

Fume Cupboard Technical Requirements
 Comfort Cooling Systems Guidance Note
 Space Temperature Policy
 University Building Management System - Trend
 Water Policy
 Electrical Services Guidance for Consultants
 Energy Policy
 Metering
 Electrical Supply Application
 Technical Specification RCD's
 Lighting Policy
 Lecture Theatre Lighting
 V20 Low Voltage Switchgear
 Demand and Consumption Calculations
 Projects demand and consumption tracker

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