



We guarantee
a more beautiful
tomorrow

SCHEME V6.1.1

BREEAM-NL New construction and
renovation of non-residential buildings

BREEAM® | NL

DG
BC
Dutch
Green Building
Council

Code for a Sustainable Built Environment
www.breeam.com
www.breeam.nl

© BRE Global Ltd. 2021

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Dutch Green Building Council

Adress:

Benoordenhoutseweg 46
2596 BC The Hague

Email: info@dgbc.nl for general information
Email: helpdesk@dgbc.nl for substantive questions / comments
Telephone: +31(0)88 55 80 100

www.dgbc.nl
www.breeam.nl

Photo front page: Vandaglas B.V. and photography by Guifi B.V.

SCHEME

BREEAM-NL

New construction and renovation of non- residential buildings

VERSION 6.1.1

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

EDITION;

Dutch Green Building Council
Benoordenhoutseweg 46
2596 BC The Hague

Table of contents

Changes BREEAM-NL New Construction and Renovation of non-residential buildings v6.1	8
Disclaimer	8
Copyright.....	8
Trademarks.....	8
Dutch Green Building Council.....	9
BRE Global Ltd. BREEAM.....	9
Scheme operator	9
Certainty by BREEAM-NL and certification	10
Colophon.....	10
1. Introduction.....	13
1.1 What is BREEAM-NL?	13
1.2 BREEAM-NL schemes	14
1.3 BREEAM-NL New Construction and Renovation of non-residential buildings v6.1.1.....	14
1.4 When do you start with BREEAM-NL?.....	14
1.5 How do you use this scheme?.....	15
2. Scope BREEAM-NL New construction and renovation	17
2.1 Project types	17
2.2 Scope of the project types.....	17
2.3 Large-scale renovation, expansion and transformation of a building	20
2.4 Design stage and post-construction stage of a BREEAM-NL project.....	20
2.5 Building types that can be certified with BREEAM-NL	21
2.6 Other building types and bespoke	25
3. Score and BREEAM-NL rating.....	26
3.1 Rating benchmarks	26
3.2 Minimum standards and exceptions.....	27
3.3 Category weightings	36
3.4 How is a BREEAM-NL rating calculated?.....	37
3.5 Case study.....	37
3.6 Building data in issues	38

4.	Evidence requirements.....	40
4.1	Evidence types.....	40
4.2	Robustness of evidence.....	42
4.3	NC: Evidence design and post-construction stage.....	42
4.4	Evidence principles.....	43
5.	Demarcation of the project.....	45
5.1	Deadline for obtaining the completion certificate.....	45
5.2	Instruction 108.....	45
6.	How to read an issue.....	46
Management.....		48
MAN 01	Project brief and design.....	50
MAN 02	Life cycle cost and service life planning.....	56
MAN 03	Responsible construction.....	61
MAN 04	Commissioning and handover.....	68
MAN 05	Aftercare.....	81
Health88		
HEA 01	Natural light.....	90
HEA 02	Artificial lighting.....	100
HEA 03	Non-visual effects of light.....	107
HEA 04	Indoor air quality.....	109
HEA 05	Thermal comfort.....	123
HEA 06	Acoustic performance.....	130
HEA 07	Safe and accessible design.....	139
HEA 10	Biophilic design.....	144
HEA 11	Safety.....	148
Energy.....		151
ENE 01	Reduction of energy use and carbon emissions.....	153
ENE 02	Energy monitoring.....	160
ENE 03	External lighting.....	165
ENE 04	Low carbon design.....	168
ENE 05	Energy-efficient cold storage.....	172
ENE 06	Energy efficient transport systems.....	176

ENE 07	Energy efficient laboratory systems	179
ENE 08	Energy efficient equipment	185
ENE 10	Aligning Supply and Demand and Electricity Storage (DSM).....	192

Transport..... 195

TRA 01	Public transport accessibility	197
TRA 02	Proximity to amenities	201
TRA 03	Alternative modes of transport.....	204
TRA 04	Maximum car parking capacity	209
TRA 05	Transport plan	212

Water 216

WAT 01	Water consumption	218
WAT 02	Water monitoring	224
WAT 03	Water leak detection and prevention	227
WAT 04	Water efficient equipment	231

Materials..... 234

MAT 01	Environmental impact of building materials	236
MAT 02	Whole life carbon and embodied carbon	245
MAT 03	Responsible sourcing of construction products	247
MAT 05	Designing for durability and resilience	253
MAT 06	Material efficiency	257
MAT 07	Design for re-assembly.....	262

Waste 266

WST 01	Construction waste management	268
WST 03	Storage space for recyclable waste.....	273
WST 04	Speculative finishes	276
WST 05	Adaptation to climate change	278
WST 06	Adaptive capacity	282

Land Use and Ecology 284

LE 01	Site selection and healthy soil.....	286
LE 02	Ecological value of site and protection of ecological features.....	291
LE 04	Nature-inclusive site	297
LE 05	Long term impact on biodiversity	302

Pollution 305

POL 01	Impact of refrigerants	307
POL 02	NOx emissions	314
POL 03	Surface water run-off	319
POL 04	Reduction of light pollution	325
POL 05	Reduction of noise pollution	328

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Changes BREEAM-NL New Construction and Renovation of non-residential buildings v6.1

VERSION	DATE OF ISSUE	COMMENTS
V6.1	January 13, 2025	First publication
V6.1.1	February 10, 2025	Textual corrections

Disclaimer

Dutch Green Building Council (DGBC) has an exclusive license from BRE Global Limited to apply the BRE Environmental Assessment Method (BREEAM) in the Netherlands. DGBC adapts BREEAM, originally developed by BRE Global Limited, to improve its relevance and applicability in the Netherlands (BREEAM-NL). This scheme is owned by DGBC and is publicly accessible for informational purposes.

All testing, assessment, certification, or approval activities for this scheme (direct or indirect) must be carried out in accordance with the processes approved by DGBC. Such activities may only be performed by authorized employees and representatives of DGBC, or those who have been approved or licensed by DGBC.

Any party wishing to use this scheme to offer testing, assessments, or certifications must apply to DGBC for training and assessment and obtain the necessary licenses. Please note that a fee will normally be charged. DGBC and its licensors assume no responsibility for any unauthorized use or distribution of this schedule document. They may take legal action to prevent such use by unauthorized persons.

Copyright

The information and images contained in this document are the property of DGBC and its licensors, unless explicitly stated otherwise, and are protected by copyright laws. The information and images in this document can be downloaded and printed without specific permission. However, they remain the intellectual property and copyrighted material of DGBC and its licensors. Such material must not be used in a derogatory or misleading manner, in a manner that may disparage the names of BRE Global or DGBC. It may also not be used for commercial purposes. We may ask you to register your details before downloading certain information or documents. In addition, this document may not be distributed to third parties without the express written permission of both DGBC and BRE Global.

Trademarks

"BRE", "Building Research Establishment", "BRE Global", "BREEAM", "BREEAM" and "Green Book Live" are registered trademarks owned by Building Research Establishment Limited ("BRE") or BRE Global Limited. They may not be used without the prior written permission of BRE or BRE Global Limited. "DGBC" is a registered trademark of Dutch Green Building Council.

Dutch Green Building Council

Dutch Green Building Council (DGBC) is an independent foundation that has developed the BREEAM-NL sustainability scheme for Dutch buildings and areas. It issues certificates to projects whose degree of sustainability has been assessed according to pre-defined criteria laid down in a scheme (BRL). The BREEAM-NL family of schemes largely follows the international BREEAM, developed by BRE in Great Britain (see further under BREEAM).

In the present scheme, called BREEAM-NL New construction and renovation of non-residential buildings, you will find all information about the Dutch version of the scheme for new non-residential buildings to be developed and renovated on a large scale. There is also a scheme specifically for new homes and residential buildings to be developed or renovated. The scheme for existing buildings is called BREEAM-NL In-Use and is available in a version for residential- and a version for non-residential buildings. There is also a scheme for areas, BREEAM-NL Area.

This document only deals with BREEAM-NL New construction and renovation of non-residential buildings v6.1.1. It is very important to choose the scheme that suits your project; if in doubt, contact DGBC. For more information about BREEAM-NL and the schemes, please visit www.breeam.nl.

BRE Global Ltd. BREEAM

BREEAM stands for 'Building Research Establishment Environmental Assessment Method' and is a measuring instrument for assessing the sustainability of projects. With its development in 1991, BREEAM was the first sustainability label for the built environment. BREEAM was developed by the Centre for Sustainable Construction, part of the UK's Building Research Establishment Global (BRE Global England).

Scheme operator

DGBC manages BREEAM-NL under license from BRE Global Ltd. DGBC is formally recognized by the BRE as a 'National Scheme Operator'. DGBC is the only organization in the Netherlands entitled to manage this scheme. As a Scheme Operator, DGBC is responsible for the content and proper functioning of the BREEAM-NL system, of which the schemes are a part. The internal organisation is divided into a project office, a board, advisory board and an independent Board of Experts (CvD). The primary task of the CvD is to monitor the quality and functioning of the BREEAM-NL schemes. The CvD is independent of both the project office and the advisory board and the board. Both the CvD, the Advisory board and the Board are composed on the basis of the 'all parties concerned' principle and therefore represent the relevant stakeholders.

