

**Table 1.3 KEY AREAS FOR GREEN SPECIALIST ADVICE**

<p><b>Building Structure</b></p>	<ul style="list-style-type: none"> <li>• Re-use of demolition spoil and use of as-found materials</li> <li>• Embodied energy: use of composite structures to maximise use of low embodied energy materials and systems</li> <li>• Structural systems using sustainable materials (timber, earth, straw)</li> <li>• Ease of demolition and recycling</li> <li>• Long-life, loose fit design (good load bearing capacity, generous floor to ceiling heights)</li> <li>• Relationship between mass and thermal performance</li> </ul>
<p><b>Envelope Design</b></p>	<ul style="list-style-type: none"> <li>• Relationship of openable area to lighting and thermal performance</li> <li>• Sustainable materials (finishes: paints, floor coverings; external wall openings; framing, glazing types; insulation)</li> </ul>
<p><b>Lighting Services</b></p>	<ul style="list-style-type: none"> <li>• Maximisation of available daylight use: daylighting studies including daylight factor studies, daylighting simulations</li> <li>• Selection and location of lighting components: task lighting, high efficiency fittings</li> <li>• Lighting management: controls to integrate natural and artificial light,</li> </ul>
<p><b>Electrical Power</b></p>	<ul style="list-style-type: none"> <li>• Minimisation of electricity consumption: isolation of electrical circuits at night-time, optimised cable sizing, low-energy lifts</li> <li>• Combined heat and power generation systems to maximise total energy efficiency</li> </ul>
<p><b>Heating Engineering</b></p>	<ul style="list-style-type: none"> <li>• Maximisation of passive heating techniques: Advice on building planning and on facade design to maximise useful solar gain, comparative U-value calculations to ensure effective passive contribution, modelling of heat flows through the building in different temperature situations at different times of the year</li> <li>• Maximum efficiency of active heating measures: Selection of heating method and fuel, combined heat and power, high efficiency heat emitters for the smaller quantities of heat involved, air and water plant size optimisation, optimisation of controls including Building Energy Management systems (BEMs), VAV air heating systems and fully ducted systems – with optional free cooling</li> <li>• Input on life cycle costing calculations</li> <li>• Energy calculations to take account of passive gains</li> <li>• Combined heat and power on larger projects</li> </ul>
<p><b>Cooling Engineering</b></p>	<ul style="list-style-type: none"> <li>• Maximisation of passive cooling techniques: Thermal mass and ventilation to promote passive cooling measures Modelling of temperature changes to predict internal in relation to ambient temperatures, advice on facade design, and modelling of shading and daylight/solar gain</li> <li>• Active systems to minimise energy consumption including optional free cooling in ventilation systems</li> </ul>
<p><b>Water Services</b></p>	<ul style="list-style-type: none"> <li>• Minimisation of water consumption through component selection for water conservation, and by re-use of grey water</li> <li>• Small-scale self-contained waste treatment systems</li> </ul>
<p><b>Ventilation</b></p>	<ul style="list-style-type: none"> <li>• Building modelling to maximise through ventilation and stack effect ventilation for cooling</li> </ul>
<p><b>Cost Estimating</b></p>	<ul style="list-style-type: none"> <li>• Comparative life cycle cost studies, for individual components and alternative systems, to incorporate initial cost, cost in use, cost of demolition and re-use including recycling</li> <li>• Environmental cost accounting</li> </ul>
<p><b>Baumeister / Bureau d'études</b></p>	<ul style="list-style-type: none"> <li>• Inspection of construction quality but particularly for air tightness of envelope, efficiency of active systems, particularly heating</li> </ul>
<p><b>Landscaping</b></p>	<ul style="list-style-type: none"> <li>• Site assessment, including land contamination, methane, radon and landfill gas, hydrology</li> <li>• Environmental assessment, including ecological issues</li> <li>• Soft landscaping for life cycle winter solar access (height of vegetation, shading, light reflection, sunlight penetration) and shelter (prevailing wind directions and intensity, modelling of earth berms)</li> <li>• Passive cooling and urban design</li> <li>• Indigenous vegetation: conservation and propagation</li> <li>• Waste treatment plants (reed beds)</li> </ul>