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CONSULTATION DRAFT

BREEAM New Construction V7 - Data Centres Annex

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Introduction

How to use this document

This document is to be read alongside:

- SD6073 BREEAM International New Construction Version 7 or,
- SD6074 BREEAM UK New Construction Version 7.

In this document, the above manuals are collectively referred to as the **source technical manuals.**

This Annex changes the criteria, methodology and evidence requirements of these manuals so that it is adapted for assessing data centres. The adapted content works with both International and UK assessments.

Consultation commentary

Commentary in this consultation copy will be written in *italics.*

This may be used to highlight any currently incomplete content which we are aware of, or to highlight specific areas we'd like feedback on.

Assessment issue codes

All assessment issue codes in this Annex are marked with a 'DC' post-script. This is to clearly identify and differentiate between the issues in the source technical manuals, and the modified ones here.

Example:

- Original issue: ***Ene 01*** *Energy and carbon performance for regulated energy uses*.
- Modified issue: ***Ene 01^{DC}*** *Energy performance of data centre infrastructure*.

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Summarising changes in assessment issues

Overview

In the 'Overview' section of each assessment issue, a table like the example below highlights where the standard criteria in the original manuals have been modified.

- A tick (✓) means that scoring, criteria, methodology or evidence requirements from this document is different from the source technical manuals, in whole or in part.
- A hyphen (-) means that there are no changes to this particular section.
- 'TBC' stands for 'To Be Confirmed'; content has not been finalised for this consultation copy.
- In some cases, the number of available credits has changed. This will be marked out in the 'scoring' column.

Credit name	Scoring	Criteria	Methodology	Evidence
Schedule and responsibilities	As source technical manual.			
Commissioning role	-	✓	-	TBC
Envelope testing	-	✓	✓	TBC
Handover	-	✓	✓	TBC

Minor changes

Where minor changes are made to existing criteria, methodology or tables, we use grey highlighting to mark out what's changed.

In the example below, criterion 2a and 2b are new and specific to data centres. The rest of the criteria are unchanged from the original issue, but the original text is included for clarity and context.

One credit – Energy monitoring by end-use

2. Energy monitoring is installed that allows ≥ 90% of the estimated annual energy consumption for each energy source to be assigned to an end-use category (see M2).

a. This is achieved for the overall facility and,
b. This is achieved independently for supporting functions for systems dedicated to these areas (see CN3 Shared systems and consumption).

Major changes

Where an assessment issue has been completely re-written and all content is new, highlighting is not used to keep the text readable.

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Scope

Assessment boundaries

BREEAM assesses data centres designed as permanent structures where the operator or developer has control over the design, construction and operation of the building and data centre infrastructure.

The data centre does not have to be permanently occupied. It can be intermittently occupied for security and maintenance purposes.

Building types covered

Asset category	Asset type	Asset sub-type
Data centre	Enterprise	-
	Co-location	Retail
		Wholesale
		Managed Service Provider
		Other
	Hyperscale	AI
		Cloud / Big Data
		Telecom / Network Operator
		Other
	Telecom / Network Operator	-
	Other	-

Building types not covered

- **Operators in control of IT equipment only** - any organisation with control only over their own IT equipment, but not the facility or infrastructure. For example, co-location customers.
- **Mobile data centres -** Portable and deployable data centres built as pre-assembled self-contained modules are not permanent structures, and outside the scope of BREEAM.
- **Where 'data centre' is not a principal function of the asset** - The principal function of the asset must be 'data centre'. Where the asset has been designed to support another function (for example, as server capacity for a large office), assess the asset against the principal function.

Where the eligibility is unclear, please contact BRE Global.

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Principal and supporting functions

Some issues and criteria in this Annex apply specifically to either principal or supporting functions.

For further information on these terms, please refer to *BREEAM Guidance Note 20 Assessing mixed-use schemes and multiple buildings*, which defines the terms 'principal' and 'supporting' function in general terms for standard assets.

In a data centre assessment, the principal function is the space for IT equipment, and all associated infrastructure (powering, cooling, networking, fire suppression, security etc). These areas typically do not include occupied space for people.

The supporting functions are everything else and include general occupied spaces such as offices. This includes any general office space within the dedicated data centre area. Only the most specialised spaces such as control rooms are excluded from the standard BREEAM assessment of occupied spaces. This ensures that BREEAM criteria relating to occupant wellbeing is applied consistently throughout the facility.

Appendix A provides a full list of the assessment scope for each issue. Please review this carefully to understand the rationale for the modified criteria in this Annex.

BREEAM assessment scope key

Principal functions

Supporting functions

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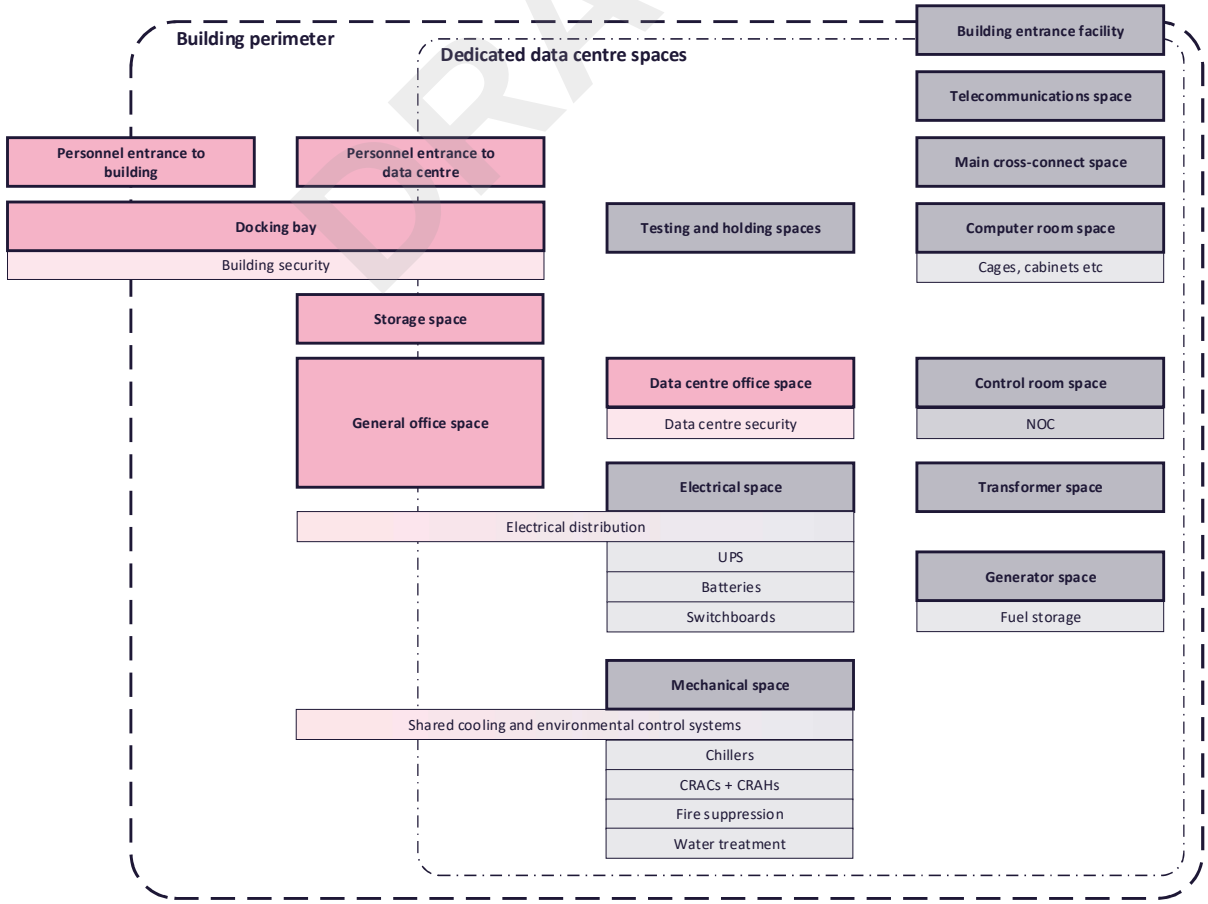

Figure 1 – Schematic diagram of a data centre based on the data centre functions listed in EN 50600-1:2026 'Information technology – data centre facilities and infrastructures'.

Assessment types

Fit-out level

This Annex supports 'shell and core' and 'fully fitted' assessments.

'Shell only' assessments are **not** supported and are assessed under the relevant BREEAM Industrial asset classification.

BREEAM fit-out level	What this means in this Annex	Assessed in this Annex
Shell only	- The data centre shell is constructed. - Enabling works are carried out for the future installation of data centre infrastructure by a tenant or future occupier. - Capped services are provided.	No
Shell and core	- The data centre shell is constructed. - All required infrastructure (mechanical, electrical, security, fire and environmental protection systems) is constructed. - The operator **does not** have control over the specification and operation of IT equipment.	Yes
Fully fitted	- As 'shell and core' but the operator **does** have control over IT equipment.	Yes

Cooling strategy

In a few issues, the cooling strategy used may change the applicable criteria.

Cooling strategy	What this means	How this affects the assessment
Closed loop	The data centre uses a closed loop cooling system which does not rely on evaporating water to expel heat. The water is recirculated indefinitely within the system, and no water is lost from the system except for planned maintenance, servicing, or leaks.	- Assessment is carried out using default criteria. - No change to water category weightings.
Open loop	The data centre uses an open loop cooling system to evaporate water into the atmosphere to cool the data centre. Water is continuously lost from the system in normal operation and must be replenished from municipal supplies or from a local water body.	- Additional requirements to consider WUE and WUI in *Man 06^{DC} Energy water balance*. - Additional requirements for reporting WUE and WUI in *Ene 02^{DC} Prediction of operational energy and carbon.* - Water category weighting increased.

As of this consultation copy, the choice of cooling strategy has only a small impact on the assessment. Pending further feedback this may change.

Multiple buildings on the same site

- **Single facility** - Where multiple data halls or buildings are operated as part of a single facility, sharing the same infrastructure and supporting functions, this is considered a single facility, and a single assessment.
- **Multiple facilities** - Where there are multiple separate data centres, similar in design and construction, but each independently operated and self-contained (not sharing infrastructure or supporting functions), the 'similar buildings' approach can be used.

Please refer to *Guidance Note 20 Assessing mixed-use schemes and multiple buildings* for further guidance.

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Extensions

Extensions to existing data centres can be assessed. Where the extension connects to existing infrastructure, services or facilities, assessment performance will be based on these facilities.

Other assessment types

Other assessment types are outside the scope of this Appendix. Please contact BRE Global for further information and guidance.