To guarantee the independence of testing, a third-party certification system is used for the BREEAM-NL schemes. The project (building or area) builds up the file and substantiates the intended score with evidence; an independent BREEAM-NL Assessor checks the accuracy and completeness of the file and determines the rating of the project; DGBC randomly tests the work of the BREEAM-NL Assessor.

DGBC is supported in its activities by a large number of organizations that all have a sustainability ambition and endorse DGBC's objectives. These partners are actively involved in the development and continuous improvement of the seals. More information about DGBC and partner opportunities can be found on our website: www.dgbc.nl.

Certainty by BREEAM-NL and certification

Increasingly higher demands are being placed on the sustainability of the built environment. The BREEAM system provides a good assessment method, with which you can determine the sustainability performance of buildings and areas in an unambiguous manner. BREEAM-NL is based on the globally tested and applied BREEAM International scheme. BREEAM-NL is in line with the international Code for a Sustainable Built Environment (CSBE) developed by BRE Global. CSBE also forms the basis for the other national variants for BREEAM schemes, such as BREEAM-NOR, BREEAM-DE, BREEAM-ES, BREEAM-SE and of course BREEAM-NL.

The international Code for a Sustainable Built Environment (CSBE) provides a framework for assessing sustainability in the built environment. The strategic principles and requirements in the CSBE define an integrated approach to the design, management, evaluation and certification of the environmental, social and economic impacts of the built environment. At the highest level of this code, a vision is formed for a sustainable built environment. CSBE is then interpreted in a Core Technical Standard and a Core Process Standard, both supported by the Core Science base.

The BREEAM Core Standard consists of two separate, but related documents: the technical requirements in the Core Technical Standard (CTS) and the process requirements in the Core Process Standards (CPS). These documents contain lists of requirements that a Scheme Operator (such as DGBC is for the Netherlands) must meet in order to be allowed to use the name BREEAM. DGBC operates BREEAM-NL under license from BRE Global Ltd, BRE is accredited by UKAS. You can find more information about the license in the user manual.

To create certainty, an independent assessment of the sustainability performance of buildings and areas is needed. In the BREEAM-NL methodology, the assessment of sustainability performance is carried out by BREEAM-NL Assessors. DGBC trains BREEAM-NL Assessors. Persons working at DGBC can never fulfil an Assessor role. BREEAM-NL Assessors must also always be independent of the project they are assessing, demonstrably qualified and in possession of a license from DGBC. The assessment of the sustainability performance of the building or area is carried out by a BREEAM-NL Assessor and is checked by DGBC. These processes are explained in the user manual. Only when the quality of all steps is guaranteed, DGBC makes the certificate available to the BREEAM-NL Assessor. The BREEAM-NL certificate provides formal verification that the BREEAM-NL Assessor has completed an assessment of a building, in accordance with the requirements of the scheme and the quality standards and procedures.

A BREEAM-NL certificate gives developers, investors, clients, owners and all other parties associated with the built environment the assurance that the building or area they own, rent out or develop is demonstrably sustainable. And it works! BREEAM is the most used sustainability label in Europe and in the Netherlands, BREEAM-NL is frequently used for assessing areas, existing buildings, new construction and large-scale renovations. Visit the website www.breeam.nl for certified projects, more insight into the number of BREEAM-NL certificates obtained per year or the average certificate scores per year.

Colophon

DGBC owes a debt of gratitude to BRE Global and all those who have provided feedback and recommendations through advisory or working groups, market consultations, and in other ways. Also thanks to the partners who make the development and updating of BREEAM-NL financially possible. Much of the feedback is incorporated into the issue texts and you can always continue to provide input via helpdesk@dgbc.nl. This scheme has largely been established through an 'open source' approach, in which knowledge and expertise from the market have played an important role.

Many expert and experienced people have been involved in finalising this version of the scheme. The Board of Experts and the New Construction Advisory board in particular deserve special mention, because they guarantee the quality of the scheme and give direction to the development process.

Board of experts

Guido den Teuling	Royal haskoning DHV (chairman of the CvD)
Hannah van der Leij	Build2live
Harm Valk	Nieman Raadgevende Ingenieurs B.V
Marius Schoppink	Sweco
Marleen Spiekman	TNO
Ritzo Holtman	SHAPE

New Construction Advisory board

Albert-Jan Vermeulen	MAT25 B.V.
Dimphina Riemer	ECOquickscan
Erik Meijerink	DGMR
Henk Versteeg	LBP Sight
Ivo Vonk	Alba Concepts
Judith Doorn	JAJO
Linda van Helvoort-Mascini	Deerns Groep B.V.
Martin Dunnink	Nieman Raadgevende Ingenieurs B.V.
Vanessa Schuphof-Veenstra	Arcadis Nederland B.V.

Dutch Green Building Council

Anna Verbrugge	Project Manager
Anouk Freriks	Editor and copywriter
Bastiaan Versteeg	Project Manager
Bodhi Lepelaar	Communications Officer
Bram Suweijn	Junior Project Manager
Brigit Gerritse	Director
Estéban van Zeijl	Quality Manager
Edith Maingay-Frijters	Project Manager
Hidde Vroman	Project Manager
Laetitia Nossek	Program Manager
Leonie de Boer	Project Manager
Lidewij Hiestand	Junior Project Manager
Maartje Juffermans	Junior Project Manager
Maikel de Laat	Project Manager
Martine Pijl	Project Manager
Ruben Zonnevjlle	Program Manager
Rudy van der Helm	Manager certification
Thomas Heye	Program Manager

The content of this scheme has been checked and approved by the New Construction Advisory board, the Board of Experts and BRE Global. There are also several consultancy firms that have provided substantive support in the development.

The following persons and organisations were involved in providing feedback during the market consultation, writing, checking and correcting the issue texts:

Atze Boerstra	BBA indoor environment
Bas Rutgers	Smits van Burgst
Bernd Karstenberg	Life cycle vision
Daniel van der Flier	Sustainability certification
David Meijvogel	Etril
Eelco Krips	Adamas Group
Erik Bakers	Boele & van Eesteren

Evert Barendrecht	Sparkling projects
Filique Nijenmanting	Arup
Frank Zegers	E4S consultation
Gerrit van der Kolk	Office Styles
Han Vrijmoed	Healthy home keur
Janneke van de Weerd	LBP Sight
Jeanette Levels-Vermeer	LBP Sight
Jim Teunizen	Alba Concepts
Linus Klaassen	Deerns
Marc Hopperman	BLDG. Systems
Matthijs Kolpa	ATKB
Mirjam Peters	DGMR
Olaf Oosting	Valstar Simonis
Peter Stam	Merosch
Remko van der Meulen	Isovast
Ruud Sprock	C2N
Sierd Tilma	LBP Sight
Steven Lobregt	Sparkling projects
Stijn van de Lande	Deerns
Thijs Cornelissen	Sparkling projects
Thijs Spit	Linneman construction and advice
Tim Beukers	BBA
Ton Bakker	MATT 25
Ward Kromhout	Hercuton

Organizations

Netwerk groene bureaus

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

1. Introduction

1.1 What is BREEAM-NL?

BREEAM-NL has been the certification method for a sustainably built environment since 2009. With this method, projects can be assessed for integral sustainability. BREEAM-NL has four schemes. For new construction and renovation projects, there is BREEAM-NL New Construction (and Renovation). Existing buildings are assessed with BREEAM-NL In-Use and complete areas with BREEAM-NL Area. On breeam.nl you will find more information about the method, the link with, for example, the Sustainable Development Goals (SDGs) or the EU Taxonomy. You will also find useful documents, such as the BREEAM-NL fact sheets.

Goals of BREEAM-NL

BREEAM-NL assesses, stimulates and values ecological, social and economic sustainability in the built environment. The BREEAM-NL schemes:

- Challenge the market to come up with innovative solutions that optimise the sustainability performance of buildings.
- Raise awareness among building owners, occupiers, developers and managers about the benefits of buildings with limited environmental impact.
- Develop trust and value by providing independent certification that demonstrates the added value for individuals, businesses, society and the environment.

Objectives of BREEAM-NL

- Providing market recognition for buildings with low environmental impact.
- Ensuring that sustainable best practices are integrated into buildings.
- Challenging the market to provide innovative, cost-effective solutions that reduce the environmental impact of buildings.
- Enabling organizations to showcase their environmental goals and improvements in a unified way.

Core principle/values BREEAM-NL

- Determining environmental quality through an accessible, holistic and balanced methodology.
- BREEAM-NL is based on objective criteria that value good sustainable performance.
- Using a flexible approach that focuses on positive outputs without prescribing measures.
- Performance is based on scientific evidence whenever possible.
- Certification in an independent way, which increases reliability.
- Where possible, adopt existing tools and standards in the market, to promote the development of policy and technology and reduce costs.
- Drafting technical and operational issues with relevant international and national standards, including the standards of the European Commission's CEN/TC 350.
- Collaboration with a representative range of stakeholders to stay informed of developments that endorse these principles.

