

# University of Leeds

## Sustainable buildings design, construction and refurbishment standard – Medium projects (<£2million e.g. refurbishments, upgrades) 2018 – 2020.

This document must be referred to for minimum sustainability standards for construction projects from £100k to £2m.

### 1. General requirements

	Issue	Standard to be achieved
1.1	Options appraisal	<p>As part of their business case / strategic brief, 'clients' should undertake an options appraisal considering:</p> <ul style="list-style-type: none"> <li>• alternatives to a construction project, particularly for short-term and non-specialist uses (can the accommodation requirement be fulfilled in other ways?)</li> <li>• alternative locations for the development</li> <li>• potential for flexible spaces to ensure easy future adaptation</li> </ul> <p>Technical Officer / Design Team to expand on this to consider opportunities for improving the performance of the different location options. Known future plans for each of the location options should be checked to limit the likelihood of waste through renovating a space there are future plans for.</p>
1.2	External accreditations e.g., SKA, BREEAM	<p>At the outset of the project, checks should be made to confirm if any external accreditations e.g., SKA, BREEAM already exist for the building.</p> <p>Where external accreditations have been met on an existing building, the project works should seek to uphold or improve on this rating.</p>
1.3	Existing performance levels	<p>Efforts should be made to improve on building where feasible and cost-effective. This includes for example, where a Building User Guide already exists, this should be updated to accommodate changes as a result of the project e.g. maintenance guidance / schedule.</p> <p>At a minimum, building performance levels must be maintained.</p>
1.4	Circular design / applying past project feedback	<p>Projects should be approached through applying the principles of circular design, with findings from past projects used to inform the brief of future works.</p>
1.5	Sustainability Management	<p>From the start of RIBA stage 2 onwards, the MEDIUM Construction Projects Tracker document must be completed evidencing how minimum standards will be met, which will be updated at each RIBA design stage.</p> <p>At tender:</p> <ul style="list-style-type: none"> <li>• A minimum 10% weighting will be included for sustainability assessment (standard sustainability questionnaire).</li> <li>• Adequate time must be factored in to enable engagement between the</li> </ul>

		<p>Design Team and Sustainability Service during the design phase.</p> <ul style="list-style-type: none"> <li>Any unique risks / opportunities should be flagged by the Design Team to the Sustainability Service in sufficient time for the Sustainability Service to develop tender questions and provide advice.</li> <li>An up-to-date copy of the <b>tracker document</b> must be provided to the Sustainability Service &amp; Estates Engineering pre-ITT and will be included as part of the ITT documentation</li> <li>The sustainability standards set within the tracker document will be mandatory within the contract.</li> </ul> <p>At contract award the contractor will take responsibility for updating the tracker document &amp; evidencing that minimum standards have been met or exceeded at project hand-over.</p> <ul style="list-style-type: none"> <li>Main Sustainability contact: James Dixon-Gough <a href="mailto:j.dixon-gough@leeds.ac.uk">j.dixon-gough@leeds.ac.uk</a></li> <li>Main Design Team contact: Chris Wade <a href="mailto:C.A.Wade@leeds.ac.uk">C.A.Wade@leeds.ac.uk</a></li> </ul>
1.6	Quality assurance	It is recognised that there will not be a Clerk of Works role on every project. Therefore there is a need for quality control throughout the project and on completion to be checked and assured by the Project Manager and Design Team.
1.7	Variations	<p>Any variations, Bill of Amendments items or proposals put forwards by the contractor for Equal / Approved variations must adhere to the sustainability standards of the originally specified items (or follow the same assessment procedure for variations introducing new items to a project).</p> <p>While variations during a project are discouraged for contractual reasons, where they are necessary they should be used as an opportunity to assess options with improved sustainability credentials.</p>
1.8	Inclusion in contract	<p>In accordance with the agreed terms of Contract, the Contractor shall be required to fully meet these standards as set out in the Works Information/Employers Requirements documentation and provide adequate proof of meeting the energy and performance standards as agreed. Failure to do so shall be deemed as incomplete works.</p> <p>Should there be no value stated for full compliance with the agreed standards within the Activity Schedule/Contract Sum retention shall not be released against the value of work done and shall be withheld until the standards are achieved. (If the University has to pre-occupy the relevant premises for business continuity purposes this will not absolve the contractor from the requirement).</p>

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## 2. Energy efficiency and climate change mitigation

