

Ene08

Energy efficient equipment

Actions:

- i. Identify the building's unregulated energy consumption
- ii. Demonstrate a meaningful reduction in energy consumption

i. Unregulated energy consumption

Unregulated energy is the building energy consumption resulting from a system or process that is **not 'controlled'**, i.e. energy consumption from systems in the building on which the building regulations do not impose a requirement. This may include energy consumption from **operational-related equipment**, e.g. computers, servers, printers, laptops, mobile phone cupboards, cooking, audio-visual equipment and other appliances etc.

It does **not** include energy consumption from systems **integral** to the building and its operation (e.g. commercial or industrial refrigeration systems; lifts, escalators and other transportation systems; and ducted fume cupboards) because they are assessed separately.

Energy consuming loads

The building's **unregulated energy consuming loads** should be identified and their contribution to the total annual unregulated energy consumption of the building should be estimated, assuming a typical or standard specification.

A method should be used that estimates actual energy use, based on expected equipment loads and hours of operation. The energy uses may be estimated by using simple hand calculations, or benchmark data, or by the methods described in CIBSE TM54: Evaluating operational energy performance of buildings at the design stage.

Systems or processes contributing to energy consumption

The systems or processes that use a **significant proportion** of the total annual unregulated energy consumption of the building should also be identified.

This methodology is used to estimate which energy uses make up a significant proportion of the unregulated energy uses which means that detailed calculations are not required. The approach should focus on identifying the **larger energy uses** that should be included and the small energy uses that can be excluded. As a guide, energy uses making up at least **90%** of the estimated total annual energy consumption should typically be included (this is a statutory requirement in Wales, Northern Ireland and England).

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

ii. Energy consumption reduction

After identifying unregulated contributors to building energy consumption, a **meaningful reduction** in the total annual unregulated energy consumption of the building should then be demonstrated. BREEAM does not specify a level or percentage that defines a meaningful reduction in unregulated energy demand. Instead, the project team must **justify** how they have determined or judged a meaningful reduction from the unregulated energy demand and the assessor must be satisfied that this is an appropriate justification.

The table below lists some examples of **significant contributors** to unregulated energy consumption, and the associated criteria. If other significant contributors, not listed in the table, will be specified, the design team should justify how a meaningful reduction will be achieved for these contributors.

Significant contributors to unregulated energy consumption, for a number of different building types or functions, and the solutions deemed to comply:

Significant contributors
Swimming pool
<ol style="list-style-type: none">1. Specify automatic or semi-automatic pool covers, or 'liquid' pool covers with an automatic dosing system to ALL pools, including spa pools and hot tubs.2. The covers envelop the entire pool surface when fully extended.3. Control the air temperature in the pool hall so that it is 1°C above the water temperature.
Laundry facilities with commercial-sized appliances
Demonstrate at least one of the following for commercial-sized appliances: <ol style="list-style-type: none">1. Specification of heat recovery from waste water.2. Use of greywater for part of the washing process. This may be recycled from the final rinse and used for the next pre-wash.3. The commercial or industrial sized machines are identified as eligible for the UK's Enhanced Capital Allowance Scheme for water.
Data centres
<ol style="list-style-type: none">1. Design is in accordance with the 'Best practices for the EU Code of Conduct on Data Centres' principles with the data centre achieving at least the 'Expected minimum practice' level (as defined in the Code of Conduct).2. Temperature set points are not less than 24°C, as measured at the inlet of the equipment in the rack.
IT-intensive operating areas
<ol style="list-style-type: none">1. Specify a natural ventilation and cooling strategy as standard. Use forced ventilation only when the internal temperature exceeds 20°C and active cooling only when the internal temperature exceeds 22°C.2. Specify a mechanism to achieve automatic power-down of equipment when not in use, including overnight.
Domestic-scale appliances (individual and communal facilities)
Any white goods, available to purchase from the developer, must achieve the following ratings (or better) under the EU Energy Efficiency Labelling Scheme:

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Significant contributors

1. Fridges, fridge-freezers: A+ rating
2. Washing machines: A++ rating
3. Dishwashers: A+ rating
4. Washer-dryers: A rating
5. Tumble dryers:
 - a. A rating OR
 - b. For multi-residential assessments only, provide an adequate internal or external space capable of holding drying lines.

Healthcare

The procurement of large-scale equipment and sets of electrical equipment (where numbering more than 50) has been informed and selected by life cycle costing analysis for at least two options in accordance with HTM07-02, Part B, Chapter 1. 'Large-scale equipment' includes commercial-scale catering and laundry equipment and all other equipment with connected electrical loads in excess of 10kW rated input power.

Kitchen and catering facilities

Incorporate at least two-thirds of the energy efficiency measures outlined in the 'section summary' boxes of each of the following sections of CIBSE Guide TM50³ (except as specified):

1. Section 8 - Drainage and kitchen waste removal
2. Section 9 - Energy controls - specifically controls relevant to appliances
3. Section 11 - Appliance specification - excluding fabrication or utensil specifications
4. Section 12 - Refrigeration
5. Section 13 - Warewashing: dishwashers and glasswashers
6. Section 14 - Cooking appliance selection
7. Section 15 - Water temperatures, taps, faucets and water-saving controls.

Refrigeration for kitchen and catering facilities should be assessed here, not in Ene 05 Energy efficient cold storage.

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