The sustainability objectives exceed the legal minimum as laid down in the Living Environment Buildings Decree or other laws and regulations. BREEAM-NL certification is therefore 'non-statutory'. BREEAM-NL is always a voluntary choice of the client. The BREEAM-NL objectives are based on current practice guidelines (best practices). There is freedom of choice in most subjects (issues). For example, development and construction teams can choose for themselves which issue they want to obtain the credits for in order to build up the intended total score. For a number of criteria, there is a minimum standard that you must achieve. This means that you have to meet certain criteria to arrive at a certain total score. These criteria are called pre requisite and minimum standards.

1.2 BREEAM-NL schemes

Dutch Green Building Council is the scheme operator for BREEAM in the Netherlands. DGBC manages several BREEAM-NL schemes, developed to assess the sustainability performance of buildings and areas over the different stages of their lives.

The Dutch issues focus on Dutch laws and regulations, practice guidelines and construction practice. In doing so, consistency with the international BREEAM version is monitored by BRE Global. This allows the user, through the BREEAM-NL Assessor and the certification process, to measure, evaluate and reflect on the performance of the project in an independent and robust way based on current best practices.

The issue lists are bundled into schemes. The operational schemes are:

- BREEAM-NL Area for (re)developments at area level;
- BREEAM-NL New Construction and Renovation for non-residential buildings;
- BREEAM-NL New Construction and Renovation for homes and residential buildings;
- BREEAM-NL In-Use for existing non-residential buildings;
- BREEAM-NL In-Use for existing for homes and residential buildings;
- BREEAM-NL In-Use for Sustainable Housing and Business Operations.

Sustainability performance can be quantified with a number of individual measures and associated criteria, which extend across different sustainability categories. You will eventually find this expressed as a single certified BREEAM-NL rating on the certificate. The credits to be awarded may differ per type of building or use. In his file, the applicant indicates which use function applies to each part of the building. The current version of this scheme can be consulted and downloaded from www.breeam.nl. The recently published schemes explain the context and value of each category.

1.3 BREEAM-NL New Construction and Renovation of non-residential buildings v6.1.1

BREEAM-NL New Construction and Renovation of non-residential buildings v6.1.1 is a performance-based assessment method and certification scheme for new and large-scale renovated buildings. The main objective of BREEAM-NL New Construction and Renovation of non-residential buildings v6.1.1 is to robustly reduce the negative environmental impact of new and large-scale renovated buildings throughout the life cycle. This can be achieved by integrating the schematic and using it in key stages of the design and construction process. The assessment of a building (plus building plot) takes place per subject, based on a so-called issue-list.

1.4 When do you start with BREEAM-NL?

In order to integrate the BREEAM-NL methodology efficiently and effectively into the development to be carried out, it is advisable to engage a BREEAM-NL Expert or Assessor as early as possible in the process. They have experience in integrating the BREEAM-NL methodology into developments. Involving a BREEAM-NL Expert and Assessor at an early stage helps to achieve the desired rating and reduces the risk of undesirable consequences of design decisions and possibilities.

Figure 1 emphasises the link between the BREEAM-NL New Construction and Renovation assessment and certification stages and the standard task description STB 2014. This figure helps clients to plan the construction stages in relation to the BREEAM-NL criteria. It also helps to determine when a BREEAM-NL Expert and Assessor should be appointed in the process. Clients can view www.breeam.nl current lists of BREEAM-NL Assessors and Experts.

It is important to take into account the fact that BREEAM-NL mainly reflects the overall performance of the building. The methodology is not specifically intended to indicate the existing opportunities or limitations for

stakeholders, planning or design. In particular, the client, the design team, the main contractor, the BREEAM-NL Expert and any other specialist disciplines play an important role in achieving the desired BREEAM-NL rating.

The ambition and objective to focus on sustainability must first and foremost come from the client. To make this possible, DGBC recommends that clients and their project teams work together with a BREEAM-NL Assessor and/or Expert no later than the 02 Project Definition (STB 2014). Ideally, this should happen sooner. This will help you set and achieve realistic goals, define appropriate responsibilities and, where possible, apply low-cost or cost-free solutions to environmental impacts.

Figure 1 - BREEAM-NL assessment and certification stages per scheme and the standard description 2014

STB 2014	BREEAM-NL ASESMENT AND CERTIFICATION STAGE PER SCHEME					
	BREEAM-NL New construction and large-scale renovation					BREEAM-NL In-Use
1. Initiative	Self-assessment					
2. Project Definition						
3. Structure design		Design assessment				
4. Preliminary draft						
5. Final design				Design certification		
6. Technical design				Final assessment		
7. Price and contract formation						
8. Implementation – ready-to-implement design						
9. Execution - management						Final certification
Transfer						
10. Use/Exploitation						Assessment and certification

1.5 How do you use this scheme?

With this BREEAM-NL scheme:

- Qualified and licensed BREEAM-NL Assessors can complete a BREEAM-NL assessment and obtain a final rating.
- Can DGBC have a Quality Assurance (QA) assessment carried out on the assessment report of a BREEAM-NL Assessor, in line with the procedures.
- BREEAM-NL Experts receive help in supporting project teams in defining, monitoring and successfully achieving the desired final rating.
- Do clients and project teams have a reference on how the intended building is tested with BREEAM-NL?

The scheme is divided into seven parts:

- Introduction to BREEAM-NL
- Application of this scheme
- Score and rating
- Argumentation
- Demarcation of the project
- How to read an issue
- Categories, Issues and Criteria

Introduction to BREEAM-NL

Chapter 1 shows which version of BREEAM-NL can be applied for different project types. It also explains how the scheme for New Construction works and when it should be used.

Application of this scheme

The section "Application of BREEAM-NL New construction and renovation" (chapter 2) describes the types of buildings, functions and assessment stages for which this BREEAM-NL scheme applies. Clients and BREEAM-NL Assessors can use this information to check whether the correct BREEAM-NL scheme has been applied to the project.

Score and rating

The section 'Score and rating' in chapter 3 explains how the performance of a building is measured and assessed. It describes the weighting percentages per category, the minimum scores per rating, the minimum standard issues and criteria and exemplary performances. The performances are calculated and expressed in the BREEAM-NL rating.

If all issues within a category have been graded, a category score can be calculated. Then the category weighting is applied. The weighted scores are summed up to form a total score, which can be supplemented by additional scores for innovation issues and example performance. This total score eventually leads to a rating, for example Good, Excellent or Outstanding.

Argumentation

An important aspect of BREEAM-NL is that the sustainability performance of a building must be evident. The performance must be traceable and evident. Chapter 4, 'Evidence', describes the types of evidence available, and how the suitability and robustness of this evidence for certification are assessed.

Demarcation of the project

This section describes how to deal with buildings with different functions and buildings types and describes conditions for obtaining the finale certificate.

Reading guide

Each BREEAM-NL issue is structured according to the same model. The issue describes the criteria and goals that a project must meet in order to earn issues. For a more detailed explanation of the accrual of a issue, see chapter 6, 'Reading guide'.

Categories, issues and Criteria

The assessment of a building takes place in the design and development stages, based on nine different categories that were previously mentioned in the introduction of the scheme.

Each category and subject (also known as 'issue') is further elaborated in this scheme. For each issue, sustainability goals and criteria are defined that must be met. When the criteria are met and this is demonstrable, an Assessor can award credits.

2. Scope BREEAM-NL New construction and renovation

The BREEAM-NL Scheme for New Construction and Renovation of Non-residential buildings can be used to assess the sustainability of non-residential buildings. This is always about the design and construction stage and the end result. This scheme allows both new construction projects and major renovations to be assessed. Construction projects involve various works to ensure the performance, function, and overall condition of a building.

2.1 Project types

The scheme provides a set of indicators and criteria for sustainability. The DGBC prefers that the chosen project type is a fully fitted building. This provides the most complete picture of the sustainability performance of the non-residential building. The scheme and criteria are also based on this type of project.

You can assess two project types with BREEAM-NL New Construction and Renovation of non-residential buildings :

1. Fully fitted building
2. Shell and core

A client or project team can choose the scope of the assessment. It is important to know that the scheme is structured in such a way that the criteria for an entire building also apply to shell and central installations. If you opt for shell and cores, some sustainability aspects remain unassessed, or conservative assumptions have to be made.

If criteria do not apply, this is indicated in Table 6. Additional or deviating criteria are described in the Compliance note. For example, a distinction can be made between the building aspects that the end user must arrange and the aspects that the client must arrange. The project team and the Assessor coordinate together which parts of the building will be assessed.

2.2 Scope of the project types

Fully fitted building

The project type 'fully fitted building' is often chosen if the end user of the project is known. In the case of a project for a known end user, the end situation can be properly assessed when commissioned. Usually, most workplaces, the layouts of rooms and the finishing materials are known. As a result, the score on the BREEAM-NL certificate is the most accurate.