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Scoring and rating

Weightings

The following methodology here, and further detailed in Appendix B is a proposal, and for consultation.

The Annex uses fully fitted weightings for each country and adjusts these weightings to better reflect the relative environmental impact of data centres.

These adjustments will take place automatically in the BREEAM Platform. Some adjustment factors are fixed (data centre asset), and others depend on the presence of supporting functions and the data centre cooling strategy.

The Platform will carry out the following steps:

1. Identify the default fully fitted weightings for the country of assessment.
2. Apply adjustment factors based on data centre specific factors and fit-out level.
3. Output the adjusted data centre weightings for the facility.

Below is an example of how the weightings for France are adjusted based on different scenarios.

See Appendix B for more detail on this methodology.

Category	Example fully fitted weightings		
	Standard asset type (not a data centre)	Data centre with supporting functions	Data centre no supporting functions
Man	11.00%	7.43%	8.85%
Hea	19.00%	12.84%	3.82%
Haz	1.50%	1.01%	1.21%
Ene	16.00%	43.24%	49.25%
Tra	8.00%	5.41%	1.07%
Wat	7.50%	5.07%	6.03%
Mat	15.50%	10.47%	12.47%
Wst	7.00%	4.73%	5.63%
Lue	10.50%	7.09%	8.45%
Pol	4.00%	2.70%	3.22%

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Minimum standards

Key

Credits	Superscript	Colours
1▲ – 1 credit	XXX^{DC} – Issue modified for this Annex (applies to both UK and International) XXX^{INT} – International only issue (no change from source technical manual) XXX^{UK} – UK only issue (no change from source technical manual)	Minimum standards same as source technical manual. New or modified minimum standard for data centres (see issues for details).

Issue code	BREEAM Issue	Pass	Good	Very Good	Excellent	Outstanding
Man 03	Responsible Construction^{INT}	**National health and safety legislation is met** Crit. 2			**Basic responsible construction practices** 1▲ Responsible Construction Management	**Advanced responsible construction practices** 2▲ Responsible Construction Management
	Responsible Construction^{UK}	No requirements for UK				
Man 04	Commissioning and handover			**Comissioning of building systems** 1▲ Schedule and responsbilities **Technical and non-technical building user guides are written** Handover crit. 11		
Man 05	Aftercare				**Commitment to 12 month in-use commissioning** 1▲ In-use commissioning	
Man 07	Social value creation	**Identify opportunities for creating social value** 1▲ Local needs assessment				
Hea 01	Natural light					**Relevant areas have access to natural light** Crit. 1. As source technical manual, but excluding relevant areas with overriding security considerations.

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Hea 04	Indoor air quality[INT]	**No asbestos used** Crit. 1	**Indoor air quality plan** Crit. 2 **Smoking ban** Crit. 7		
	Indoor air quality[UK]	No requirements for UK	**Indoor air quality plan** Crit. 1		
Ene 01	Energy and carbon performance for regulated energy uses			**Improvement over baseline performance** EPR_{NC}: ≥0.4	**Best practice improvement over baseline performance** EPR_{NC}: ≥0.6
Ene 01[DC]	Energy performance of IT infrastructure			**Improvement over baseline performance** 4▲ Calculated energy performance	**Best practice improvement over baseline performance** 6▲ Calculated energy performance
Ene 02[DC]	Prediction of operational energy and carbon				**Predictive energy modelling** 3▲ Predictive energy modelling
					No nuclear generation or fossil fuel combustion on-site Crit. 1
Ene 03	Energy monitoring		**Monitoring for 90% energy consumption by end use** 1▲ Energy monitoring by end-use		
Wat 01	Wat 01 Water consumption		**15% improvement over baseline** 1▲		**30% improvement over baseline** 2▲
Wat 02	Water monitoring		**A water meter is installed** Crit. 1		
Mat 01	Building life cycle assessment			**Any project stage LCA and embodied carbon reporting** Crit. 1-6	**All project stage LCA and embodied carbon reporting** 5▲

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Mat 03	Responsible sourcing of construction products	**Legally harvested and traded timber** Crit. 1	
Wst 01	Construction waste management		**Pre-demolition audit** 1▲ OR **Resource management plan** 1▲ Construction resource efficiency
Wst 03a[INT] Wst 03[UK]	Operational waste		**Recycling facilities provided** 1▲
Pol 01	Impact of refrigerants		**No refrigerant use** 3▲ No refrigerant use OR **Refrigerants have an emissions rate < 1000 $kgCO_2e$ per kW** 1▲ Impact of refrigerant

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Man 04DC Commissioning and Handover

Aim

To encourage a proper planned handover and commissioning process appropriate for a data centre.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	5	Very good	All
Shell and core	5	Very good	All

Changes from NC V7 manual (Man 04)

Credit name	Scoring	Criteria	Methodology	Evidence
Schedule and responsibilities	As source technical manual.			
Commissioning role: Planning and preparation	-	✓	-	-
Commissioning role: Testing and validation	✓	✓	-	-
Envelope testing	-	✓	✓	-
Handover	-	✓	✓	-

Assessment type specific notes

Ref	Assessment type specific note
1.0	**Shell and core** Commissioning testing schedule and responsibilities and design and preparation is applicable according to the scope of services being specified or installed.
1.1	**Shell and core – Guides and training schedules** The guides and training schedules include, as far as possible, all relevant sections regarding the services and fabric installed. On completion of works the building owner, agent or user hands it over to the fit-out contractor, who can then complete the relevant sections based on the fit-out strategy.

Building type specific notes

Ref	Building type specific note
2.0	This note is redacted for data centres.

Assessment criteria

One credit – Schedule and responsibilities

As source technical manual.

One credit – Commissioning role: Planning and preparation

6. Achieve the schedule and responsibilities credit (criteria 1 to 5).
7. During the initial design stages (prior to commencement of any technical design), the client or principal contractor appoint a specialist commissioning manager. In addition to the specialist commissioning manager, suitably qualified professionals with expertise in MEP, ICT / network infrastructure, security and access control, fire safety and BMS are also to be appointed ensure compliance with relevant testing and standards.
    a. Rest of criteria 7a-7f as source technical manual.

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One credit – Commissioning role: Testing and validation

Exact criteria TBC.
The proposed credit will focus on the implementation, witnessing and validation of commissioning activities, rather than commissioning planning and management. This will include activities such as factory acceptance testing (FAT), sample installation inspections, pre-functional testing, functional performance testing (FPT), integrated systems testing (IST) and systems operational performance testing, as appropriate to the project.

It will include a requirement for the use of a robust quality assurance/control process to track the status of assets, components and systems throughout commissioning, such as a tagging-based approach or equivalent methodology, providing auditable evidence that testing, verification, issue tracking and close-out activities have been completed.

One credit – Envelope testing

8. Achieve the schedule and responsibilities credit (criteria 1 to 5).
9. Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths. This will be met by completing both airtightness testing and thermographic survey (see *M1*), carried out by a suitably qualified professional with experience in the testing of large, complex buildings, in collaboration with qualified building services specialists, in accordance with the appropriate standards (see *M1.5*).
10. The scope, methodology and interpretation of results shall be agreed with the suitably qualified building services engineers to ensure alignment with the cooling, pressure and ventilation strategies for the data centre. The assessment shall also consider the impact of air leakage and thermal defects on airflow management, cooling efficiency, containment systems and the maintenance of critical pressure regimes.
11. Rectify any defects identified during post-construction testing and inspection prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage (see *M1.4*).

One credit – Handover

12. Prior to handover, develop a technical building user guide (see *M2*) for the premises facilities managers, data centre operations teams and customer technical teams. A draft copy is developed in collaboration with facilities managers, data centre operations teams and customer technical teams to ensure that operational procedures, maintenance requirements, system interfaces and critical infrastructure information are clearly communicated and fit for purpose.
13. Prepare a training schedule (see *M3*) timed appropriately around handover for the premises facilities manager, data centre operations teams and customer technical teams.

Methodology

M1: Envelope testing

Assessors must apply Methodology *M1* in the source technical manual alongside additional information provided in this Annex.

M1.5 Appropriate standards

Air tightness testing

- ISO 9972:2015 Thermal performance of buildings - Determination of air permeability of buildings – Fan pressurization method.

- TSL3: Measuring Air Permeability in the Envelopes of Complex Buildings Fan Pressurisation Methods, Issue 1 September 2021.
- ASTM E3158 (North America) – Air leakage testing for large or multizone buildings.

Thermographic survey

- ISO 6781-1:2023 Performance of buildings – Detection of heat, air and moisture irregularities in buildings by infrared methods Part 1: General procedures.
- ISO 6781-3:2015 Performance of buildings – Detection of heat, air and moisture irregularities in buildings by infrared methods Part 3: Qualifications of equipment operators, data analysts and report writers.
- ASTM E3216-26 (North America) – Standard Guide for Use of Infrared Thermography in Evaluation of Buildings, Building Systems and Equipment.

M2: Building user guide

The building user guide shall be building-specific or site-specific guidance. The building user guide for data centres must align with industry standards (EN 50600 and ANSI/TIA-942). The purpose of the guide is to help facilities managers, data centre operations teams and customer technical teams access, understand and operate the building efficiently and in accordance with the original design intent. The content of the guide should include information on the following:

1. Overview of the building – size / capacity, tier, zones and access strategy.
2. Design intent statement / environmental strategy – e.g. energy, cooling, water, carbon and resilience.
3. Operational intent and principles of installed systems.
4. Access to controls, monitoring and management systems – e.g. where to find them, what they control, how to operate them effectively and efficiently.
5. Details on energy and water metering and monitoring strategies, including targets.
6. Maintenance principles, arrangements or considerations.
7. Safety and emergency information or instructions.
8. Summary of commissioning, testing and handover.
9. Building related training information or links.
10. Waste and recycling strategy, including location of facilities.
11. Provision of and access to transportation (e.g. pedestrian routes, cyclist facilities) and local amenities.
12. Links, references, key diagrams and schematics, glossary, relevant contact details (design team, specialist contractors, system providers).

The building user guide for facilities managers can use more technical language if appropriate and provide understandable information relevant to the professionals managing the building facilities. This guide could be part of the operation and maintenance (O&M) manuals.

There is no requirement on the format the building user guide should take.

M3: Training schedule

The training schedules shall include the following as a minimum:

- The building's design intent.

Additionally, for the facilities managers' training schedule:

- The available aftercare provision and aftercare team main contacts, including any scheduled commissioning and post occupancy evaluation.

- Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces.
- Introduction to the technical building user guide for facilities managers and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operation and maintenance (O&M) manuals, commissioning records, log book etc.
- Maintenance requirements, including any maintenance contracts and regimes in place.

