

Ene 01 Energy performance

(All buildings)

Aim

The purpose of the issue is to reward buildings with high energy performance.

Overview

| Assessment type | Credits available | Applicable assessment criteria |
|-------------------------------|--------------------|--------------------------------|
| Fully fitted | 9 + 2 exemplary | All |
| Shell and core | 9 + 2 exemplary | All (see ref 1.0 and 1.1) |
| Shell only | 9 + 2 exemplary | All (see ref 1.0 and 1.1) |
| Residential: Fully fitted | 9 + 2 exemplary | All |
| Residential: Partially fitted | 9 + 2 exemplary | All (see ref 1.1) |
| EU taxonomy | - | See ref (3.0-3.2) |

Minimum standards

| Rating level | Credits |
|--------------|---|
| Good | One credit needs to be achieved on this issue |
| Very Good | Two credits need to be achieved on this issue |
| Excellent | Three credits need to be achieved on this issue |
| Outstanding | Six credits need to be achieved on this issue |

Assessment type specific notes

| Reference | Assessment type specific note |
|-----------|---|
| 1.0 | Shell only / Shell and core / Residential: partially fitted See methodology M2.2 |
| 1.1 | Shell only / Shell and core / Residential: partially fitted Where the future building owner is unknown criteria 3 is filtered out |

Building type specific notes

| Reference | Building type specific note |
|-----------|--|
| 2.0 | <p>Refurbishment and new construction: For projects including both refurbishment and new construction and where different performance requirements apply, see Swedish Guidance Note 1, SE-GN1 (Assessing mixed-use and multiple buildings for further guidance).</p> |
| 2.1 | <p>Cultural heritage buildings: For cultural heritage buildings a maximum of nine credits can be awarded on this issue.</p> |
| 2.2 | <p>Assessing part of a building: When an assessment covers part of a building, the energy performance calculation needs to be representative of the part included. It is up to the suitably qualified energy coordinator and the assessor to justify how this has been ensured.</p> |
| 2.3 | <p>Extensions to existing buildings: Where an extension to an existing building is being assessed, and that extension uses an existing building services system, the energy modelling and percentage of improvement must be based on the building fabric of the extension and building services system that will service the new extension. This includes any existing, shared and new plants that will serve the new extension area. The energy modelling does not have to consider the existing building fabric where it will be out of the scope of the BREEAM-SE assessment. Nor does it have to consider existing service systems where they are not supplying heating, cooling or ventilation to the new extension being assessed.</p> |

Issue specific notes

| Reference | Building type specific note |
|-----------|---|
| 3.0 | <p>EU taxonomy for new construction: A1-7.1-SC The Primary Energy Demand is at least 10% lower than the threshold set for the nearly zero-energy building requirements. The above EU Taxonomy requirements are fulfilled by achieving one credit on this issue. The property owner must confirm that the project will submit an energy performance certificate to confirm the reduction. A2-7.1-DNSH 1 – The Primary Energy Demand does not exceed the threshold set for the nearly zero-energy building requirements. The above EU Taxonomy requirements are fulfilled by showing compliance with the required EP_{pet} according to BBR. The property owner must confirm that the project will submit an energy performance certificate to confirm the reduction.</p> |
| 3.1 | <p>EU taxonomy for refurbishment: A1-7.2-SC 1 – The refurbishment complies with the applicable requirements for major renovations or leads to a reduction of primary energy demand of at least 30% The above EU Taxonomy requirements are fulfilled by showing compliance with the applicable requirements for major renovations or a reduction of primary energy demand of at least 30% This is justified by showing that the requirements of ref 3.2 are fulfilled or a calculation showing that the Energy performance (EP_{pet}) is reduced by at least 30 % and that the property owner confirms that the project will submit an energy performance certificate to confirm the reduction</p> |
| 3.2 | <p>Requirements for major refurbishment according to the EU taxonomy: The definition of a major renovation is EITHER a. The total cost of the renovation of the building envelope or installation system exceeds 25 % of the value of the building, excluding the value of the land on which the building is located OR b. More than 25 % of the building envelope's surface area is being renovated.</p> |

Assessment criteria

This issue is split into two parts:

- Calculated energy performance - nine credits
- Specialist study - two credits
- Exemplary credit – Energy performance

Calculated energy performance – nine credits

- 1 The building's energy performance is calculated by a suitably qualified energy coordinator using an accepted dynamic simulation modelling software (DSM software). Results and input data for the calculation are presented in a report, see M1.
- 2 Calculate the energy performance ratio as a percentage of the maximum permitted energy performance applicable to the project, see M1 and CN4. The number of credits awarded is given table 24.
- 3 The energy model is handed over to the property owner after commissioning to enable detailed monitoring of energy use, see M2.

Specialist study (cultural heritage buildings only) – two credits

- 4 A certified expert in cultural values (Sakkunnig avseende kulturvärden (KUL)) has been involved in specialist study at the concept design stage.
- 5 The study should investigate the implications of improving building envelope and services performance whilst minimizing the potential negative impacts on the historic value. (See M3)

Exemplary credit - Energy performance

- 6 Achieve the Energy performance credit (criteria 1 to 3)
- 7 Exemplary credits are awarded according to table 24.