An assessment of a project with the 'fully fitted building' type always contains the components from Table 1. NL/SfB is a widely used method in the Netherlands for the classification of building components and installations. A tick in the column 'Complete building' means that the element falls within the project that is being assessed. If you assess a project according to the project type 'fully fitted building', all criteria from this scheme apply.

Shell and core

The project type 'shell and core' is often used in developments where the end user is not yet known. The exact layout of rooms, the number of workplaces and other choices that depend on the end user have not yet been made during the certification. This means that some criteria of issues do not apply, cannot be achieved, or that (conservative) assumptions have to be made.

An assessment of a project with the type 'shell and core' always contains the components from table 1. In some cases, certain parts of the NL/SfB codes may be excluded from the assessment. This is specified in more detail in Table 6 and in the issue, in the addition to the criteria.

In the scheme, central installations are defined as installations that serve multiple rooms and end users and that are usually installed. Central installations include at least the following building components:

- Air conditioning
- Heat generation
- District heating
- Cold generation
- Cold distribution
- Water installations
- Building Management System
- Common heating system
- Conveyor installation

Table 1 - Scope of a BREEAM-NL Assessment

NL-SFB CODE	DEFINITION	ENTIRE BUILDING	SHELL AND CORES
Base			
11	Soil facilities	V	V
11	Soil facilities	V	V
13	Floors on foundation	V	V
16	Foundation construction	V	V
17	Pile foundation	V	V
Superstructure			
21	Exterior walls	V	V
22	Interior walls (non-structural)	V	*
23	Floor	V	V
24	Stairs and ramps	V	V
27	Roofs	V	V
28	Main load-bearing structure	V	V
Reduction			
31	Outer wall openings	V	V
32	Inner wall openings	V	*
33	Floor openings	V	V
34	Balustrades and handrails	V	V
37	Roof openings	V	V
38	Built-in packages	V	
Finishes			
41	Exterior wall finishes	V	V
42	Inner wall finishes	V	
43	Floor finishes	V	
44	Stair and ramp finish	V	
45	Ceiling finish	V	*

NL-SFB CODE	DEFINITION	ENTIRE BUILDING	SHELL AND CORES
47	Roof finish	V	V
48	Finishing packages	V	
Mechanical installations			
52	Eliminate	V	V
53	Water	V	V
54	Gases	V	V
55	Refrigeration	V	V
56	Heating	V	V
57	Air conditioning	V	V
58	Measurement and control systems	V	V
Electrical installations			
61	Central electrical facilities	V	V
62	Power supply user connections	V	
63	Lighting	V	V
64	Communication	V	
65	Security	V	
66	Transport	V	V
67	Building management system	V	
Fixed facilities			
71	Fixed traffic facilities	V	V
72	Fixed user features	V	
73	Fixed kitchen facilities	V	V
74	Fixed sanitary facilities	V	V
75	Fixed maintenance facilities	V	
76	Fixed storage facilities	V	V
Terrain			
90	Terrain	V	V*

In the case of an *, the Compliance note per issue describe how to deal with these building aspects.

2.3 Large-scale renovation, expansion and transformation of a building

BREEAM-NL New construction and renovation of non-residential buildings

BREEAM-NL New Construction and Renovation of non-residential buildings can be used for the assessment of extensions of existing buildings, transformation projects and large-scale renovation projects. In all cases, the regular criteria always apply. If deviating or additional criteria apply, this is described in the Compliance note of the issues.

Extensions

An extension of a building can be certified independently. Any facilities that are used from the existing building and that are part of the scope of the project must be included in the assessment.

Transformation projects

Transformation projects are projects in which an existing building is radically changed to a building type. In a transformation, the buildings are often stripped down to the core of the building. For example, the façade image can be adjusted.

Large-scale renovation

This concerns large-scale renovation in which the thermal building envelope and the installations (lighting, heating, cooling, ventilation) are changed, with the aim of extending the lifespan of the building.

2.4 Design stage and post-construction stage of a BREEAM-NL project

This scheme offers the possibility for assessment of the design stage and the post-construction stage. When both stages are assessed, a separate registration is required for each stage. Certification of the design stage can be seen as a practical service that the scheme provides. This can be useful for internal or external obligations and for communicating the sustainable ambitions of the project.

Design

The criteria met in the design stage represent the sustainability ambitions for the building. The actual performance is assessed in the post-construction stage. The assessment in the design stage is not the final BREEAM-NL assessment of the building as it is handed over and put into use.

Would you like to do a formal BREEAM-NL assessment in the design stage? By then, the design process must be sufficiently advanced to the point where there is sufficient evidence. Is there still insufficient verifiable evidence? Then there are too many uncertainties, which increases the risk of large differences in the BREEAM-NL score between the design and handover.

Certifying the design stage can help to allow implementing parties to make choices early in the process. This can improve both the flexibility of the construction and the design process. It is wise to include BREEAM-NL early in the process. This increases the chance of a good assessment later on. Preferably already in the initiation stage, the sketch design or the preliminary design stage.

The design stage certificate can be considered as a temporary certificate. It will be replaced by the final certificate. The design certificate can be used by the owner or developer to communicate with investors, tenants, licensees, users, and financial institutions. Clearly state in the communication that it is a design stage certificate, so that the impression is not given that it is final certificate.

There is no validity period for the temporary certificate. However, the design and build team must be aware that a long period between the design and final certificate increases the chance that information, relevant evidence or

parties involved will change or be lost. The longer this period, the less certain it is that the project will achieve the same score after completion as in the design stage. In addition, the schemes are updated regularly, so a longer time between certificates may mean that the project no longer meets the current criteria.

Post-construction stage

The final assessment of a building focuses on its sustainability performance after completion, especially when it is put into use. During the construction stage, an Expert documents and accounts for the results, while the Assessor carries out a final inspection.

BREEAM-NL also sets requirements for the construction site and the collection of construction waste. Therefore, the Assessor must check that these criteria have been met during the construction stage.

The assessment of the issue is done during and after the construction work, but before the commissioning of the building. After this stage, BREEAM-NL speaks of an existing building.

The assessment in the post-construction stage can be carried out in two ways:

- A final assessment based on a design assessment
- An independent final assessment

Ad. 1. In a final assessment of a building for which a provisional BREEAM-NL certificate was issued in the design stage, it is checked whether the building has actually been built according to the design. Deviations from the design must be well substantiated. The final assessment applies to the completed building.

Ad. 2. If there has been no previous design review, a full final review must be carried out. Is there no assessment of the design stage, but does an issue state that deviations from the design stage must be named? Then it must be demonstrated that all requirements have been met.

A final assessment takes place on the basis of the applicable BREEAM-NL scheme at the time of project registration. The completion assessment produces the final BREEAM-NL certificate, which entitles the developer or owner to use the BREEAM-NL scheme for the building in question.

2.5 Building types that can be certified with BREEAM-NL

You can use this scheme to assess the following building types:

1. Meeting function
2. Healthcare
3. Industrial
 - a. Laboratory
 - b. Refrigerator and freezer facilities > 250 m²
4. Office
5. Hospitality
6. Education
 - a. Higher education
 - b. Primary and secondary education
7. Sports
8. Retail

BREEAM-NL sets specific requirements for each building type. According to the BBL, the building type is the function that has been given to a building or space in a building. The building type concerns the parts of one or more buildings on a plot or site that have the same purpose and together form a unit of use.

Most of the applications of the above-mentioned functions can be certified with this scheme, but not all. See Table 2 for an overview.

Table 2 - Functional function as scope of the scheme

BUILDING TYPES	DEFINITION	EXAMPLES
Meeting function	A function that is aimed at the gathering of people for various purposes, such as art, culture, religion, communication, childcare, the provision of refreshments for local use, or the attendance of sporting events.	<p>Scope of this BRL: Café, conference centre, course room, restaurant dining rooms, exhibition hall, nursery, nursery room, reading room library, room for card and board games, meeting room of an office or restaurant, community centre.</p> <p>Bespoke Cinema, stock exchange, casino, discotheque, church, museum, theatre, exhibition hall, grandstand in a sports building.</p>
Structure not being a building	A structure or part thereof that is not considered a building or part thereof.	<p>Scope of this BRL: Balcony and carport: As part of another use, not separately certifiable.</p> <p>Bespoke Gas station, station ticket office.</p>
Cell function	A function aimed at the detention of persons, usually within the framework of criminal justice or detention systems, for security and rehabilitation.	<p>Scope of this BRL: Not applicable</p> <p>Bespoke Prison or police cell, a cell at a station, holding room.</p>
Healthcare	A use function that is aimed at medical research, nursing, care and treatment of patients.	<p>Scope of this BRL: Physiotherapist or dentist, medical centre, outpatient clinic, veterinary practice room, general practitioner's office, psychiatric institution, nursing home, nursing ward of a residential care complex.</p> <p>Bespoke Room for the treatment or nursing of patients in a hospital, operating room.</p>
Industrial	A function for the commercial processing or storage of materials and goods, as well as for agricultural purposes.	<p>Scope of this BRL: Workshop, factory (light industry), refrigerated storage room in an industrial building, kitchen of a restaurant, laboratory, warehouse, workshop.</p> <p>Bespoke Data center, factory (heavy industry).</p>