For speculative developments where the end user is unknown, the training schedules must still be provided; and either a contract to provide future training to end users or evidence that relevant training has been provided to the building owner or a building or facilities manager.

Compliance notes

As source technical manual.

Evidence

As source technical manual

Definitions

As source technical manual

Additional information

As source technical manual plus:

- ASTM E3158 (North America) – Air leakage testing for large or multizone buildings.
- ASTM E3216-26 (North America) – Standard Guide for Use of Infrared Thermography in Evaluation of Buildings, Building Systems and Equipment.

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Man 06DC Energy water balance

Aim

To achieve balance between proposed water and energy efficiency for the data centre, taking into consideration the impact on the local area and community.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	1 + 1 exemplary	None	All
Shell and core	1 + 1 exemplary	None	All

Changes from NC V7 manual

New issue for this Annex.

Assessment type specific notes

TBC.

Building type specific notes

TBC.

Assessment criteria

One credit – Desk-based review

1. Achieve the 'stakeholder consultation' credit in Man 01.
2. During concept design stage, a desk-based review is carried out understand the local environment that the data centre will be commissioned in. This includes:
    a. Water scarcity data of local area and water risk report to assess potential future water stress.
    b. Energy demand and supply of local area, including grid constraints and available renewables.
    c. Local climate.
3. The desk-based review of building and site proposes more than one option for a "right fit" cooling system for the data centre. Each design option includes:
    a. Predicted water usage effectiveness (WUE).
    b. Predicted water usage impact (WUI).
    c. Predicted design power usage effectiveness (PUE).
    d. Predicted energy consumption.
4. Where an open loop cooling strategy is considered,
    a. The list of stakeholders includes any external parties (see M1.2) who are affected by the proposed water usage of the data centre.
    b. The minimum consultation content (M2 in Man 01) includes likely impacts arising from data centre water usage, and how to minimise these.
5. The option that that demonstrates the optimal balance between energy and water consumption is chosen, based on input from all internal and external stakeholders.

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One exemplary credit – Third party verification

6. The desk-based review (crit 1-3) is verified by an independent party with no vested interest in the project.

Methodology

M1: Desk-based review

M1.1 Review content

The desk-based review should consider:

1. Location of data centre.
2. Climate of location.
3. Local water stress.
4. Degree days.
5. Data centre size.
6. Redundancy equipment to be included in the data centre.
7. Intended lifespan of the data centre.
8. Predicted WUE of design options.
9. Predicted WUI of design options.
10. Predicted PUE of design options.
11. Predicted energy consumption of design options.

M1.2 Stakeholders

Key stakeholder groups can be based on:

- Geography: those closest to the site are likely to be more impacted.
- Interest: the level of interest the group has in local water issues.
- Impact: how could the group be affected by data centre water abstraction and how their actions might affect data centre operations.

Relevant water users and stakeholders could include for example:

- Critical users (such as hospitals).
- Industrial or agricultural.
- Domestic or commercial.
- Recreational.
- Indigenous communities.
- Government departments and non-government organisations (NGOs) focused on water issues.
- Water supply bodies and regulators.
- Natural environment bodies and interest groups.

Where existing statutory requirements for engagement exist, the requirements still apply. The intent is to expand the scope of engagement to reach a broader group of stakeholders and identify further opportunities for addressing shared water challenges.

Compliance notes

TBC.

Evidence

TBC.

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Definitions

Independent party

See definition in *Man 01 Project brief and design* in the source technical manual.

Additional information

Water Usage Impact

A metric developed by the Green Grid to factor in local water stress into water usage effectiveness (WUE) calculations. More information

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Man 07DC Social value creation

Aim

To encourage asset owners and managers to identify local social priorities and deliver measurable, additional social value outcomes that support inclusive, healthy and resilient communities.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	5	Pass	All
Shell and core	5	Pass	All

Changes from NC V7 manual

New issue for the Annex.

Assessment type specific notes

TBC.

Building type specific notes

TBC.

Assessment criteria

One credit - Local Needs Assessment

7. The asset owner or manager shall undertake a Local Needs Assessment to identify the social priorities of the asset's surrounding community. The assessment shall:
    a. Utilise relevant socio-economic data (e.g., local authority strategies, census data, public health statistics, UN SDG regional baselines, or recognised national / international socio-economic indexes).
    b. Identify key social challenges and opportunities.
    c. Explicitly consider the needs of underrepresented, disadvantaged, or vulnerable groups.
    d. Incorporate direct input or consultation with local community representatives

One credit - Stakeholder-led Social Value Strategy

8. Implement a Social Value Strategy based directly on the findings of the Local Needs Assessment. The strategy shall:
    a. Define clear, targeted social value objectives and measurable KPIs (such as Stakeholder Sentiment Score and Social Return on Investment (SROI)) aligned with identified local needs.
    b. Identify priority stakeholder groups and keep record of any ongoing engagement or communication.
    c. Describe planned interventions and intended community outcomes.
    d. Assign operational roles, resources, and delivery responsibilities.
    e. Demonstrate how stakeholder feedback has directly influenced priority selection.

One credit - Delivering social value interventions

9. The asset demonstrates implementation of one or more interventions that address priorities identified through the Local Needs Assessment. One or more of these interventions must:

a. Directly respond to high-priority need(s) identified in the LNA.
b. Have defined objectives and measurable outcomes.
c. Be integrated into long-term asset operations or management (e.g., supply chain policies, local employment commitments, long term access to shared spaces on the data centre's site such as office spaces, gyms swimming pools using waste heat, etc).

10. Interventions shall provide social value beyond legal, regulatory or contractual obligations.

One credit - Commitment to monitoring and measurement of outcomes

11. Establish a plan or process to monitor the performance and effectiveness of social value interventions. The assessment shall include:
    a. Clearly defined outcomes.
    b. Collection of performance data.
    c. Annual review of performance.
    d. Continuous improvement actions.
12. Formally publish the outcomes on a yearly basis to external stakeholders and the wider community. To verify significant social value claims, the report includes:
    a. Activities delivered.
    b. Outcomes achieved.
    c. Lessons learned.
    d. Future improvement actions.

One credit - Delivery of social value interventions during the construction phase

13. The asset demonstrates implementation and impact of short-term social value interventions identified in the LNA during the construction phase of the project.

Methodology

TBC.

Compliance notes

Ref	Terms	Description
Local needs assessment		
CN1	Existing LNA	If a Local Needs Assessment has already been carried out as part of early strategic planning before the beginning of the BREEAM assessment, it is still valid for this issue. It must have been completed for reviewed within the last 3 years, as measured from the date of registration.

Evidence

TBC.

Definitions

Local Needs Assessment

An evidence-led baseline review of social and economic priorities of the local and surrounding community and its stakeholders.

Social Value Strategy

A strategy that outlines social value objectives, priorities, the intended impacts, key measurable indicators and a clear roadmap to implement and achieve social value interventions.

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Stakeholder Sentiment Score

A quantitative measure of stakeholder attitudes, opinions, and emotions toward an organisation.

Social Return on Investment (SROI)

A methodology for measuring, valuing, and communicating the social, environmental, and economic outcomes an organisation generates as a ratio against their investment

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Hea 01^{DC} Natural light

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	As source technical manual.		
Shell and core			

Changes from NC V7 manual

See building type specific note.

Assessment type specific notes

As source technical manual.

Building type specific notes

Ref	Building type specific note
2.4	**Data centres** Any occupied areas subject to overriding security restrictions can be excluded from the assessment for the following credits and criteria: • Minimum standard. • Daylighting (standard and exemplary). • Direct sunlight to windows. • View out. Provide clear evidence and boundaries for the affected areas, alongside clear justification for the overriding security restrictions.

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Ene 01^{DC} Energy performance of data centre infrastructure

Aim

To minimise the energy losses from data centre infrastructure mechanical loads and electrical losses and maximise data centre energy efficiency.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	9	Excellent, Outstanding	All
Shell and core	9	Excellent, Outstanding	All

Changes from NC V7 manual

Issue fully re-written for this Annex.

Assessment type specific notes

Ref	Assessment type specific note
-	None.

Building type specific notes

Ref	Building type specific note
-	None.

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Assessment criteria

Prerequisite – ASHRAE 90.4 compliance

14. The assessment area complies with *ASHRAE 90.4-2025 Energy Standard for Data Centers*.

Up to nine credits – Calculated energy performance

15. Calculate the Energy Performance Ratio of the data centre principal functions (EPR_{DC}), and the Energy Performance Ratio of the supporting functions (EPR_{NC}). The number of credits awarded, and minimum standard achieved, is given in Table 1. See *M2* for calculation methodology.

Checklists and tables

Table 1 EPR performance scale.

EPR_{DC} for principal functions	EPR_{NC} for supporting functions	BREEAM credits	Minimum standard achieved
≥ 0.10	-	1	-
≥ 0.20		2	
≥ 0.30		3	
≥ 0.40	≥ 0.40	4	Excellent
≥ 0.50		5	
≥ 0.60	≥ 0.60	6	Outstanding
≥ 0.70		7	
≥ 0.80		8	
≥ 0.90		9	

Methodology

M1: Calculating EPR_{NC}

See *M1* and *M2* in the source technical manual. For the purposes of this issue, no credits are awarded for the calculated performance of supporting functions, however achieving the required EPR_{NC} for Excellent or Outstanding is part of the minimum standard for this issue.

M2: Calculating EPR_{DC}

M2.1: Defining baseline performance (EPR_{DC} = 0)

The EPR_{DC} is a scale of performance. The bottom of the scale (EPR_{DC} 0) represents the minimum efficiency allowable under ASHRAE 90.4-2025. This baseline comprises two components (see definitions for how these are calculated). Both are expressed as a ratio of data centre ITE equipment design power.

- **Maximum MLC_A (annualised Mechanical Load Component).**
  The maximum allowable data centre building services electrical load. For example, an MLC of 0.3 means that for every 1 kW drawn by the data centre in normal operation, 0.3 kW is drawn for the mechanical services that work to maintain IT equipment within their operating limits. Only the remaining 0.7 kW is used to power the IT equipment. **MLC_A** is a weighted average of four different part load performance levels (25%, 50%, 75% and 100% of ITE design power), annualised to account for seasonal variations.

- **Maximum ELC_A (average Electrical Loss Component).**
  The maximum allowable electrical loss from the operation of data centre electrical systems. For example, an ELC of 0.1 means that for every 1 kW of power drawn by the data centre, 0.1 kW is lost through electrical losses as it travels through the power delivery infrastructure as heat and 0.9 kW goes to the IT equipment. ASHRAE 90.4-2025 sets four individual maximum values for **ELC** for part load scenarios (25%, 50%, 75% and 100% of ITE design power) which must all be met individually. For the purposes of BREEAM, these are combined into a single average value **ELC_A**.