Checklists and tables

Table 24: Percentage of EP_{pet} according to BBR and awarded credits.

| BREEAM-SE Credits | Energy Performance Ratio for new construction | Energy Performance Ratio for refurbishment | Minimum standard |
|-------------------|---|--|------------------|
| 1 | ≤ 90 | ≤150 | Good |
| 2 | ≤ 85 | ≤135 | Very Good |
| 3 | ≤ 75 | ≤100 or Ref 3.1 | Excellent |
| 4 | ≤ 65 | ≤90 | |
| 5 | ≤ 60 | ≤80 | |
| 6 | ≤ 50 | ≤75 | Outstanding |
| 7 | ≤ 40 | ≤70 | |
| 8 | ≤ 30 | ≤65 | |
| 9 | ≤ 20 | ≤60 | |
| 9 + 1 exemplary | ≤ 10 | ≤55 | |
| 9 + 2 exemplary | ≤ 0 | ≤50 | |

Methodology

M1: Calculating energy performance

Calculations of energy performance shall be performed in accordance with the applicable national regulations and guidance in force at the time of building permit or equivalent approval, see CN4. The calculations must be performed by suitably qualified energy coordinator (see Definitions) using an accepted DSM software, described in CN1.

Input for the energy model regarding building geometry, ventilation airflows and temperatures, performance of air handling units, and other technical data should be based on project prescribed specifications as far as possible.

The results of the calculations, as well as the input data of the calculations, shall be compiled in a report.

M1.1: Input data

The input data used for calculating the building's energy performance shall be presented. Only presenting files with input data from the DSM software is not acceptable.

M1.2: Assumptions for modelling shell only and shell and core buildings

If there is no information about the performance of the installation systems, e.g. when the systems are delivered as the tenant's equipment, standard data from applicable national energy regulations or recognised national guidance (see CN4), shall be used.

The performance of the building's technical systems must correspond to the level specified in applicable national energy regulations or recognised national guidance (see CN4), which means that only the effect of measures on the building envelope contributes to improved energy performance in the energy simulation.

If there is a green fit-out agreement with defined performance specifications, these can be used instead of standard data. This only applies to the parts of the building covered by the agreement. For speculative areas not covered by a green fit-out agreement, the minimum energy efficiency requirements set out in applicable national energy regulations or recognised national guidance apply (see CN4). Better values may not be assumed. See further information on green fit-out agreements in Appendix C.

M2: Handover of energy model post occupancy

Handover of the energy model enables further detailed energy follow-up and continuous use of the model in future refurbishments. Therefore it should be in a file format that enables the property owner to continue to use and adjust the model.

M3: Specialist study for cultural heritage buildings

The study includes looking at the potential for improving ventilation, air tightness and moisture control within the building, ensuring that these are considered in balance with that of the welfare of the historic building envelope.

This includes considering specified materials, impacts on breathability of the building and paying attention to additional ventilation that may be required

Each of the following (as a minimum) must be considered and recommendations for improvement made:

- Roof
- External and sheltered walls
- Ground floor
- Upper floors
- Windows and external doors

The certified expert in cultural values, together with the project team, makes recommendations for potential improvements to the building envelope in accordance with local building regulations and national best practice or where none existing in accordance with SS-EN 16096.

Where improvement cannot be made to any of the above (e.g. due to conservation or building performance issues), justification should be provided including the alternative measures that have been considered and reasons these measures could not be adopted (e.g. glazing options considered etc.).

Compliance notes

| Reference | Terms | Description |
|-----------|--|---|
| CN1 | Accepted Dynamic simulation modelling softwares | <p>Following software packages meets the minimum requirements in terms of minimum capabilities, design features and testing to be used to assess this BREEAM issue:</p> <ul style="list-style-type: none"> • IDA Indoor Climate and Energy • RIUSKA • IES VE (with local weather files) • EnergyPlus <p>In order to seek approval for another DSM software, SGBC should be contacted.</p> |
| CN2 | Local energy production | <p>Building energy use should be reduced with energy from sun, wind, geothermal, air or water that is generated in the building or on its plot and used for the building's heating, comfort cooling, domestic hot water and the building's service energy according to valid BBR version according to building permit and BEN.</p> |
| CN3 | Performing the energy modelling | <p>It is acceptable that the suitably qualified energy coordinator has not performed the modelling provided that it is clear that he/she has reviewed, approved and taken full responsibility for the method and the content of the calculation and report.</p> |
| CN4 | Applicable national energy regulations or recognised national guidance | <p>"Applicable national energy regulations or recognised national guidance" refer to the regulations and guidance in force at the time of building permit.</p> <p>For projects applying BBR 31 or earlier, this includes the relevant provisions in BBR, BEN and applicable Sveby guidelines.</p> |

Evidence

| Criteria | Interim design stage | Final post-construction stage |
|--------------------|--|--|
| All credits | | |
| 1-2 | <p>A design stage energy report for the assessed building according to M1</p> <p>Evidence that the suitably qualified energy coordinator meets the definition for this role.</p> | <p>Updated energy report based on as-built drawings, any changes to the specification during construction; and the measured air leakage rate, ductwork leakage and fan performances (as required by local Building Regulations)</p> <p>Evidence that the suitably qualified energy modelling coordinator meets the definition for this role.</p> |
| 3 | <p>Contract or an appointment letter from the suitably qualified energy coordinator confirming that they agree to hand over the energy model.</p> | <p>Evidence confirming that the energy model has been handed over to the building owner</p> |

Definitions

Suitably qualified energy coordinator

An individual who has:

- A bachelor's degree or higher in building services engineering, mechanical/electrical engineering, energy management, sustainable construction, or a closely related discipline
- A minimum of 3 years relevant experience in building energy modelling within the last 5 years.
- A recognised qualification or chartership such as a building services engineer or building energy modelling engineer.
- Broad expertise to cover all required technical aspects, guaranteeing that the data entry in the energy model is appropriate and the results reflect the actual performance of the building.

It is acceptable that the suitably qualified energy coordinator has not carried out the tasks that are within the role and commitment, provided that it is clear that the energy modelling engineer has reviewed, approved and fully taken responsibility for the methods and content of recommendations and reporting. The expert must have achieved the competence requirements in the criteria before starting the task.

Additional information

None