BUILDING TYPES	DEFINITION	EXAMPLES
Office	A usage function focused on office operations, including administration, communication, scheduling, and other support tasks.	Scope of this BRL: Administration office, bank building, town hall, office at a house, office at a shop.
Hospitality	A use function that is aimed at providing recreational accommodation or temporary accommodation to people.	Scope of this BRL: Hotel, youth hostel, motel, reception centre for temporary stay of people, guest house. Bespoke Mobile home, hiker's cabin, summer cottage/holiday home.
Education	A use function that is aimed at providing education, training and education to pupils or students.	Scope of this BRL: Lecture hall, classroom in a school building, teachers' room.
Other Uses	A use function for activities in which the stay of people plays a subordinate role, often aimed at specific purposes or services.	Scope of this BRL: A parking garage and storage space may be considered as part of another use, but is not separately certifiable. The spaces mentioned may not exceed 2/3 of the total (GFA). Bespoke Stand-alone parking garage or parking garage that amounts to more than 2/3 of the total GFA of a building, space for passenger transport (airport, station, etc.). Not certifiable Bus shelter, sanitary building on a campsite, telephone booth, transformer house, greenhouse at a home (not professional), covered platform, waiting room for passengers at a station.
Sports	A utility function for practicing sports, including training, competitions, and other sporting activities.	Scope of this BRL: Billiard room, bowling alley, fitness center, gymnastics hall, changing rooms at sports function, shooting range, squash court, sports hall, tennis hall, swimming pool, wellness. Bespoke Equestrian centre, indoor football stadium.
Retail	A utility function for trading materials, food, goods and services.	Scope of this BRL: Pharmacy, library (lending part), hairdresser, pedicure, travel agency, showroom, supermarket, department store, shopping center.

BUILDING TYPES	DEFINITION	EXAMPLES
		Bespoke Station ticket office, gas station.
Residential	A use function that is focused on housing, including permanent or temporary housing for individuals or families.	Scope of this BRL: Not applicable

If there are any job types missing from the table and you're not sure if they can be assessed using this scheme, please contact helpdesk@dgb.nl. Don't forget to provide the necessary project information and descriptions.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

2.6 Other building types and bespoke

Bespoke

With this version of the scheme, you can only assess the building types that you will find in table 2 under "scope of this BRL." If you want to assess building types that are outside the scope of this scheme and are listed under the heading "bespoke", you must apply for a bespoke procedure. In that case, DGBC, together with the design team, looks at which issues and criteria from this scheme are relevant for that specific building and which are still missing. In that way, a scheme is being developed that only applies to that project.

Has sufficient experience been gained with a new building type? Then DGBC can add this to the scheme. There is an additional cost associated with the Bespoke procedure. These costs depend on the complexity of the building, the function(s) and the special criteria relating to sustainability. For more information, please contact DGBC at helpdesk@dgb.nl.

The surface of a parking garage

The user functions present in a project must correspond to Table 2 of section 2.5 in the introduction of this scheme. These must be entered into the assessmenttool with the correct BVO. The GFA of an existing parking garage is entered under 'Other uses' in the project data.

The 'Other uses' function and the associated surfaces must be entered for administrative reasons. This is necessary to get a complete picture of the object's spatial distribution. All uses, including 'Other uses,' count towards the total GFA in the project data.

'Other uses' is not assessed as a building type and does not affect the proportional distribution of the BREEAM-NL score. However, there are issues where criteria for a parking garage must be met.

This document is for informational purposes only and cannot be used for certification. © 2016 Dutch version preview

3. Score and BREEAM-NL rating

In this chapter you can read how to calculate a BREEAM-NL rating for a building. A number of factors determine the final BREEAM-NL rating:

- The scope of the assessment
- The BREEAM-NL rating level benchmarks
- Minimum standards
- The category weightings
- The BREEAM-NL issues and credits

How these elements combine to produce a BREEAM rating for a project is summarised in the following sections. This is followed by a description and example describing the methodology for calculating a rating.

3.1 Rating benchmarks

The final score achieved is converted into a BREEAM-NL rating. The table below shows the benchmarks levels for each rating.

Table 3 - BREEAM-NL ratings

BREEAM-NL RATING	SCORE%	STARS
Outstanding	≥ 85%	Five stars
Excellent	≥ 70%	Four stars
Very Good	≥ 55%	Three stars
Good	≥ 40%	Two stars
Pass	≥ 25%	One star
Unclassified	> 25%	Zero stars

Additional requirements are mandatory for various ratings. More information about minimum standard issues will follow later in this chapter.

The BREEAM-NL ratings allow you, as a client or stakeholder, to compare the performance of a building with other buildings of the same type, and with the sustainability performance of a building stock.

Broadly speaking, each BREEAM-NL rating corresponds to a part of the Dutch building stock, as shown in the overview below:

- Outstanding: Top rating; concerns less than 1% of the building stock (innovator)
- Excellent: 10% of the building stock (best practice)
- Very Good: 25% of the building stock (advanced good practice)
- Good: 50% of buildings (intermediate good practice)
- Pass: 75% of buildings (standard good practice)

If a project receives an 'Unclassified BREEAM-NL rating', this means that the building performance does not comply with BREEAM-NL. The pre requisite and minimum standards of the main sustainability criteria have not been met, or the general threshold score required for a 'Pass score' has not been achieved.

BREEAM-NL Assessment – issues and credits

This scheme consists of 48 individual issues divided into nine environmental categories, plus an 'Innovation' category. Chapter 3.2 provides more information on innovation issues and exemplary performance. Each issue assesses a specific construction-related environmental impact or issue. Think of topics such as internal air quality

or criteria about safe access to the building for all building users. A certain number of credits is available for each issue.

A building receives BREEAM-NL credits if you demonstrate that it meets the 'best practices performance levels', associated with a specific issue. This means that an environmental impact has been reduced. Or, in the case of the Health category, that a specific building-related problem has been addressed. Think, for example, of good thermal comfort, sufficient daylight or pleasant acoustics.

The number of credits available for an individual assessment criterion varies. In general, the more credits a building can earn for a given credit, the more important that issue is for reducing that building's environmental impact. If you can achieve multiple credits for an issue, the number of credits awarded is usually based on an ascending scale or benchmark. The BREEAM-NL methodology rewards a higher building performance in the field of sustainability with more credits.

In addition to the BREEAM-NL total score and rating achieved, the building performance achieved also provides insight into a series of important sustainability indicators. Examples are the environmental effects during construction and in the use stage. It means that you can use BREEAM-NL to set general goals, but also to define performance levels of a building. These can then be used to support specific organisational policy objectives for individual environmental criteria. Just be careful when setting design goals based on individual issues and credits. It can limit design flexibility. This can have an impact on project costs.

3.2 Minimum standards and exceptions

In order to maintain a flexible system, BREEAM-NL uses a 'balanced scorecard' approach to assessing a project. It means that in order to reach a certain level of performance, you can trade the most BREEAM-NL credits. This means that you can compensate building performance in one area with performance in another area, in order to achieve the intended BREEAM-NL score.

BREEAM-NL sets minimum performance standards in key areas such as energy, water, waste, etc. For example, the scheme ensures that the BREEAM-NL Assessor, who pursues a particular assessment, does not overlook performance against fundamental environmental issues. Keep in mind that these are minimum acceptable performance levels. These are not necessarily levels that are representative of a BREEAM-NL rating. To achieve a particular BREEAM-NL rating, the building must achieve the minimum overall percentage score, plus the minimum standards that apply, see Table 4. There are two types of minimum standards, namely the 'Prerequisite' and the 'Minimum standards'.

Prerequisite

The Prerequisite apply to different issues. They reflect criteria that a building must achieve as a minimum. If these are not achieved, no BREEAM-NL rating is feasible. No credits can be earned by meeting these requirements. In the issues you will find the Prerequisite as a separate section. Prerequisite always apply, even if the issue is not further pursued.

Minimum standards

The a minimum standard is given to some issues. Per BREEAM-NL rating different minimum standards are applicable. An overview is given in table 4.