These maximums are defined in ASHRAE 90.4-2025.

DRAFT

M2.1.1 Maximum MLC

Maximum MLCs are defined in Table 6.5 of 90.4-2025. These depend on the ASHRAE climate zone of the facility. An extract showing information relevant for facilities with design ITE power > 300kW is shown below.

Table 6.5 Maximum Annualized Mechanical Load Component (Annualiz

	Design ITE Power > 300 kW			
Climate Zone [a]	Process Heating Segment	Process Ventilation Segment	Process Cooling Segment	Maximum Annualized MLC
0A	0	0.01	0.28	0.29
0B	0	0.01	0.31	0.32
1A	0	0.01	0.29	0.30
1B	0	0.01	0.30	0.31
2A	0.01	0.01	0.26	0.27
3A	0.01	0	0.23	0.24
4A	0.01	0	0.20	0.21
5A	0.01	0	0.18	0.19
6A	0.01	0	0.18	0.19
2B	0.01	0	0.19	0.20
3B	0.01	0	0.19	0.20
4B	0.01	0	0.16	0.17
5B	0.01	0	0.16	0.17
6B	0.01	0	0.16	0.17
3C	0.01	0	0.16	0.17
4C	0.01	0	0.16	0.17
5C	0.01	0	0.16	0.17
7	0.01	0	0.16	0.17
8	0.01	0.01	0.14	0.15

a. Climate zones are as listed in ANSI/ASHRAE Standard 169.

DRAFT

M2.1.2 Maximum MLC

The maximum ELCs are defined in Table 8.5 and 8.6 of 90.4-2025. These values are independent of climate zone. Table 8.6 for design ITE loads ≥ 100kW is shown below.

Table 8.6 Maximum Design ELC and ELC Segments (IT Design Load ≥ 100 kW)

	UPS Redundancy Configuration: Single-Feed UPS (N, N+1, etc.) or Active Dual-Feed UPS (2N, 2N+1, etc.) [a]			
Calculation Percentage	100% of IT design load segment ELC	75% of IT design load segment ELC	50% of IT design load segment ELC	25% of IT design load segment ELC
Segments of ELC and Overall ELC	*Loss/efficiency*	*Loss/efficiency*	*Loss/efficiency*	*Loss/efficiency*
UPS Segment	5.5%/94.5%	5.5%/94.5%	6.0%/94.0%	7.0%/93.0%
ITE Distribution Segment	5.8%/94.2%	4.6%/95.4%	3.6%/96.4%	2.5%/97.5%
Electrical Loss/Efficiency Total	11.0%/89.0%	9.8%/90.2%	9.4%/90.6%	9.3%/90.7%
ELC	0.110	0.098	0.094	0.093

a. ***Informative Note:*** Example calculations are shown in Informative Appendix C.

M2.1.3 Calculating baseline performance

$$Baseline\ performance = MLC_A + ELC_A$$

Example:

A 1MW design ITE power facility is based in Alcona, Michigan, USA. This sits within ASHRAE climate zone 6A.

- Maximum allowable MLC_A: 0.190
- Maximum allowable ELC_A: 0.099

For the example facility:

Baseline performance = 0.19 + 0.099 = **0.289**

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M2.2: Defining best practice performance (EPR_{DC} = 1)

The top of the scale is an optimal MLC and ELC as defined by BRE policy and industry consultation.

$$Best\ practice\ performance = (MLC_A \times 0.5) + (ELC_A \times 0.8)$$

Example:

Best practice = (0.19 x 0.5) + (0.099 x 0.8) = 0.095 + 0.079 = **0.174**

For the purposes of this consultation copy, the multipliers are given only as examples and must be subject to industry consultation. The multiplier should reflect a point which is just beyond what is currently considered achievable using the best available technologies. It is understood that the best practice MLC and ELC are subject to different limitations and so two separate multipliers are used.

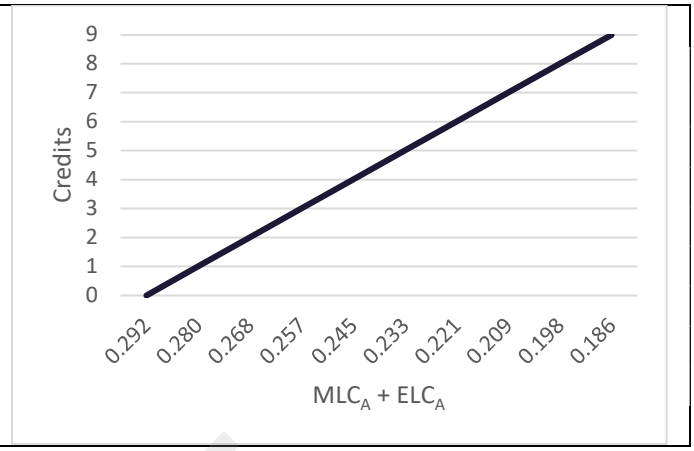
M2.3: Calculating performance

Using these metrics, a performance scale is defined. Zero credits are awarded at or below the baseline performance and full credits at or above the best practice performance.

As of this consultation version, performance scales linearly between these points, however in the final version this will be a curve which better represents the distribution of performance for typical data centres.

For the example facility, the following performance scale is generated.

EPR_{DC}	$MLC_A + ELC_A$	Credits
0.00	0.292	0
0.10	0.280	1
0.20	0.268	2
0.30	0.257	3
0.40	0.245	4
0.50	0.233	5
0.60	0.221	6
0.70	0.209	7
0.80	0.198	8
0.90	0.186	9



Performance is assessed from the sum of three components:

- MLC_A.
- ELC_A.
- LZC_A (average BREEAM Low Zero Carbon technologies component)
  The contribution of BREEAM-recognised on-site or direct wire low zero carbon technologies that offset design ITE power. Like the other components, this is expressed as a ratio of total ITE power and is an annualised average of this contribution over the ITE load levels of 25%, 50%, 75% and 100%. Unlike the ASHRAE 90.4 Onsite Renewables component (OR_N), the contribution of this component is not capped. See definitions.

The facility's calculated **$MLC_A + ELC_A$ - LZC_A** collectively defines the EPR_{DC} which is used to award credits.

$$Design\ performance = Design\ MLC_A + Design\ ELC_A + Design\ LZC_A)$$

The example facility achieved the following:

- MLC_A: 0.155
- ELC_A: 0.095
- LZC_A: 0.008

Actual performance = 0.181 + 0.095 – 0.008 = 0.242

0.242 = 4 credits and achieves the Excellent minimum standard.

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Compliance notes

TBC.

Evidence

TBC.

Definitions

ITE design power

"The combined power in kilowatts (kW) of all the ITE [IT equipment] loads for which the ITE system was designed. The data centre ITE design power does not include any additional loads."
ASHRAE 90.4-2025

ELC (electrical loss component)

"The combined loss (or the loss calculated from efficiencies) of two segments of the electrical chain: UPS segment and ITE distribution segment."
ASHRAE 90.4-2025

ELC_A (average electrical loss component)

$$ELC_A = \frac{EL_{25} + EL_{50} + ELC_{75} + ELC_{100}}{4}$$

ELC_{25} denotes electrical losses at 25% ITE design power. ELC_{50} at 50% power etc.

MLC (mechanical load component)

"The result of dividing the sum of the annual process cooling energy, annual process heating energy, and annual process ventilation energy by the annual total data centre energy."
ASHRAE 90.4-2025

Data centre energy includes all energy used by the data centre. This includes:

"HVAC systems, electrical systems, equipment, or portions thereof, used to condition ITE or electrical systems. Data center systems may also be shared, serving other data center additions or non data-center loads."
ASHRAE 90.4-2025

MLCA (annualised mechanical load component)

$$Annualised\ MLC = \frac{\sum MechE\ for\ 25\%,50\%,75\%,100\%\ ITE\ design}{2.5 \times 8760\ hours \times data\ center\ ITE\ design\ power}$$

"MechE = (Process cooling segment + Process ventilation segment + Process heating segment), in kWh, determined annually and according to the design at that percentage of ITE design power."
ASHRAE 90.4-2025

LZC_A (average BREEAM low zero carbon technologies component)

$$LZC_W = \frac{LZC_{25} + LZC_{50} + LZC_{75} + LZC_{100}}{4}$$

LZC_{25} is ratio of annualised renewable energy generated as a proportion of 25% ITE design power. LZC_{50} is the ratio at 50% ITE design power etc.

The key difference between this and **on-site renewables component (OR_N)** is that for BREEAM:

- Only renewable sources recognised by BREEAM can contribute to this component.
- Unlike OR_N, this component is not capped at a maximum of 0.05.

OR_N (On-site renewables component)
"Total annual energy that is produced on site by renewable energy systems and that is consumed on site, modelled at a constant ITE load of N% of the design ITE load. On site renewables can only be included in the annualized MLC calculation if the data center owner owns the on-site renewable energy system or has signed a contractual agreement to purchase energy generated by the on-site renewable energy system for at least 10 years. Existing on-site renewables shall not be credited for Standard 90.4 compliance if they have previously received credit under Standard 90.1 or any other energy standard."
ASHRAE 90.4-2025

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Additional information

ASHRAE climate zones

The ASHRAE 169 standard defines climate zones for the world, and where this is unclear or unrepresentative (for example if the facility is at high altitude), it sets out the methodology for calculating the appropriate climate zone based on local weather data.

In ASHRAE 90.4-2025, the climate zone dictates the maximum allowable MLC based on temperature and moisture. Across most climate zones, hotter and humid environments have higher allowable MLCs than cooler, dryer ones to recognise the increased difficulty of data centre cooling in these environments.

ASHRAE climate zones comprise a number and a letter e.g. 4B, 6A.

Temperature (number)

Starting from 0 (hottest) to 8 (sub-arctic / arctic) the number indicates a zone's typical temperature.

- **Zone 0:** Extremely Hot (e.g., deserts, or extremely hot-dry environments).
- **Zone 1:** Very Hot (e.g., Miami, tropical regions).
- **Zone 2:** Hot (e.g., Houston, Phoenix).
- **Zone 3:** Warm (e.g., Atlanta, Los Angeles).
- **Zone 4:** Mixed (e.g., Washington D.C., Seattle).
- **Zone 5:** Cool (e.g., Chicago, Denver).
- **Zone 6:** Cold (e.g., Minneapolis, Montreal).
- **Zone 7:** Very Cold (e.g., parts of northern Canada and Siberia).
- **Zone 8:** Subarctic / Arctic (e.g., Barrow, Alaska).

Letter (moisture)

Indicates the dominant precipitation traits of the region.

