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1. In general terms, the following approach should be adopted to reduce CO₂ emissions: reduce the demand for energy in the building (demand minimisation) and reduce the carbon content of the fuel used to provide that energy. It is paramount that the energy demand is minimised prior to renewable technologies being used to decarbonise the energy supply. For further assessment of the passive low energy design approach refer to GD01.

2. Particularly for new developments, the following hierarchy of importance should be used to prioritise design solutions. The principles shall also apply to refurbishment projects where practicable:
   - Demand minimisation:
     i) Engineering the building to act as the primary environmental modifier (good envelope design with maximum daylight penetration and building orientation whilst limiting solar gains for new developments).
     ii) Ensuring that the services systems are designed in the first instance to minimise energy consumption (low energy mechanical and electrical concepts with intelligent controls).
   - Application of On-site Low and Zero Carbon technologies. LZC technologies located directly on the site or integrated into the building shall satisfy the energy betterment requirements over and above the BRUKL output documentation referenced in GD01 – Low Energy Design, whilst achieving the carbon offset requirements of Building Regulations Pt. L.

3. A project specific TM54 energy assessment shall be conducted for all developments including refurbishment projects to demonstrate to the University the demonstrable energy benefits of the proposed servicing philosophy at concept stage of the project. It will need to be updated at every subsequent project stage.

4. Leicester city council’s local planning policy has been refined in line with the National Planning Policy Framework and must demonstrate the following:
   - How energy efficiency has been considered in the design and layout of the scheme and how the proposal will meet the requirements of the 2013 Building Regulations. A fabric first approach to energy efficiency will be expected, followed by connection to existing district heating, CHP or community heating. Finally, on-site renewables should also be considered.

NB: The University has no implicit requirement to connect to the local city District Heating network despite the planning preference. The services engineer should adequately demonstrate the options available to the University on a project by project basis that still satisfy the requirements of the local city planners. Particular attention shall be given to the efficiency and lifecycle costing of the proposals first and foremost and shall be provided for all projects. The University shall be consulted in relation to all district heating connections prior to consultation with the local authority regarding energy and low carbon design philosophy.

   - How the development will maximise an efficient use of resources, including minimising waste and maximising recycling/re-use of materials through both construction and occupation.
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- How the risks associated with future climate change have been planned for as part of the layout of the scheme and design of its buildings to ensure its longer-term resilience specifically in terms of:
  - The water environment (use of sustainable drainage systems (SuDS), flood proofing measures and the design of new buildings to minimise water demand)
  - Energy (future adaptability including passive solar design and mitigating the risk of over-heating).

5. The building services engineer’s energy assessor, responsible for appraising the design concept dynamic simulation modelling shall ensure that the most optimum balance is achieved in helping the University in meeting their carbon and energy reduction commitment. For further guidance please refer to GD01 – Low Energy Design and GD04 – LZC & Renewable technologies.

6. All sustainable and renewable technology design guidelines contained herein shall be read in conjunction with the University of Leicester’s Carbon management strategy.

7. The University’s requirement for on-site LZC renewable generation shall be that a minimum of 20% of the project ENERGY demand needs to be provided by a sustainable means. Options are discussed within guide GD04. This shall be strictly assessed in accordance with the energy hierarchy detailed within this guide, focusing on demand minimisation first and foremost.

8. As part of the passive sustainable design appraisal, consideration shall be given to phase change materials (PCM’s) and how thermal comfort may be achieved with the most efficient use of energy possible.