Table 4 Prerequisites and minimum standards

ISSUE	CRITERION	PASS	GOOD	VERY GOOD	EXCELLENT	OUTSTANDING
MAN 03	1 to 3	Prerequisite (legal timber sources and sustainability manager)				
MAN 03	7	-	-	One credit	One credit	Two credits
MAN 03	8 to 14	-	-	-	One credit	One credit
MAN 03	15 to 17	-	-	-	-	One credit
MAN 04	1 to 4	Prerequisite (commissioning plan)				
MAN 04	5	-	-	One credit	One credit	One credit
MAN 04	8 and 9	-	-	-	One credit	One credit
MAN 05	3	One credit	One credit	One credit	One credit	One credit
HEA 02	1 to 3	One credit	One credit	One credit	One credit	One credit
HEA 04	1	Minimum standards (air quality)				
HEA 05	1 to 4	-	-	One credit	One credit	One credit
ENE 01	1	Prerequisite (elaboration of energy concept)				
ENE 01	2 to 5	-	-	Three credits	Six credits	Eight credits
ENE 02	1 to 3	-	One credit	One credit	One credit	One credit
ENE 02	4 to 6	-	-	-	-	One credit
WHAT 01	1 to 4	-	One credit	One credit	One credit	Two credits
WHAT 02	1 to 4	-	One credit	One credit	One credit	One credit
MAT 01	1 and 2	-	-	-	One credit	One credit
MATT 03	1 and 2	Prerequisite (sustainable wood and bamboo)				
WST 01	1	Prerequisite (main contractor, waste collector and waste processor certificates)				
WST 01	2 to 9	-	-	One credit	One credit	One credit
WST 01	10 and 11	-	-	-	-	Two credits
WST 03	1 and 2	-	-	-	One credit	One credit
WST 05	1	Prerequisite (flood risk assessment)				
LE 02	1	Prerequisite (drawing up a nature report)				
LE 04	1	Prerequisite (drawing up a nature report)				
LE 04	2 and 3	-	-	One credit	One credit	One credit
LE 05	1	Prerequisite (drawing up a nature report)				
POL 01	2	Prerequisite (system requirements)				
POL 03	1	Prerequisite (oil separators and drainage plan)				
POL 03	3	-	-	-	Two credits	-
POL 03	4	-	-	-	-	Three credits

Filter issues

The list of issues on which the BREEAM-NL Assessor assesses a building depends on the type of building and the parts and components used. Think of elevators, escalators or cold and freezer storage for refrigeration of goods. When you enter the building data into the Assessmenttool, the relevant issue list is automatically generated. See also Table 6 for an overview of the characteristics of the issue. The BREEAM-NL Assessor can approve these components in the relevant issues. This clearly indicates why certain issues do not apply and are therefore 'filtered'.

Project-related and building type specific issues

The majority of the issues apply to the entire building and site (see also Table 6). In the case of so-called job-specific or project-related issues, the BREEAM-NL Assessor can consider whether or not a issue will be obtained for each position or project.

Innovation issues and exemplary performance

With innovation issues, you can additionally value innovations that increase the sustainability performance of a building. These are innovations, on top of the achievements that are already appreciated in BREEAM-NL. Innovation issues encourage clients and construction and design teams to make their building extra sustainable. Moreover, they increase knowledge, techniques and applications in the market. You can obtain an innovation issue if a technique, method or other application has been assessed as innovative. You can apply for innovation issues with Instruction 101 (see www.breeam.nl).

For each innovation issue awarded, the BREEAM-NL Assessor can add 1% to the total score, with a maximum of 10%. Innovation issues are independent of the BREEAM-NL rating. A BREEAM-NL Assessor can therefore award them for each rating (from Pass).

A building can also earn extra credits if it meets Exemplary Performance. It is an 'exemplary performance criteria' in a BREEAM-NL issues. These Exemplary performances also have a value of 1% on top of the total score. The BREEAM-NL rating is capped at 100%. Innovation issues and Exemplary Performance are awarded only as whole percentage issues. See Table 5 for an overview of the possible Exemplary Performances (EP).

Table 5 - Possible EP credits

ISSUE	NUMBER OF EP CREDITS
MAN 05	One percent – Recognized certification system
HEA 01	One percent – Evaluation of daylight glare
HEA 04	One percent – Emissions from construction products and finishing materials
HEA 06	One percent – Lowering speech intelligibility in the office
HEA 10	One percent – Additional biophilic design
ENE 01	One percent – Determining and self-generating the user-related energy consumption
TRA 03	One percent – Measures for alternative transport
WAT 01	One percent – Large water consumption reduction
MAT 01	One percent – New LCA profiles
MAT 02	One percent – Material-related emissions limit value 2 Two percent – Material-related emissions limit value 3
MAT 07	One percent – Detachability of the building materials and products used
WST 01	One percent – Reuse and recycling of materials
WST 05	One percent – Responding to climate change

Table 6 - Characteristics of issues

ISSUE	CRITERIA	AVAILABLE CREDITS	MEETING	HEALTH CARE	INDUSTRIAL	LABORATORY*	COOL-/FREEZING >250 M ² *	OFFICE	HOSPITALITY	EDUCATION	SPORT	RETAIL	SHELL AND CORE	FILTER ISSUE	PROJECT
			Building type												
MAN 01	1 to 3	1	X	X	X	X	X	X	X	X	X	X	X		X
	4 to 6	1	X	X	X	X	X	X	X	X	X	X	X		X
	7	-				X				X			X		X
	8 to 12	1	X	X	X	X	X	X	X	X	X	X	X		X
	13 to 15	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		4													
MAN 02	1 to 3	2	X	X	X	X	X	X	X	X	X	X	X		X
	4 to 6	1	X	X	X	X	X	X	X	X	X	X	X		X
	7	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		4													
MAN 03	1 to 3	-	X	X	X	X	X	X	X	X	X	X	X		X
	4 to 6	1	X	X	X	X	X	X	X	X	X	X	X		X
	7	2	X	X	X	X	X	X	X	X	X	X	X		X
	8 to 13	1	X	X	X	X	X	X	X	X	X	X	X		X
	14 to 16	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		5													
MAN 04	1 to 4	-	X	X	X	X	X	X	X	X	X	X	X		X
	5	1	X	X	X	X	X	X	X	X	X	X	X		X
	6	1	X	X	X	X	X	X	X	X	X	X	X		X
	7	1	X	X	X	X	X	X	X	X	X	X	X		X
	8 and 9	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		4													
MAN 05	1 and 2	1	X	X	X	X	X	X	X	X	X	X			X
	3	1	X	X	X	X	X	X	X	X	X	X			X
	4 and 5	1	X	X	X	X	X	X	X	X	X	X			X
	6	1%	X	X	X	X	X	X	X	X	X	X			X
<i>Maximum credits</i>		3													

ISSUE	CRITERIA	AVAILABLE CREDITS	Building type											SHELL AND CORE	FILTER ISSUE	PROJECT
			MEETING	HEALTH CARE	INDUSTRIAL	LABORATORY*	COOL-/FREEZING >250 M ² *	OFFICE	HOSPITALITY	EDUCATION	SPORT	RETAIL				
HEA 01	1 to 3	1	X	X	X	X		X	X	X	X	X	X	X		
	4 to 6	2	X	X	X	X		X	X	X	X	X	X	X		
	7	1	X	X	X	X		X	X	X	X	X	X	X		
	8 and 9	1%	X	X				X	X	X						X
Maximum credits		4														
HEA 02	1	1	X	X	X	X	X	X	X	X	X	X	X	X		X
	2	-	X	X	X	X	X	X	X	X	X	X	X			X
	3	-	X	X	X	X	X	X	X	X	X	X	X	X		X
	4 and 5	1	X	X	X	X		X	X	X	X	X	X			
Maximum credits		2														
HEA 03	1 to 3	1	X	X	X	X		X	X	X	X	X	X			X
Maximum credits		1														
HEA 04	1	-	X	X	X	X	X	X	X	X	X	X	X	X		X
	1 to 10	2	X	X	X	X	X	X	X	X	X	X	X	X		X
	11 to 15	1	X	X				X	X	X	X	X	X			X
	16	1	X	X	X	X	X	X	X	X	X	X	X			X
	17 to 20	1	X	X	X	X	X	X	X	X	X	X	X			X
	21	1%	X	X	X	X	X	X	X	X	X	X	X			X
Maximum credits		5														
HEA 05	1 to 3	1	X	X	X	X		X	X	X	X	X	X	X		
	4	-			X									X		
	5 to 7	1	X	X	X	X		X	X	X	X	X	X	X		
	8 to 11	1	X	X		X		X	X	X	X	X				
Maximum credits		3														
HEA 06	1 and 2	1	X	X		X		X	X	X	X			X		
	3 and 4	1	X	X		X		X	X	X	X					
	5 and 6	1	X	X		X		X	X	X	X			X		
	7 and 8	1	X	X		X		X	X	X	X			X		
	9 and 10	1%	X	X		X		X	X	X	X					X
Maximum credits		4														
HEA 07	1 to 13	1	X	X	X	X	X	X	X	X	X	X	X	X		X
	1 to 16	1	X	X	X	X	X	X	X	X	X	X	X	X		X
Maximum credits		2														
HEA 10	1 to 5	2	X	X	X	X	X	X	X	X	X	X	X			X
	6 to 11	1%	X	X	X	X	X	X	X	X	X	X	X			X