- **A (Humid):** High moisture content in the air.
- **B (Dry):** Arid or semi-arid conditions with very low moisture.
- **C (Marine):** Mild, coastal climates near oceans.

Resources

For further information and resources on ASHRAE climate zones, visit the ASHRAE Weather Data Center.

DRAFT

Ene 02DC Prediction of operational energy and carbon

Aim

As source technical manual.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	12 + 2 exemplary	Outstanding	All
Shell and core	12 + 2 exemplary	Outstanding	All

Changes from NC V7 manual

Credit name	Scoring	Criteria	Methodology	Evidence
Minimum standard – No nuclear generation or fossil fuels on site	-	✓	✓	-
Energy strategy	-	-	✓	-
Predictive energy modelling	-	-	✓	-
Risk assessment and mitigation	-	-	✓	-
Predicted operational energy performance score	Content TBC following consultation feedback			
Disclosing an in-use energy performance target	Content TBC following consultation feedback			
Preparing for in-use measurement of energy consumption	Credit removed from the Annex			
Commitment to measure energy consumption in-use	-	-	-	-

Assessment type specific notes

Ref	Assessment type specific note
1.0	**Shell and core – Predictive energy modelling credits** Where the building occupiers are unknown, the modelling assumptions should be based on typical occupancy and servicing for the building type unless green lease commitments are in place.

Building type specific notes

Ref	Building type specific note
2.1	**Data centres** All credits in this issue, and the minimum standard apply regardless of GIA. (This overrides issue specific note ref 3.0).

Issue specific notes

Ref	Issue specific note
3.0	This note is redacted for data centres:

Assessment criteria

Minimum standard – No nuclear generation or fossil fuels on-site

1. No nuclear generation or fossil fuels will be used by the building in normal operation (see *M6*).

Up to five credits – Predictive energy modelling process

One credit – Energy strategy

As source technical manual.

Three credits – Predictive energy modelling

As source technical manual.

One credit – Risk assessment and mitigation

As source technical manual.

Up to seven credits – Predicted operational energy performance score

We are seeking consultation input for these credits to define the scope and metrics to be used for predicted operational energy benchmark performance score for data centres – please refer to the consultation questions document.

Achieve the predictive energy modelling credits.

Credits are awarded based on predicted operational performance shown in Table 1.

For all levels of performance, the following key performance indicators (KPIs) shall also be calculated and reported for transparency purposes:

- Carbon Usage Effectiveness (CUE).
- Energy Reuse Factor (ERF).
- Renewable Energy Factor (REF).
- (open loop only) Water Usage Effectiveness (WUE).
- (open loop only) Water Usage Impact (WUI).

Table 1: Predicted operational energy performance score

Metric	Credits available
Metric and values for consultation	1
	2
	3
	4
	5
	6
	7

One exemplary credit – Disclosing an in-use performance target

We are seeking consultation input on these credits to define the scope and metrics for the in-use performance targets – please refer to the consultation questions document.

An in-use energy performance target has been disclosed to stakeholders and been made publicly available prior to practical completion.

One exemplary credit – Third-party validation of predictive energy modelling

As source technical manual.

One exemplary credit – Commitment to measure energy consumption in-use

As source technical manual.

DRAFT

Methodology

M1: Predictive energy modelling

M1.1: Energy strategy

An energy strategy for the building must be generated at the concept design stage. This should outline the fabric performance specification and the energy servicing strategies and describe qualitatively how these will contribute to reducing operational energy consumption in use. The energy strategy should also demonstrate that the use of local low and zero carbon (LZC) technologies have been considered and specified, where feasible.

The energy strategy may be supported by early-stage design models, tools and calculation. It should indicate any energy related performance targets that are set for the building at the concept design stage.

M1.2: Predictive energy modelling

Predictive energy modelling must be carried out by a suitably qualified energy modelling engineer or accredited professional. For most projects, dynamic simulation modelling (DSM) with advanced capabilities for heating, ventilation and air conditioning (HVAC) systems and controls should be used to explore how the building will perform under different operating conditions.

DSM with advanced capabilities for modelling HVAC systems and controls should always be used for predictive energy modelling where:

- Centralised HVAC servicing systems provide multiple services, or serve multiple zones, and will require complex control strategies to operate efficiently.

OR

- The building envelope has complex geometry, relies on high thermal mass or has complex façade systems.

OR

- There are plant or equipment items where the energy performance will vary significantly based on load or weather conditions.

Suitable energy modelling software includes:

- IES VE(ApacheSim)
- Design Builder
- EnergyPlus
- TRNSYS

In all cases the suitably qualified energy modeller must confirm that the software has the capability to adequately model the energy performance of the specific building.

DSM modelling without advanced capabilities for modelling HVAC systems and controls may be used when the building meets all of the following criteria:

- It will be controlled by a single occupier.
- Is serviced by simple building systems with no complex controls.
- The building does not rely on thermal mass.
- The building does not have complex geometry.

BREEAM approved dynamic simulation (DSM) with advanced capabilities for HVAC systems and controls must be used to explore how the building will perform under different operating conditions.

Where the criteria listed above have been met and an alternative modelling approach is used, a suitably qualified energy modelling engineer must confirm that the alternative approach selected will be able to model the building performance with sufficient accuracy.

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In all cases, the suitably qualified energy modeller must confirm that the software has the capability to adequately model the energy performance of the specific building and must predict the operational energy consumption of the building over the course of a year based on the expected unregulated energy loads and expected occupancy patterns for the building.

Assuming the standard occupancy patterns used for *Ene 01* is not sufficient for this issue.

M1.2.1: Estimating unregulated energy loads and occupancy patterns

Principal functions

The IT load should be defined, including servers, storage equipment and storage networks, with the design IT load and load profile established over the anticipated operating period. The assessment should define the operating hours and apply appropriate utilisation factors to reflect expected performance and demand conditions.

Supporting functions

Significant energy end uses that will be present in the building must be identified. As a minimum the following end uses should be considered:

- Energy use for lighting not covered by building regulations.
- Energy use for lifts and escalators.
- Energy use for small power.
- Energy use for catering.
- Energy use for server rooms.
- Energy use for domestic hot water.
- Energy use for any other types of unregulated plant and equipment – e.g., commercial refrigeration, medical equipment etc.
- Energy use for industrial process load.

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For each of the end uses present, estimate the energy use profiles. This should be based on project specific information, occupancy and usage patterns, wherever possible.

The anticipated operating hours should be requested from the intended occupier, for example through a structured interview. This information, together with the design and control regimes for proposed systems (e.g. optimum start controls, night setback and night purge), should be used to estimate the hours of operation for the plant and equipment.

Where no intended occupier has been identified, the assumptions should be based on in use benchmarks or unregulated energy loads and occupancy patterns for similar buildings.

M1.2.2: Sensitivity analysis and scenario modelling

Principal functions

A sensitivity analysis and scenario modelling exercise should be undertaken to evaluate the effect of key design and operational parameters on energy performance. The assessment should identify and test relevant variables, including, but not limited to, IT load levels, supply air temperatures, cooling hours based on applicable weather files, chiller and fan part-load efficiencies, humidification regimes and other significant factors influencing energy consumption. The analysis should quantify the impact of these variables on the predicted energy performance of the data centre and inform the selection of the proposed design solution.

Supporting functions

Sensitivity analysis should be undertaken to explore the effect of key operational assumptions on energy performance. This should focus on modelling inputs that are likely to have a high impact on the energy performance or where there is greatest uncertainty.

The following operational assumptions should be considered when selecting input variables for the sensitivity analysis:

- The efficiency of major energy consuming components.
- Alternative system configurations and control strategies.
- Occupancy density and hours of use.
- Management and occupant behaviour.
- Current and future weather scenarios.

This analysis involves varying the selected input assumptions one at a time to determine those that will have the greatest impact on the energy performance.

It is not necessary to consider all input variables, but the sensitivity analysis should focus on those that are expected to have the most significant impact on energy consumption.

The results of the sensitivity analysis should be used to inform the development of scenarios that reflect the likely energy performance range for the building. The scenarios must include:

- A central case scenario which represents the most reasonable assumptions about occupancy, fabric and building system efficiencies and control strategies.
- A high energy consumption scenario based on uncertainties relating to key input parameters which result in higher energy consumption.
- A low energy consumption scenario based on uncertainties relating to key input parameters which result in lower energy consumption.

M1.2.3: Predicting annual operational energy

Assessors must assess this section in accordance with the source technical manual.

M1.2.4: Reporting modelling results

Assessors must assess this section in accordance with the source technical manual.

M1.3: Risk assessment and mitigation

The risk assessment should consider situations where the design assumptions and operational situation could have a significant negative impact on energy consumption in use.

Risks to be considered (where relevant) include:

- Product specification and the management of value engineering decisions
- Construction quality.
- System installation considerations, particularly for complex or novel systems.
- Appropriate commissioning of servicing systems.
- Ensuring that end users understand how to operate the building as intended.

Options for mitigating these risks include:

- Product specification and the management of value engineering decisions – Contractual requirements relating to changes to the design specification.
- Construction quality – Achieving the 'Envelope testing' credit in *Man 04*.
- System installation considerations, particularly for complex or novel systems – The use of experienced installers and contractors.
- Appropriate commissioning of servicing systems – Achieving the 'Commissioning role' credit in *Man 04* and / or the 'In-use commissioning' credit in *Man 05*.
- Ensuring that end users understand how to operate the building as intended – Achieving the 'Handover' credit in *Man 04*.

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Risks to be considered (where relevant) include but are not limited to:

- IT load uncertainty.
- Performance gaps.
- Overheating.
- Cooling and control underperformance.
- Modelling assumptions and data quality.

Options for mitigating these risks include but are not limited to:

- Mitigation with scalable cooling solutions and efficient plant at various part load conditions.
- Metering and sub-metering approach that separates IT, mechanical and electrical loss streams through thorough commissioning.
- CFD analysis and proper containment.
- Commissioning the control sequencies and strategies across seasons and verify the set-points in use.
- Base inputs on comparable metered data where possible and documents these assumptions.

Note that alternative mitigation measures may be used.

Where it can be demonstrated that the expected benefits of implementing a mitigation measure is minimal the measure does not have to be implemented.

M2: Predicted operational energy performance score

Scope and metrics for a benchmark are subject to consultation.

The methodology, assumptions, load conditions, sensitivity analyses and resulting performance indicators should be documented within the energy strategy and verified by a suitably qualified energy assessor.

M3: Disclosing an in-use energy performance target

Scope and metrics are subject to consultation.

This information must be made available to building stakeholders (for example, prospective owners and occupiers of the building) and be accessible to members of the public.

M4: Third-party validation of energy prediction model

As source technical manual.