	Issue	Standard to be achieved
2.1	New build / extension	<p>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.</p> <p>The following minimum U values shall be used:</p> <ul style="list-style-type: none"> <li>• Roof: 0.10</li> <li>• Windows: Ug 1.2</li> <li>• Floors: 0.10</li> <li>• Walls: 0.10</li> </ul> <p>In addition M&amp;E building services shall follow minimum Estates energy efficiency specifications for lighting and building services and design strategy will be reviewed by the Energy team.</p> <p>The build / extension shall target the following energy / carbon standards: 40kWh/m<sup>2</sup>/yr &amp; 15kgCO<sub>2</sub>/m<sup>2</sup>.</p>
2.2	Full refurbishment	<p>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.</p> <p>U values shall be 20% improvement above Building Regulations where Building Regulations Part L apply.</p> <p>In addition M&amp;E building services shall follow minimum energy efficiency specifications:</p> <ul style="list-style-type: none"> <li>• Comfort Cooling Systems Guidance Note</li> <li>• Space Temperature Policy</li> <li>• Lighting Policy</li> </ul> <p>Target EPC B.</p> <p>The design strategy will be reviewed by the Energy Team.</p>
2.3	Partial refurbishment / Fit out	<p>Advice must be sought from the Energy Team.</p> <p>The following thresholds should be met where applicable to the works:</p> <ul style="list-style-type: none"> <li>• Fabric U value: 20% above Part L requirements</li> <li>• Windows / glazing: Double glazing (or secondary glazing). Draft proofing completed if required.</li> <li>• Lighting: LED lighting installed (fittings to meet lighting policy guidance)</li> <li>• Heating systems: If not connected to steam works low carbon assessment completed for heat-pumps and / or other low carbon options. High efficiency condenser boiler installed if not possible.</li> <li>• Ventilation &amp; LEV systems: Natural ventilation/low energy solutions should be specified wherever feasible further guidance can be found in University of Leeds publications “Fume Cupboard Technical Brief Selection, Design and Installation” and “Comfort Cooling Systems Selection and Control – Guidance Note”</li> </ul>

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		<ul style="list-style-type: none"> <li>• Cooling: See air-conditioning section.</li> </ul> <p>Any derogations must be discussed with the Engineering / Energy Team with justification referenced in the Tracker.</p>
2.4	Air tightness	<p>An air tightness review is required on all developments, in which opportunities for additional improvements should be sought.</p> <p><u>For new buildings:</u> The amount of air leakage shall be minimised to be below 3 m<sup>3</sup>/hr/m<sup>2</sup> @50Pa to reduce the building heating / cooling loads as per best practice in CIBSE TM23. Improvements beyond this minimum standard should be considered.</p> <p><u>For refurbishments / fit-outs:</u> Opportunities to improve air-tightness must be reviewed &amp; included in the specification where feasible.</p>
2.5	Air-conditioning	<p>A/C will not be allowed in office spaces. Where cooling is required Monodraught or similar systems should be used in preference.</p> <p>Any derogation from this must be approved by Director of Sustainability, Deputy Director of Operations &amp; Deputy Director of Development.</p>
2.6	Embodied carbon	<p>Specifications should consider carbon embodied through both manufacture and transport of materials using RICS assessment methodology.</p>
2.7	Process & plug in load (client expectations)	<p>There is an obligation on the part of the 'client' commissioning a project that they discuss this with the Design Team and Sustainability Service to identify ways of including appropriate communal services within their building(s) and assess incorporation in to the design.</p> <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>Responsibility for FFE should be referenced in the Tracker as early on in the design phase as possible in order to inform purchasing decisions.</p> <p>Any equipment purchased as part of the project or move should be high efficiency e.g. fridge A+++.</p> <p>The user or building demand for electronic display equipment used for promotion / communication purposes should carefully considered to reduce energy and associated resource impacts.</p> <p>Any opportunity to improve energy efficiency related to research equipment must be actively considered e.g. assessing the feasibility of consolidation of equipment i.e. drying cabinets and freezers in shared locations.</p>
2.8	Future Adaptability and Climate	<p>Flexible spaces should be designed for where practical, with input from the client / end user to inform intended current, potential future use &amp; function, and</p>

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	Resilience	<p>end of life solutions.</p> <p>New build only - Where applicable, a 20% increase in service riser capacity / provision of larger ventilation ducts / potential for retrofitted air conditioning should be factored into the design to account for future increases in requirements.</p> <p>Resilience to temperature fluctuations, flooding and the projected increase of other extreme weather events should be factored into the design where feasible e.g. choice of materials, orientation, access levels.</p>
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### 3. Sustainable use of Water

	Issue	Standard to be Achieved
3.1	Improving Water Efficiency	<p>Designer/contractor must adhere to University Water Standards / guidance.</p> <p>This is to be achieved through the use of:</p> <ul style="list-style-type: none"> <li>• Low flush WCs</li> <li>• Non Concussive (timed self-closing) low flow taps</li> <li>• Automatic flow regulators and the design of systems etc.</li> </ul>
3.2	Landscaping permeability	<p>Landscaping should be designed to reduce surface water run-off &amp; maximise green infrastructure, with the aim to reduce surface water run-off.</p> <p>Opportunities for rainwater harvesting should be considered where appropriate. SUDs are to be considered where drainage has been altered as a result of the development.</p> <p>The design intent of existing SUDs are to be maintained as a result of the development.</p>