ISSUE	CRITERIA	AVAILABLE CREDITS	MEETING	HEALTH CARE	INDUSTRIAL	LABORATORY*	COOL-/FREEZING >250 M ² *	OFFICE	HOSPITALITY	EDUCATION	SPORT	RETAIL	SHELL AND CORE	FILTER ISSUE	PROJECT
Maximum credits		2													
HEA 11	1 to 3	1	X	X	X	X	X	X	X	X	X	X	X		X
Maximum credits		1													
Building type															
ENE 01	1	-	X	X	X	X	X	X	X	X	X	X	X		X
	2 to 5	10	X	X	X	X	X	X	X	X	X	X	X		X
	6 and 7	5	X	X	X	X	X	X	X	X	X	X	X		X
	8 to 11	1%	X	X		X		X	X	X	X	X			X
Maximum credits		15													
ENE 02	1 to 3	1	X	X	X	X	X	X	X	X	X	X	X		X
	4 to 6	1	X	X	X	X	X	X	X	X	X	X	X		X
Maximum credits		2													
ENE 03	1 to 4	1	X	X	X	X	X	X	X	X	X	X	X		X
Maximum credits		1													
ENE 04	1 to 3	1	X	X	X	X		X	X	X	X	X	X		X
	4 to 6	1	X	X	X	X		X	X	X	X	X	X		X
	7	1	X	X	X	X		X	X	X	X	X	X		X
Maximum credits		3													
ENE 05	1	1	X	X	X	X		X	X	X	X	X	X	X	X
	2	1							X			X	X	X	X
Maximum credits		2													
ENE 06	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X
	2 to 6	2	X	X	X	X	X	X	X	X	X	X	X	X	X
Maximum credits		3													
ENE 07	1 to 3	1				X							X		
	4 to 7	4				X							X		
Maximum credits		5													
ENE 08	1 to 3	2	X	X	X		X	X	X	X	X	X			X
Maximum credits		2													
ENE 10	1 to 3	2	X	X	X	X	X	X	X	X	X	X	X		X
	4 and 5	1	X	X	X	X	X	X	X	X	X	X	X		X
Maximum credits		3													

ISSUE	CRITERIA	AVAILABLE CREDITS	MEETING	HEALTH CARE	INDUSTRIAL	LABORATORY*	COOL-/FREEZING >250 M ² *	OFFICE	HOSPITALITY	EDUCATION	SPORT	RETAIL	SHELL AND CORE	FILTER ISSUE	PROJECT
			Building type												
TRA 01	1 and 2	5	X	X	X	X	X	X	X	X	X	X	X		X
	3 and 4	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		5													
TRA 02	1 and 2	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		1													
TRA 03	1	2	X	X	X	X	X	X	X	X	X	X	X		X
	2	1%	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
TRA 04	1	2	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
TRA 05	1 to 3	1	X	X	X	X	X	X	X	X	X	X	X		X
	4 and 5	1			X		X								X
<i>Maximum credits</i>		2													
Water			Building type												
WAT 01	1 to 6	5	X	X	X	X	X	X	X	X	X	X	X		X
	7	1%	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		5													
WAT 02	1 to 4	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		1													
WAT 03	1	1	X	X	X	X	X	X	X	X	X	X	X		X
	2	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Max credits</i>		2													
WAT 04	1 and 2	1	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Maximum credits</i>		1													

ISSUE	CRITERIA	AVAILABLE CREDITS	MEETING	HEALTH CARE	INDUSTRIAL	LABORATORY*	COOL-/FREEZING >250 M ² *	OFFICE	HOSPITALITY	EDUCATION	SPORT	RETAIL	SHELL AND CORE	FILTER ISSUE	PROJECT
			Building type												
MAT 01	1 and 2	5	X	X	X	X	X	X	X	X	X	X	X		X
	3 and 4	1	X	X	X	X	X	X	X	X	X	X	X		X
	5 and 6	1	X	X	X	X	X	X	X	X	X	X	X		X
	7	1%	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		7													
MAT 02	1	2	X	X	X	X	X	X	X	X	X	X	X		X
	2	3	X	X	X	X	X	X	X	X	X	X	X		X
	3	1%	X	X	X	X	X	X	X	X	X	X	X		X
	4	2%	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		5													
MAT 03	1 and 2	-	X	X	X	X	X	X	X	X	X	X	X		X
	3	2	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
MAT 05	1 and 2	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		1													
MAT 06	1 and 2	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		1													
MAT 07	1 and 2	1	X	X	X	X	X	X	X	X	X	X	X		X
	3	1	X	X	X	X	X	X	X	X	X	X	X		X
	4 and 5	1%	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
Waste			Building type												
WST 01	1	-	X	X	X	X	X	X	X	X	X	X	X		X
	2 to 9	1	X	X	X	X	X	X	X	X	X	X	X		X
	10 and 11	2	X	X	X	X	X	X	X	X	X	X	X		X
	12 and 13	1%	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		3													
WST 03	1 and 2	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		1													
WST 04	1 and 2	1	X	X	X	X	X	X	X	X	X	X			X
<i>Maximum credits</i>		1													
WST 05	1	-	X	X	X	X	X	X	X	X	X	X	X		X
	2 to 5	1	X	X	X	X	X	X	X	X	X	X	X		X
	6	1%	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		1													

ISSUE	CRITERIA	AVAILABLE CREDITS	MEETING	HEALTH CARE	INDUSTRIAL	LABORATORY*	COOL-/FREEZING >250 M ² *	OFFICE	HOSPITALITY	EDUCATION	SPORT	RETAIL	SHELL AND CORE	FILTER ISSUE	PROJECT
WST 06	1	3	X	X				X	X	X	X	X	X	X	X
			Building type												
LE 01	1	2	X	X	X	X	X	X	X	X	X	X	X		X
	2	2	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		4													
LE 02	1	-	X	X	X	X	X	X	X	X	X	X	X		X
	2 to 4	2	X	X	X	X	X	X	X	X	X	X	X		X
	5	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
LE 04	1	-	X	X	X	X	X	X	X	X	X	X	X		X
	2 and 3	2	X	X	X	X	X	X	X	X	X	X	X		X
	4 and 5	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		3													
LE 05	1	-	X	X	X	X	X	X	X	X	X	X	X		X
	1 to 3	2	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
Pollution			Building type												
POL 01	1	3	X	X	X	X	X	X	X	X	X	X	X		X
	2	-	X	X	X	X	X	X	X	X	X	X	X		X
	3 to 6	3	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		3													
POL 02	1	2	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
POL 03	1	-	X	X	X	X	X	X	X	X	X	X	X		X
	2	1	X	X	X	X	X	X	X	X	X	X	X		X
	3	2	X	X	X	X	X	X	X	X	X	X	X		X
	4	3	X	X	X	X	X	X	X	X	X	X	X		X
	5	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		4													
POL 04	1	2	X	X	X	X	X	X	X	X	X	X	X		X
	2 to 4	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		2													
POL 05	1 to 4	1	X	X	X	X	X	X	X	X	X	X	X		X
<i>Maximum credits</i>		1													

*The laboratory and cooling/freezing building type exceeding 250 m² fall under the industrial building type. However, specific criteria regularly apply to these particular building types. These are outlined within the relevant issues themselves.

3.3 Category weightings

The final score is determined by the number of credits approved by the BREEAM-NL Assessor. To calculate this score, several weighting factors must be considered. However, the Assessor does not need to perform these calculations manually, as they are automatically processed by the Assessmenttool.

There is a maximum number of credits to be earned per category. The number of credits obtained in relation to the maximum number of credits to be achieved yields a percentage. This percentage is multiplied by the weighting percentage of each category. By adding up the nine category scores, you get a total score. That is the score on the certificate.

The weighting factors are based on a consensus from the survey among various stakeholders and organizations. Think of government, suppliers, manufacturers and knowledge institutions. This peer reviewed study was conducted by BRE to determine the relative importance (weight) of each sustainability category. In the Netherlands, no research or stakeholder analysis has yet been carried out. That is why we use the same weighting as BREEAM International scheme. This is therefore a consensus based on qualitative research and not a scientific weighting. The weighting percentages may change over time if social developments give cause to do so.

Table 7 - Weighting percentage by category and project type

BREEAM-NL CATEGORY	PROJECT TYPE	
	Entire building	Shell and core
Management	11%	10%
Health	19%	15%
Energy	20%	20,5%
Transport	6%	6,5%
Water	7%	7,5%
Materials	13%	14,5%
Waste	6%	6%
Land use and ecology	8%	9%
Pollution	10%	11%
Total	100%	100%
Innovation and EP	10%	10%

3.4 How is a BREEAM-NL rating calculated?

The final BREEAM-NL rating (from 'Pass' to 'Outstanding') is calculated by the assessmenttool. The BREEAM-NL Expert has justified the criteria the project meets in the assessmenttool. The BREEAM-NL Expert ticks off the credits that the project is aiming for. The BREEAM-NL Assessor checks the accountability and evidence and approves the credits. It does not alter the fact that the BREEAM-NL Assessor and Expert must also be able to calculate the rating themselves.