M5: Commitment to measure in-use energy consumption

As source technical manual.

M6: No nuclear generation or fossil fuels on-site

M6.1 Nuclear generation

This includes all types of nuclear power, for primary or backup generation purposes.

M6.2 Fossil fuels

The scope of fossil fuel use on site includes all fossil fuel use by the building except for:

- Industrial scale process loads.
- Emergency and life safety systems such as those for firefighting, evacuation, or back-up power for safety-critical systems and equipment, or within healthcare settings.
- Essential back-up systems serving buildings with functions where it is essential to maintain their continuous use, particularly in response to a disaster, for example hospitals, fire stations, police stations and emergency vehicle garages.

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Compliance notes

As source technical manual.

Evidence

As source technical manual.

Definitions

As source technical manual, plus:

Power Usage Effectiveness

PUE is a standard measure of a data centre's energy efficiency as a ratio of overall data centre energy consumption vs IT equipment energy consumption.

$$PUE = \frac{E_{DC}}{E_{IT}}$$

E_{DC}: Total data energy consumption (annual) in kWh
E_{IT}: IT equipment energy consumption (annual) in kWh

More information available at: CLC / TR 50600-4-2:2016 + A1:2019

Water Usage Effectiveness

WUE is a measure of the efficiency of net water use within a data centre, measured in L / kWh.

$$WUE = W_u / E_{IT}$$

Where:
E_{It} is the IT equipment energy consumption (annual) in kWh;
W_u is the water usage (annual) of the data centre measured by total volume in litres.

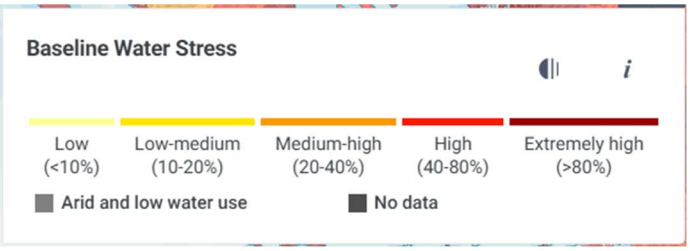
More information available at: CLC / TR 50600-4-9:2022

Water Usage Impact

WUI factors in local water stress to the WUE figure.

WUI = WUE x (Annual baseline water stress + 1)

The value for annual baseline water stress is taken from the WRI Water Risk Atlas.



The scale gives a range of values – unless specific data is available which gives the exact values for the catchment area, use the worst case. E.g. the Loire basin in France has low water stress (< 10%) – therefore in this area assume the value 0.1 (10%) for the calculation of WUI.

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For more information on WUI please see the Green Grid white paper here.

Energy Re-use factor

$$ERF = \frac{E_{\text{Reuse}}}{E_{\text{DC}}}$$

E_{Reuse}: Annual energy from the data centre that is exported outside the data centre boundary (i.e. typically as waste heat) for use by external recipients.

E_{DC}: total annual data centre energy consumption.

More information available at: BS EN 50600-4-6:2020

Renewable energy factor

$$\text{REF} = \frac{E_{\text{ren}}}{E_{\text{DC}}}$$

E_{ren}: Renewable energy in kWh owned and controlled by a data centre, generated on-site or off-site.

E_{DC}: The total data centre energy consumption (annual) in kWh.

More information available at: CLC/TR 50600-4-3:2016 / A1:2019

Carbon Usage Effectiveness

$CUE = DC_{CO2}/E_{IT}$

where DC_{CO2} are the CO2 emissions of the data centre in kg and E_{IT} is the IT equipment energy consumption (annual) in kWh.

More information available from: BS EN 50600-4-8:2022

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Additional information

None.

Ene 03DC Energy monitoring

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	2	Very Good	All
Shell and core	2	Very Good	All

Changes from NC V7 manual

Credit name	Scoring	Criteria	Methodology	Evidence
Energy monitoring by end use	-	✓	-	-
Energy monitoring for different occupiers and functional areas	-	✓	-	-

Assessment type specific notes

Ref	Assessment type specific note
-	None

Building type specific notes

Ref	Building type specific note
2.3	**Data centres** All data centre assets must have an energy monitoring and management system. The metering of supporting functions for this issue is assessed independently from the whole asset.

Assessment criteria

One credit – Energy monitoring by end-use

1. Identify the energy sources that will be used by the building and estimate the annual energy consumption for the following (see *M1*):
    a. Grid supply electricity.
    b. Grid supply gas.
    c. District heating.
    d. District cooling.
    e. Renewable electricity generated on-site.
2. Energy monitoring is installed that allows ≥ 90% of the estimated annual energy consumption for each energy source to be assigned to an end-use category (see *M2*).
    a. This is achieved for the overall facility and,
    b. This is achieved independently for supporting functions and their dedicated systems (see *CN10* Shared systems and consumption).
3. Renewable electricity generated on-site and exported from the building must be separately monitored.
4. Energy meters are connected to an energy monitoring and management system.
5. Those responsible for monitoring the building's energy consumption can clearly identify the end-use category covered by each meter.

One credit – Energy monitoring for different occupiers and functional areas

6. Energy monitoring is installed that allows energy consumption to be assigned to separately tenanted or occupied areas or to relevant functional areas within the building (see *M3*).
7. Energy meters are connected to an energy monitoring and management system.

DRAFT

8. Those responsible for monitoring the building's energy consumption can clearly identify the functional or occupier area covered by each meter.

Methodology

As source technical manual.

Compliance notes

Ref	Terms	Description
General		
CN10	Cost effective metering for supporting functions	For metering to supporting functions, the potential cost savings from improvement energy management (and establishing whether this is cost effective) is calculated for the supporting function in isolation from the rest of the facility. The significant energy consumption of data centres cannot be used as justification for excluding metering that would provide significant savings from improved energy management in other asset types.
Energy monitoring by end use		
CN11	Shared systems and consumption	Where common building systems and infrastructure serve the entire facility and it is not technically feasible to separate out the energy consumption of supporting functions for a specific end use, then that end use can be excluded from the independent calculation of ≥ 90% for supporting functions.

Evidence

As source technical manual.

Definitions

As source technical manual.

DRAFT

Ene 04DC Low carbon design

Aim

As source technical manual.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	Up to 5 + 1 exemplary	None	All
Shell and core	Up to 5 + 1 exemplary	None	All

Changes from NC V7 manual

Credit name	Credits	Criteria	Methodology	Evidence
Exemplary - external heat reuse	New exemplary credit			
M1 Building form optimisation	-	-	✓	-
M4 External heat reuse	✓	✓	✓	✓

Assessment type specific notes

Ref	Assessment type specific note
1.0	None

Building type specific notes

Ref	Building type specific note
2.0	None

Issue specific notes

Ref	Issue specific note
3.0	**Highly de-carbonised mains grid – LZC energy generation technologies** The low and zero carbon energy generation technologies credits (criteria 9–11) are filtered out where the assessed building is in a country where ≥ 80% of mains grid electricity is from non-fossil fuel sources.

Assessment criteria

One credit – Building form optimisation

As source technical manual.

Up to two credits – Fabric performance optimisation

As source technical manual.

Up to two credits – Low and zero carbon energy generation technologies

As source technical manual.

DRAFT

One exemplary credit – External heat reuse

13. A feasibility study is carried out to assess the possibility of exporting waste heat from the data centre to an external source or district network (See *M4*).
    a. Where a viable external recipient for waste heat is identified, the design and construction incorporate measures to enable heat export to the identified external recipients.
    b. Where no viable route for external heat reuse exists, the reasons should be clearly documented and justified within the Energy Strategy in *Ene 02*.

Methodology

M1: Building form optimisation

Building form analysis must be carried out at concept design stage, using appropriate early design stage energy modelling tools or calculation methods. This should be done by a suitably qualified member of the project team with experience in building form analysis. It must be specific to the site location, weather and microclimate and should take account the expected building occupancy. The analysis must explore alternative design options that consider each of the following factors:

1. Building layout.
2. Building orientation.
3. Building form.
4. Daylighting strategy.
5. Ventilation strategy.

Where site constraints mean that not all the points can be addressed, a suitably qualified member of the project team must justify any exclusions.

The design team should undertake an assessment of the building layout to determine whether it enables the use of efficient cooling strategies, including economiser-based or free cooling systems where appropriate. The assessment should consider the impact of airflow paths, plant location, heat rejection arrangements, and air intake positioning on the feasibility and performance of the proposed cooling strategy.

It must be demonstrated how the building form analysis has influenced the building form to reduce energy demand for space heating, space cooling, ventilation and lighting.

Where the building form analysis identifies no scope for reducing energy consumption in use, the credit cannot be awarded.

If the results of the building form analysis are compiled after concept design stage, the person that undertook the passive design analysis must confirm that the outcome would not be different if the analysis had been carried out during the concept design stage.

M2: Fabric performance optimisation

M2.1: Analysis of fabric performance

As source technical manual.

M2.2: Quantifying a reduction in energy demand

As source technical manual.

M2.3: Optimised fabric performance

As source technical manual.

M3: Low and zero carbon energy generation technologies

As source technical manual.

M4: External heat reuse

A waste heat reuse assessment should be undertaken to identify significant sources of recoverable waste heat generated by the data centre and evaluate opportunities for external heat reuse. The assessment should consider potential heat recipients, including, but not limited to, district heating networks, neighbouring buildings, industrial facilities, and other external heat consumers.

The assessment should determine the technical feasibility of capturing, transferring, and exporting waste heat and identify the infrastructure required to support external heat reuse. This should include consideration of heat capture systems, distribution networks, heat transfer interfaces and site boundary connections.

The assessment should evaluate the feasibility of incorporating capture-ready infrastructure to support future external heat reuse. This should include consideration of pipework routes, connection points, site boundary provisions and space requirements for heat exchangers.

Where waste heat is too low in temperature for direct external use, the feasibility of using heat pumps to increase the temperature to a usable level should be assessed. The design should define:

• Expected heat output (kW or MW).
• Temperature levels.
• Availability of heat (hours per year).

The assessment outcomes shall be documented within the energy plan. Where no viable external heat reuse route is identified, the energy plan must record the available exportable heat, the reasons external reuse is not feasible and any measures incorporated to facilitate future heat export.

Compliance notes

As source technical manual.