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#### 4. Minimise use of materials and optimise sustainable sourcing / opportunities for re-use

	Issue	Standard to be achieved
4.1	Designing out waste	Opportunities to ensure the efficient use of materials and designing out waste - e.g. through modular design or with reference to other concurrent projects - should be sought at every stage of the project and captured in the tracker.
4.2	Re-use of materials	<p>The designer/contractor must look for opportunities to re-use within the development and/or at other locations on campus (e.g. doors, furniture, paint) and report on progress in the tracker document.</p> <p>Opportunities may include using:</p> <ul style="list-style-type: none"> <li>• Reuse: <a href="https://reuse.leeds.ac.uk/">https://reuse.leeds.ac.uk/</a> - available or wanted items for re-use on campus</li> <li>• Approved University of Leeds re-use contractors (contact Mike Howroyd: <a href="mailto:M.A.Howroyd@leeds.ac.uk">M.A.Howroyd@leeds.ac.uk</a> / T: 0113 34 37375) - available or wanted items for re-use and/or storage of storage.</li> </ul>
4.3	Recycled Content	<p>Opportunities to specify materials with recycled content should be sought where practical, drawing on learnings from previous projects. The design team is expected to highlight materials in the specification where recycled content options should be considered, and to record in the tracker materials that are confirmed to contain recycled content.</p> <p>This can include:</p> <ul style="list-style-type: none"> <li>• Any aggregate used within the site</li> <li>• Building blocks</li> <li>• Recycled content within Cement</li> <li>• Fixtures &amp; fittings including carpet</li> <li>• Plasterboard or equivalent</li> <li>• Furniture (client liaison may be required to assess recycled material options in the context of their requirements)</li> <li>• Steel Beams</li> </ul>
4.4	Sourcing of Basic Building elements	<p>Where appropriate, the main elements of the building must obtain an A rating from the Green Guide to Specification and this should be referenced in the tender documentation and specification.</p> <p>The Green Guide to Specification can be accessed online here: <a href="https://www.bre.co.uk/greenguide/podpage.jsp?id=2126">https://www.bre.co.uk/greenguide/podpage.jsp?id=2126</a></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 RIBA stage 2, the tracker should reference the status of basic building element sourcing, detailing the materials where the above standards are specified and those where there may be opportunities to explore further.</p> <p>By RIBA stage 3 there must be a detailed response in the tracker on how this</p>

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		requirement is being met.
4.5	Sourcing of Secondary Building and Finishing Elements	<p>The majority of materials in the secondary building and finishing elements shall be responsibly sourced. This should be referenced in the tender documentation and specification.</p> <p>This means:</p> <ul style="list-style-type: none"> <li>• Low and VOC free products</li> <li>• All timber must be FSC or equivalent certified</li> <li>• Made of recycled materials where appropriate (design team to highlight &amp; specify elements that should include recycled content)</li> <li>• Consideration of future re-use or recycling of materials and avoiding use of composite materials</li> <li>• Materials are EMS certified (ISO14001, EMAS) for their manufacture and key supply base</li> </ul> <p>By RIBA stage 2, the tracker should reference the status of secondary building element sourcing, detailing the materials where the above standards are specified and those where there may be opportunities to explore further.</p> <p>By stage 3 there must be a detailed response in the tracker on how this requirement is being met</p>
4.6	Toxic materials	Avoid specifying materials with a known potential for pollution either in manufacture or use (an example of the latter being the potential for timber protection chemicals to leach).

## 5. Enhancing connectivity and sustainable transport

	Issue	Standard to be achieved, where relevant
5.1	Travel Plan	<p>The Design Team must refer to University Travel Plan and ensure that it meets its key objectives, as well as any additional planning-obligated travel plan stipulations.</p> <p>The Sustainability Service must be contacted at beginning of the project to assess the impact and opportunities arising from any change in use and/or change in number of building users.</p>
5.2	Reducing the Need for Travel	<p>Dependent on the nature and scale of works, opportunities for the integration of video-conferencing facilities and appropriate cabling requirements should be considered.</p> <p>Any existing facilities for video-conferencing should be maintained or improved upon unless a change in use dictates otherwise.</p>

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## 6. Minimise Waste / Maximise Recycling

