

Ene04

Low carbon design

Low and zero carbon technologies

Actions:

- i. Implement LZC (low and zero carbon) technologies in-line with the LZC feasibility study
- ii. Implement passive design measures and free cooling technologies in line with the previous analysis undertaken

Recognised local LZC technologies

Technologies eligible to contribute to achieving the criteria must produce energy from renewable sources and meet all other ancillary requirements as defined by Directive 2009/28/EC.

Local does not have to mean on site – community schemes near to the site can be used as a way of demonstrating compliance.

The following requirements must also be met:

1. There must be a direct supply of energy produced to the building under assessment.
2. Technologies under 50 kWe or 45 kWth must be certified by a Microgeneration Certification Scheme (MCS), or equivalent, and installed by MCS (or equivalent) certified installers.
3. Combined heat and power (CHP) schemes above 50 kWe must be certified under the CHPQA standard. CHP schemes fuelled by mains gas are eligible to contribute to performance against this issue.
4. Heat pumps can only be considered as a renewable technology when used in heating mode. Refer to Annex VI of Directive 2009/28/EC for more detail on accounting for energy from heat pumps.
5. Where MCS or CHPQA certification is not available, the design team must investigate the availability of alternative accreditation schemes in line with the Directives listed above, or an equivalent country or regional directive or standard. Where an accreditation scheme exists, it should be used for the purpose of verifying compliance of the specified LZC technology. If no accreditation scheme exists in the country, the design team must demonstrate they have investigated the competence of the installer selected and are confident that they have the skill and competence to install the LZC technology appropriately.

LZC technology already available on site

For developments where there is an existing LZC energy source that can supply a compliant percentage of energy to the assessed building, a feasibility study will still have to be carried out to demonstrate that the existing technology is the most appropriate for the assessed building or development. The study should seek to identify any other options to supply a higher proportion of the building's energy demand in addition to that supplied by the existing source.

Note: This document is intended as guidance only. Consult your BREEAM AP or Assessor to ensure compliance is achieved.

In order to be compliant, the LZC energy source must continue to provide low carbon energy to existing buildings and provide additional low carbon energy to the new building.

Biofuels

First generation biofuels manufactured from feedstocks, e.g. biofuels manufactured from sugars, seeds, grain, animal fats etc. where these are grown or farmed for the purposes of biofuel production, are not compliant.

Second generation biofuels made from biomass which is a by-product of other processes can be compliant, although BRE Global will need to review the full details of this proposed technology.

Passive design measures:

The following measures will need to be modelled to compare the standard (notional) building and the proposed building (as designed):

- External shading devices
- Fabric performance
- Fabric proportions
- Thermal mass
- Daylighting
- Ventilation

Possible free cooling technologies:

The following technologies could be considered for implementation in line with the free cooling analysis:

- Night-time cooling (which could include the use of a high exposed thermal mass)
- Ground coupled air cooling
- Displacement ventilation (not linked to any active cooling system)
- Ground water cooling
- Surface water cooling
- Evaporative cooling, direct or indirect
- Desiccant dehumidification and evaporative cooling, using waste heat
- Absorption cooling, using waste heat.

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