Evidence

Criteria	Interim design stage	Final post-construction stage
External heat reuse		
12.	An energy modelling report demonstrating the exportable heat, expected reusable heat and ERF > 0, where applicable. Technical calculations showing: • Heat output (kW or MW) • Temperature levels • Heat availability and reliability • The proposed method for transferring heat to an external user. Design-stage M&E drawings and schematics showing the proposed pipework routes, connection points, site boundary provisions and other	An updated energy modelling report, reflecting the final installed systems and confirming the exportable heat, expected reusable heat and ERF > 0, where applicable. As-built technical calculations and system information demonstrating the final heat output, temperature levels, heat availability and reliability, and arrangements for heat transfer to external users. As-built M&E drawings showing installed pipework, connection points, site boundary provisions, and any infrastructure provided to facilitate future heat export.

	infrastructure required to enable future heat export. Supporting documentation confirming that the design incorporates, or has assessed, provisions for external heat reuse. Where external heat reuse is not currently feasible, the energy plan shall include a clear justification and a record of the available exportable heat capacity. Confirmation from a suitably qualified energy assessor that the assessment criteria have been met.	Commissioning records and supporting documentation confirming that the installed system can support external heat reuse, where applicable. An updated energy plan recording any available exportable heat, any reasons external heat reuse remains unfeasible, and any measures implemented to facilitate future heat export. Verification by a suitably qualified energy assessor that the final installed systems are consistent with the design-stage assessment and meet the assessment criteria

Definitions

As source technical manual.

Additional information

As source technical manual.

DRAFT

Ene 05DC Energy efficient equipment

Aim

As source technical manual.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	Up to 21	None	All
Shell and core	Up to 21	None	All

Changes from NC V7 manual

Credit name	Scoring	Criteria	Methodology	Evidence
Energy efficient equipment	✓	✓	✓	-

Assessment type specific notes

Ref	Assessment type specific note
1.0	None

Building type specific notes

Ref	Building type specific note
2.0	None

Issue specific notes

Ref	Building type specific note
3.0	This issue is filtered out where there is no “in-scope” equipment present.

Assessment criteria

Up to 21 credits – Energy efficient equipment

1. Identify systems in the project specification (in-scope systems) that are users of unregulated energy (see M1 ‘Scope of unregulated energy using equipment’).
2. Estimate the expected annual energy consumption by in-scope systems identified in criterion 1 (see M2 ‘Estimating energy use by in-scope equipment’).
3. Determine the ratio of in-scope unregulated energy used by systems to annual mechanical and electrical infrastructure energy consumption to determine the number of credits available (see Table 1 and M3 Determining the number of credits available).
4. Determine which in-scope equipment items are energy efficient (see M4 Demonstrating energy efficiency).

DRAFT

Table 1: Energy efficient equipment credits available

In-scope unregulated energy using systems / annual mechanical + electrical energy consumption	Credits available
No in-scope equipment OR Energy consumption of in-scope equipment is not significant	Issue filtered out
< 10%	1
≥ 10% and < 20%	2
≥ 20% and < 30%	3
≥ 30% and < 40%	4
≥ 40% and < 50%	5
≥ 50% and < 60%	6
≥ 60% and < 70%	7
≥ 70% and < 80%	8
≥ 80% and < 90%	9
≥ 90% and < 100%	10
≥ 100% and < 110%	11
≥ 110% and < 120%	12
≥ 120% and < 130%	13
≥ 130% and < 140%	14
≥ 140% and < 150%	15
≥ 150% and < 160%	16
≥ 160% and < 170%	17
≥ 170% and < 180%	18
≥ 180% and < 190%	19
≥ 190% and < 200%	20
≥ 200%	21

DRAFT

Methodology

M1: Scope of unregulated energy using equipment

As source technical manual.

M2: Estimating energy use by in-scope equipment

As source technical manual.

M3: Determining the number of credits available

$$Credits\ available = \frac{Total\ annual\ energy\ consumption\ for\ all\ in-scope\ equipment}{Annual\ mechanical\ energy\ consumption + annual\ electrical\ losses} \times 100\%$$

M3.1 IT equipment specification is known

Where operational energy consumption has been predicted for *Ene 02*, the predicted mechanical and electrical consumption should be derived from the central case modelling outputs.

M3.2 IT equipment specification is unknown

Where *Ene 02*^{DC} has been targeted, mechanical and electrical consumption from modelling assumptions for typical occupancy and servicing can be used (see assessment type specific note 1.0 in *Ene 02*^{DC}).

Where *Ene 02*^{DC} has not been targeted, the predicted mechanical and electrical energy consumption is derived from the calculated facility MLC_A + ELC_A used in *Ene 01*^{DC}.

This is the numerical average of total annual energy consumption from mechanical loads and electrical losses for the 25%, 50%, 75% and 100% of IT load scenarios.

M4: Demonstrating energy efficiency

As source technical manual.

M4.1: Demonstrating energy efficiency compared to a standard version of the system

As source technical manual.

M4.2: Deemed to comply energy efficiency requirements for equipment

Energy labelling and listing schemes that are deemed to comply with the energy efficiency requirements for this issue are listed in Table 2.

Table 2: Deemed to comply requirements for energy labelling and listing schemes

Equipment	Labelling scheme or list	Requirement
IT server equipment	EPEAT Climate Change mitigation criteria 4.6 Product energy efficiency	Bronze or above
All other equipment types apart from IT server equipment	ENERGY STAR® (United States Environmental Protection Agency)[1]	Certified
	Energy Technology List (UK Government)[2]	Listed
Fridges	EU Energy Efficiency Labelling Scheme (March 2021)[3]	E or above
	Energy Rating label (Australian Government)[4]	3.5 stars or above
Fridge freezers	EU Energy Efficiency Labelling Scheme (March 2021)	E or above
Freezers	EU Energy Efficiency Labelling Scheme (March 2021)	D rating or above
	Energy Rating label (Australian Government)	3.5 stars or above
Washing machines	EU Energy Efficiency Labelling Scheme (March 2021)	B rating or above
	Energy Rating label (Australian Government)	4 stars or above
Washer dryers	EU Energy Efficiency Labelling Scheme (March 2021)	D rating or above
Tumble dryers	EU Energy Efficiency Labelling Scheme (March 2021)	D rating or above
Room air conditioners	EU Energy Efficiency Labelling Scheme (original)	B or above
Computer monitors	EU Energy Efficiency Labelling Scheme (March 2021)	D rating or above
	Energy Rating label (Australian Government)	6 stars or above
Dishwashers	EU Energy Efficiency Labelling Scheme (March 2021)	C rating or above
	Energy Rating label (Australian Government)	3.5 stars or above
TVs	EU Energy Efficiency Labelling Scheme (March 2021)	E rating or above
	Energy Rating label (Australian Government)	5 stars or above

M4.3: Other energy labelling schemes and energy efficiency list

As source technical manual.

M5: Determining the number of credits achieved

As source technical manual.

Compliance notes

As source technical manual.

Evidence

As source technical manual.

Definitions

As source technical manual.

Additional information

As source technical manual.

DRAFT

Ene 07DC Flexible demand response

Aim

As source technical manual.

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	2	None	All
Shell and core	2	None	All

Changes from NC V7 manual

Credit name	Credits	Criteria	Methodology	Evidence
Flexible demand response	-	-	✓	✓

Assessment type specific notes

Ref	Assessment type specific note
1.0	None

Building type specific notes

Ref	Building type specific note
2.0	None

DRAFT

Assessment criteria

Up to two credits – Flexible demand response

1. Identify installed systems present on-site and their flexible demand response capability.
2. The number of credits awarded is based on the number of credits available and the percentage of flexible demand response points awarded (see Table 1).

Table 1: Number of credits awarded

Points awarded	1 credit available	2 credits available
≥ 1% of available points	1 credit awarded	1 credit awarded
> 33% of available points	1 credit awarded	2 credits awarded

Methodology

M1: Flexible demand response

The number of credits available is determined by the number of flexible demand response points available (See Table 2).

Table 2: Number of credits available

Number of flexible demand response points available	Number of credits available
0	0
1 – 3	1
> 3	2

The percentage of flexible demand response points awarded is calculated as follows:

$$\frac{Number\ of\ flexible\ demand\ response\ points\ awarded}{Number\ of\ flexible\ demand\ response\ points\ available} \times 100$$

Where:
The number of flexible demand response points available is determined by the electrical systems that are present in the building (see Table 3).

The number of points awarded is determined by the flexible demand response capability of each system (See Table 3).

Table 3: Flexible demand side response points available and points awarded

Systems present	Points available	Flexible demand capability	Points awarded
UPS / battery system	1	Charging and discharging can be controlled in response to electricity supplier, grid operator, or local renewable energy signals	1
Standby / on-site generation	1	Generation can be dispatched in response to electricity supplier or grid signals to reduce grid import during periods of peak demand.	1
Mechanical cooling systems (CRAC / CRAH, chillers, liquid cooling)	1	Cooling demand can be adjusted or optimised in response to electricity supplier, grid operator, or local renewable energy signals.	1
IT / compute load	1	IT workloads or server power demand can be automatically adjusted in response to electricity supplier, grid operator, or local renewable energy signals.	1
Thermal energy storage systems (ice storage, or chilled-water storage)	1	Thermal energy can be stored during periods of low demand and used during periods of peak demand in response to external signals.	1

Compliance notes

As source technical manual.

Evidence

Criteria	Interim design stage	Final post-construction stage
All	Design drawings, relevant section or clauses of the building specification or contract. Where products are specified, manufacturer's product details, confirming the flexible demand capability of specified systems. Demand response strategy or design report identifying participating systems (UPS / battery systems, standby generation, mechanical cooling, and / or IT load management). Control philosophy or sequence of operation explaining how demand	Final construction drawings or equivalent or assessor site inspection report and photographic evidence showing installed systems. Manufacturer's technical data confirming the flexible demand capability of the installed systems. Commissioning records confirming demand response functionality has been tested. BMS / EMS screenshots, control settings, or commissioning reports demonstrating that demand response controls have been implemented.

	response events will be initiated and managed. Evidence demonstrating the available flexible capacity (kW / MW) or description of the intended demand response functionality. For UPS / battery systems and generators, documentation confirming integration with the site's energy management or building management system.	Evidence that specified systems are connected and capable of operating in accordance with the control strategy. Where applicable, functional testing records showing operation of UPS / battery systems, standby generation, cooling load adjustment, or other flexible demand measures. Evidence of readiness for participation in a grid flexibility or demand response programme.

Definitions

As source technical manual.

Additional information

As source technical manual.

DRAFT

Mat 01^{DC} Building life cycle assessment

Overview

Assessment type	Credits available	Minimum standards	Applicable assessment criteria
Fully fitted	Up to 5 + 5 exemplary	Excellent, Outstanding	All
Shell and core	Up to 5 + 3 exemplary	Excellent, Outstanding	1-10

Changes from NC V7 manual

Credit name	Scoring Criteria Methodology Evidence
Early design LCA and embodied carbon reporting	As source technical manual
Technical design LCA and embodied carbon reporting	
Post-construction LCA and embodied carbon reporting	
Embodied carbon benchmark comparison	Not assessed in this Annex
Exemplary – third party verification	As source technical manual
Exemplary – embodied carbon public data disclosure	
Exemplary – embodied carbon of IT equipment	New exemplary credits

Assessment type specific notes

As source technical manual.