	Issue	Standard to be achieved
6.1	Resource management throughout construction	<p>For projects at a value of £300k+ a Site Waste Management Plans must be produced and shall include reduce/reuse/recycling targets that incorporate best practice:</p> <ul style="list-style-type: none"> <li>• Waste volumes – estimated and actual</li> <li>• Diversion from landfill – estimated and actual</li> </ul> <p>The Principal Contractor will have responsibility for tracking and reporting on these metrics.</p> <p>A simple template is available on request from the Sustainability Service / Design Team to assist the principal contractor in undertaking this exercise throughout the project.</p> <p>Capital projects must achieve a minimum 90% recycling rate (excluding hazardous waste).</p>
6.2	Resource management in use	<p>Waste management arrangements are to be agreed by the Design Team and Cleaning Services Manager and potential implications on the design e.g. flooring type, layout) are to be referenced in the Tracker document.</p> <p>Agreed Waste management arrangements must be referenced in the O&amp;M manual (and Building User Guide, where one exists).</p> <p>Waste management arrangements are to include consideration of waste segregation, collection and recycling:</p> <p>Internal recycling facilities should be maintained or improved upon to enable segregated waste collection of recyclable and general wastes.</p> <p>Bin type and capacity should be appropriate to the building facilities and number of users (which will determine e.g. if a food waste box is required). The location and access of recycling facilities (internal and external, for access / waste collection purposes) should be considered in the context of space layout and FFE in the design stages.</p>

## 7. Biodiversity / Landscaping

	Issue	Standard to be achieved
7.1	Improving biodiversity on University owned sites	<p>Where relevant, developments must aim to a net-positive impact on University biodiversity and compliment the University Biodiversity Standard and associated action plan. Both landscaping around and greenscaping of buildings (e.g. green walls, sedum roofs) are to be considered.</p> <p>Landscape design must be developed in collaboration with and signed off by Grounds &amp; Gardens Team Leader and the Sustainability Service.</p>

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7.2	Tree management	<p>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.</p> <p>If tree loss within the site boundary cannot be avoided, removal must be agreed with Estates Services and the Sustainability Service prior to any works. Trees must be replaced 3-1 in a location agreed jointly between the Grounds &amp; Gardens Team Leader and the Sustainability Service.</p>
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## 8. Construction impacts

	Issue	Standard to be achieved
8.1	Deliveries to campus	<p>All deliveries to campus should commit to the University's No Idling policy; switching off engines when stationary and park / load considerably.</p> <p>The Leeds Clean Air Zone is due to be enforced in late 2019. All buses and HGVs which are below either Euro 4 petrol engines or Euro 6 diesel engine standard will be affected by the Clean Air Zone.</p> <p>Contractors are encouraged to meet the requirements of the Leeds Clean Air Zone through compliant vehicles rather than paying fines.</p> <p>HGV deliveries onto site should:</p> <ul style="list-style-type: none"> <li>• Follow the <a href="#">CLOCS Standard for Construction Logistics</a></li> <li>OR</li> <li>• Working to implement the standard within its supply chain over the lifetime of the contract.</li> </ul> <p>This should captured in the tracker document.</p>
8.2	Use of generators on site	<p>Use of diesel generators for on-site plant and/or welfare vans should be avoided or used only with prior agreement with the Engineering Service and Sustainability Service.</p>

## 9. Social and economic value

	Issue	Standard to be achieved
9.1	Social and economic value	<p>Opportunities for demonstrating social and economic value should be identified and agreed between the contractor(s), Design Team and Sustainability Service with consideration for what is feasible in the scope of the project and how the value is to be measured.</p> <p>The contractor shall evidence how they will support social and economic value at tender stage, through e.g.:</p> <ol style="list-style-type: none"> <li>1) School/College/University site visits (no. of visits)</li> <li>2) School/college workshops (no. of workshops)</li> <li>3) Work experience under 18 years (no. of placements)</li> <li>4) Work experience 18+ years (no. of placements)</li> <li>5) Apprentices existing (no. of person weeks)</li> </ol>

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		6) Apprentices project initiated (no. of persons) 7) Project Initiated Higher Level Skills- (no. of persons recruited) 8) Progression into employment (no. of persons)  Metrics that the contractor has committed to will be monitored throughout the project via the Tracker document.
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## 10. Post occupancy

	Issue	Standard to be achieved
10.1	Induction	Building users, managers and support and maintenance teams are to be provided with an induction into the building's environmental design and systems and any other details of relevance to their roles. This should be accompanied by provision of a Building User Guide which is to contain this information.
10.2	Post-Occupancy Evaluation (POE)	Post-Occupancy Evaluation (POE) should be undertaken for larger projects and the POE template completed to support the ongoing performance of buildings, inform opportunities to learn from other projects on campus and instil a culture of learning which has potential to link to Living lab projects or other student research.
10.3	Seasonal commissioning	On larger projects, Seasonal Commissioning shall be undertaken as agreed by the Head of Engineering, after a period of full-occupancy /full operation, based on guidance with BSRIA document BG44/2013 so that systems are checked at full load and part loads as experienced during transitional seasons.

## 11. 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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