Building type specific notes

Ref	Building type specific note
2.3	**Data centres – 'LCA and embodied carbon reporting' credits** The scope of the LCA and embodied carbon reporting must assess the embodied impacts of data centre infrastructure (i.e. all mechanical, electrical and networking systems).
2.4	**Data centres – scope of exemplary credits 'embodied carbon of IT equipment'** The scope of these exemplary credits only covers IT equipment whose specification and future operation will be within the direct control of the data centre operator.

DRAFT

Assessment criteria

Up to two exemplary credits – embodied carbon of IT equipment

One exemplary credit – embodied carbon of IT equipment (cradle to gate)

16. Carry out an LCA study of the IT equipment proposed for initial installation, covering at least 50% of the proposed hardware by weight. The LCA covers the following EN 15978 lifecycle modules:
    a. A1 Raw material supply.
    b. A2 Transport.
    c. A3 Manufacturing.
17. The LCA includes relevant options appraisals, including a baseline assessment. The LCA includes at least one alternative option to the baseline.
18. The information from the LCA is used to inform the final specification of IT equipment.

OR

Two exemplary credits – embodied carbon of IT equipment (cradle to grave)

19. Carry out an LCA of the IT equipment specified for initial installation covering at least 50% of the proposed hardware by weight. The LCA covers stages A-C of the EN 15978 lifecycle modules. This includes:

   a. A1-A5: Product sourcing and construction stage.
   b. B1-B5: Use stage (excluding B6-B7 operational resource usage).
   c. C1-C4: End-of-life stage.
14. The LCA includes relevant options appraisals, including a baseline assessment. The LCA includes at least one alternative option to the baseline.
15. The LCA is used to inform the final specification of IT equipment.

Methodology

M5: Embodied carbon of IT equipment

M5.1: Scope

The LCA scope covers only embodied carbon emissions. Additional environmental impacts may help inform equipment specifications but are not assessed under this issue.

At least 50% of the hardware by weight must have EPDs which fall under one of the categories in Table 74 in *Mat 02* (EPD for a single product, product range, or more than one product category).

Beyond this 50%, where LCA data is unavailable or very limited in scope, this is clearly highlighted and justified. These may be scoped out, or based on generic data as long as this remains useful in informing LCA decisions.

M5.2: Baseline and alternative options

The 'baseline assessment' aligns with the standard definition used in this issue – this is the 'default' option for comparison against alternative options.

'Alternative options' refers to an overall package of IT hardware which meets business needs. Different options may share some of the same hardware elements if required – however the different options must still represent a meaningful difference in specification and embodied impacts.

M5.3: Calculation methodology

BRE Global places no requirements on the methodology or software tools used, except that the embodied impact covers the scope of the standardised lifecycle modules as defined in EN 15978.

M5.4: Outcome

The chosen option does not have to be the lowest embodied impact option. The intended outcome is that these impacts are quantified and inform a decision that considers factors beyond energy efficiency. The chosen option is the one that best meets business needs – this is not necessarily the option with lowest embodied impacts.

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Appendix A – Scope of assessment by issue

Key

Superscripts	Whole asset	Supporting function only	Assessed in unoccupied facility?
Man 01[DC] Issue has been specifically written for data centres. Hea 10[INT] International-only issue – no change from source technical manual. Hea 08[UK] UK-only issue – no change from source technical manual.	This issue is assessed holistically for the whole asset. Where requirements differ significantly between principal and supporting functions, DC-specific issues may have separate criteria for principal and supporting functions to ensure all areas of the asset are covered. All criteria must be met for compliance.	This issue is assessed only on the performance of the supporting function. If the data centre does not have a supporting function, these issues are typically filtered out.	The issues or criteria which apply in a data centre with no supporting functions.

Scope of assessment

Issue		Assessment scope		
		Whole asset	Supporting function only	Assessed in unoccupied facility?
Man 01	Project brief and design	✓		✓
Man 02	Life cycle cost and service life planning	✓		✓
Man 03	Responsible construction	✓		✓
Man 04[DC]	Commissioning and handover	✓		✓
Man 05	Aftercare	✓		✓
Man 06[DC]	Energy water balance	✓		✓
Man 07[DC]	Social value	✓		✓
Hea 01	Natural light		✓	
Hea 02	Electric light	✓		✓
Hea 03	Non-visual effects of light	✓		
Hea 04	Indoor air quality	✓		Minimum standard only
Hea 05	Thermal comfort		✓	
Hea 06	Acoustic performance		✓	
Hea 07	Safe and accessible design	✓		'Safe access' and 'Inclusive and accessible design[INT]' credits only
Hea 08[UK]	Security	✓		✓
Hea 09[INT]	Private space (residential only)	Not assessed in this Annex.		
Hea 10[INT]	Natural hazards	✓		✓
Hea 11[INT]	Water quality		✓	'Minimising contamination risk' criteria only
Ene 01[DC]	Energy performance of data centre infrastructure	✓		✓
Ene 02[DC]	Prediction of operational energy and carbon	✓		✓
Ene 03[DC]	Energy monitoring	✓		✓
Ene 04[DC]	Low carbon design	✓		✓
Ene 05[DC]	Energy efficient equipment	✓		✓
Ene 06	Energy efficient systems		✓	✓

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Issue		Assessment scope		
		Whole asset	Supporting function only	Assessed in unoccupied facility?
Ene 07[DC]	Flexible demand response	✓		✓
Ene 08	Installed controls		✓	
Tra 01	Transport assessment and travel plan		✓	✓
Tra 02	Sustainable transport measures		✓	
Wat 01	Water consumption		✓	✓
Wat 02	Water monitoring	✓		✓
Wat 03	Water leak detection and prevention	✓		✓
Wat 04	Water efficient equipment and systems		✓	✓
Wat 05	Prediction of operational water consumption	✓		✓
Mat 01	Building life cycle assessment	✓		✓
Mat 02	Environmental product declarations	✓		✓
Mat 03	Responsible sourcing of construction products	✓		✓
Mat 04	Durability and resilience	✓		✓
Mat 05	Material efficiency	✓		✓
Wst 01	Construction waste management	✓		✓
Wst 02	Recycled aggregates	✓		✓
Wst 03	Operational waste	✓		✓
Wst 04	Speculative finishes (offices only)	✓		✓
Wst 05	Adapting to climate change	✓		✓
Wst 06	Disassembly and adaptability	✓		✓
Lue 01	Site selection	✓		✓
Lue 02	Ecological risks and opportunities	✓		✓
Lue 03	Managing impacts on ecology	✓		✓
Lue 04	Ecological change and enhancement	✓		✓
Lue 05	Long term ecological management	✓		✓
Pol 01	Impact of refrigerants	✓		✓
Pol 02	Local air quality		✓	✓
Pol 03	Flood and surface water management	✓		✓
Pol 04	Reduction of night-time light pollution	✓		✓
Pol 05	Reduction of noise pollution	✓		✓

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Appendix B – Weightings methodology

All figures below are indicative and used to illustrate the proposed data centres weightings methodology. The methodology itself and any adjustment factors are subject to final consultation.

Weightings adjustment factors for data centres

In this document, the following adjustment factors are applied to all data centre assessments:

Category	Adjustment factor	
	Closed loop cooling system	Open loop cooling system
Energy	4.0	4.0
Water	1.0 (No adjustment)	2.0

This example below illustrates how the adjustment factors are used for a data centre facility in France with an open loop cooling system:

	A. Default fully fitted country weighting	B. Adjustment factor	C. Weighting (A) x Adjustment factor (B)	**D. Data centre fully fitted weightings** with supporting functions (C/∑C)
Man	11.00%	1.00	11.00%	7.07%
Hea	19.00%	1.00	19.00%	12.22%
Haz	1.50%	1.00	1.50%	0.96%
Ene	**16.00%**	**4.00**	**64.00%**	**41.16%**
Tra	8.00%	1.00	8.00%	5.14%
Wat	**7.50%**	**2.00**	**15.00%**	**9.65%**
Mat	15.50%	1.00	15.50%	9.97%
Wst	7.00%	1.00	7.00%	4.50%
Lue	10.50%	1.00	10.50%	6.75%
Pol	4.00%	1.00	4.00%	2.57%
Sum	**100.00%**	**∑C >>>**	**155.50%**	**100.00%**

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The adjustment factors significantly modify the Energy weighting (and to a lesser extent) the Water weighting. Note that as the weightings must always total 100%, the adjustment factors do not directly increase the weighting by 4 or 2 times. All final category weightings must be normalised back to a total of 100% after adjustment, so the increase is less than the adjustment factor.

Adjustment for no supporting function

If the facility is unoccupied, further adjustments are made based on the ratio of maximum available credits in each category, and the credits that are assessed in a 'no supporting function' assessment. Here is how the previously defined weightings for the facility in France are further adjusted where there are no supporting functions.

	D. Data centre fully fitted weightings with supporting functions (C/∑C)	E. Max. available credits in category	F. Credits in scope (no supporting function)	G. % of available credits assessed (F/E)	H. D x G	**Data centre weightings** with no supporting functions (H/∑H)
Man	7.07%	21	21	100.00%	7.07%	8.35%
Hea	**12.22%**	**24**	**6**	**25.00%**	**3.05%**	**3.60%**
Haz	0.96%	1	1	100.00%	0.96%	1.14%
Ene	41.16%	46	44	95.65%	39.37%	46.45%
Tra	**5.14%**	**12**	**2**	**16.67%**	**0.86%**	**1.01%**
Wat	9.65%	12	12	100.00%	9.65%	11.38%
Mat	9.97%	14	14	100.00%	9.97%	11.76%
Wst	4.50%	11	11	100.00%	4.50%	5.31%
Lue	6.75%	13	13	100.00%	6.75%	7.97%
Pol	2.57%	13	13	100.00%	2.57%	3.03%
Sum	**100.00%**			**∑H >>>**	**84.76%**	**100.00%**

In unoccupied data centres, the most affected categories are *Hea* and *Tra*, where most available credits are filtered out. This proportionately decreases the weightings of these categories, resulting in a slight increase in all other category weightings.

Due to this significant decrease to the *Hea* and *Tra* weightings, no additional adjustment factors are required for these categories.

Adjustments for fit-out levels

The exact same approach above is used when credits are filtered out due to a partially fitted assessment. The Platform will consider all these factors (data centre, cooling system, supporting functions and fit-out level) to generate the final weightings for the facility.

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