To arrive at the correct rating, they proceed as follows:

1. Determine the scope of the project to be assessed, "entire building or shell and core".
2. Determine the number of credits earned per position and category.
3. Determine the percentage of credits earned per position for each category based on the maximum number of credits to be earned.
4. Multiply the buildingtype-specific category percentage by the surface area of the building types; This yields the category percentage.
5. Multiply the category percentages by the weighting factors; This results in the category score.
6. Add up the category scores, including any applicable innovation issues. This results in a draft final score.
7. Check that the prerequisite and minimum standards for the preliminary rating have been achieved. If so, the draft rating is the same as the final rating.

3.5 Case study

BREEAM-NL rating 'Outstanding'

If you want to obtain a BREEAM-NL rating 'Outstanding' for a building (and building plot), the score must meet the following requirements:

- a. The BREEAM-NL score must be $\geq 85\%$.
- b. The prerequisites and minimum standards have been achieved.
- c. A case study should be delivered according to the guidelines below.

Case study

One of the most important aspects of projects with a BREEAM-NL rating 'Outstanding' is the exemplary function of these projects. It is therefore very important that design teams in construction have a good case study. The design team and the client who have obtained the BREEAM-NL rating 'Outstanding' must provide a ready-to-use case study. You must submit this information together with the final report of the BREEAM-NL Assessor for the post-construction stage.

Once approved, DGBC may freely use the case study on its websites and for various publications. If no case study has been submitted, no BREEAM-NL rating 'Outstanding' can be assigned to the building in question.

Guidelines for a case study

The 'Outstanding' project has an exemplary function, so that others can learn from it. As a guideline, leaving the actual interpretation to the project team, you can think of the following:

- Detailed description of the project, including building plot and surroundings
- Design principles and innovations
- Sustainability aspects (techniques, processes and measures)
- Special features in the BREEAM-NL certification process
- Scores
- Costs and benefits of the sustainability objective - Key figures (per m² GFA, FTE, etc.)
- What can others learn from this project?
- Recommendations for further sustainability in the future

3.6 Building data in issues

To ensure that the building data is better recorded in the Assessmenttool, some issues ask you to fill in and validate additional fields. This should be done in addition to checking the criteria or answer options that apply. In this way, it can be checked whether everything has been filled in consistently, changes can be tracked and the improvement of the sustainability performance of the building can be monitored. If an answer option (or criterion) applies to the building and there is an input field associated with it, the credits can only be obtained if that field is also filled in. See Table 8 for an overview of the mandatory input fields.

Table 8 - Building data issues

ISSUE	DATA POINT	UNIT	LINKED CRITERIA
General	Usable floor area	m ²	-
MAN 02	Lifecycle costs at a strategic level	€	1 to 3
MAN 02	Lifecycle cost detailed level	€	4 to 6
MAN 02	Investment	€	7
MAN 03	CO ₂ emissions due to energy use in the installation stage	Kg	8 to 10
MAN 03	NO _x emissions due to energy use in construction stage	Kg	8 to 10
MAN 03	Particulate matter emissions due to energy use in construction stage	Kg	8 to 10
MAN 03	Net water consumption during the construction stage	m ³	11 to 13
MAN 03	CO ₂ emissions due to material transport installation stage	Kg	14 to 16
MAN 03	NO _x emissions from material transport during construction stage	Kg	14 to 16
MAN 03	Particulate matter emissions due to material transport during construction stage	Kg	14 to 16
MAN 03	CO ₂ emissions from earthwork transport installation stage	Kg	14 to 16
MAN 03	NO _x emissions from earthwork transport in construction stage	Kg	14 to 16
MAN 03	Particulate matter emissions from earthwork transport in construction stage	Kg	14 to 16
MAN 03	CO ₂ emissions due to waste transport installation stage	Kg	14 to 16
MAN 03	NO _x emissions from waste transport during construction stage	Kg	14 to 16
MAN 03	Particulate matter emissions from waste transport in construction stage	Kg	14 to 16
MAN 04	Building air permeability	Qv50	7
ENE 01	BENG 1 - energy requirement	kWh/m ² GO/year	2
ENE 01	BENG 2 - primary fossil energy use	kWh/m ² GO/year	3
ENE 01	BENG 3 - share of renewable energy	%	-
ENE 01	User-related energy consumption	kWh/m ² GO/year	8 to 11
ENE 01	Number of solar panels	Amount	2 to 7

ISSUE	DATA POINT	UNIT	LINKED CRITERIA
ENE 01	Total renewable energy capacity	kWh/m ² GO/year	2 to 7
ENE 04	Environmental impact of building-related energy demand (shadow price)	€/m ² GFA/year	7
ENE 10	Storage capacity	kWh/m ² /GO	1 to 3
TRA 03	Number of charging stations	Amount	Table TRA 03.1 option 3
TRA 03	Total capacity of charging stations	Kwh	Table TRA 03.1 option 3
TRA 04	Number of parking spaces	Amount	1
WHAT 01	Target water consumption	L/person/day	2
WHAT 01	Yield black, grey or rainwater harvesting system	L/person/day	4 and 5
MAT 01	MPG	€/m ² GFA/year	3
MAT 01	GWP module A	kg CO ₂ -eq / m ²	11 and 12 (EU tax)
MAT 01	GWP module B	kg CO ₂ -eq / m ²	11 and 12 (EU tax)
MAT 01	GWP module C	kg CO ₂ -eq / m ²	11 and 12 (EU tax)
MAT 01	GWP module D	kg CO ₂ -eq / m ²	11 and 12 (EU tax)
MATT 02	Whole life carbon emissions	kg CO ₂ -eq / m ²	2
MAT 07	Detachability index	Lig %	1 and 2
WST 01	Waste management (reused)	%	10 to 13
WST 01	Waste management (construction waste total)	Kg	10 to 13
WST 06	Adaptive capacity	%	1
POL 02	NOx emissions related to heating and tap water	Mg/kWh	1

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

4. Evidence requirements

To ensure consistency and reliability, all BREEAM-NL certifications must be based on reliable and verifiable information, which is in line with the project in question. This is guaranteed with the BREEAM-NL certification with evidence. Evidence should be used to support the accountability of the number of credits to be awarded in the issue. The evidence required for this may differ per scheme and per issue.

4.1 Evidence types

The evidence for the issues is preferably not specially drawn up for a BREEAM-NL certification. In many cases, the requirements of the scheme can be demonstrated with available building information and an on-site inspection.

In the issues, it may happen that specific evidence is requested for a criteria. The evidence that must be provided is described in the relevant issue under the 'evidence' section. If evidence is not required for an issue, the project can use Table 9 to determine what evidence is needed to demonstrate that the criteria are met.

Table 9 - General BREEAM-NL evidence

REFERENCE	DOCUMENT/EVIDENCE TYPE	DESCRIPTION/NOTE
E1	As-built information	As-built information, drawings, investigations of (specialist sub-) contractors
E2	Building information model (BIM - Building information model)	BIM files for the project with relevant information and/or evidence, provided that they are clearly legible for the reviewing party
E4	Inspection report of BREEAM-NL Assessor	An official report based on the survey of the construction site carried out by the BREEAM-NL Assessor himself to confirm that the criteria are met. The inspection report differs from the accompanying official BREEAM-NL assessment report. It serves as a stand-alone proof that the criteria are met. The report may include photographs taken by the Assessor as part of the investigation.
E5	Building contracts(ies)	The building contract (or passages and provisions thereof) between the client and the contractor for the construction of a project, or subcontracting agreements for the execution of parts. The building contract may also include design tasks.
E6	Recognized schemes and certificates	Examples such as ISO 14001, FSC (Forest Stewardship Council), EPD (environmental product declaration), Conscious Builders.
E7	Communicative expressions	Formal documents of communication with stakeholders and/or third parties showing an agreement, outcome or action. This can be in the form of a letter, minutes, e-mail, a publication or another form of communication.
E8	Communication agreements	The strategy that states when the project team will meet, how members communicate with each other, and that includes the protocols for providing information between

REFERENCE	DOCUMENT/EVIDENCE TYPE	DESCRIPTION/NOTE
		the different parties, both informally and formally.
E9	Results from modeling software	Examples include thermal modeling software, lifecycle assessment, lifecycle costing, ventilation modeling, etc.
E10	Specification of work	The specification for the project, such as specification texts.
E11	Data and information from the construction stage	For example, purchase orders, measurement data, logbooks, construction schedules, final reports, et cetera.
E12	Structure diagram of the Project	A graph that clarifies the contractual relationship between the client and the parties who perform the tasks within a project.
E13	Cost recognition	Project costs, cost estimates, and lifecycle costs.
E14	Design drawings	Design drawings of the project from the different stages for the urban development, the architectural and the installation design.
E15	Design planning	A schedule containing the strategic data of the design process. It is linked to the project planning, but focuses on the strategic choices in the successive stages of the design process.
E16	Design responsibility matrix	A matrix that defines who is responsible for the design of which aspect of the project. This also states when, at what level and in which stage the design was developed.
E17	Feasibility study(s)	Research into the feasibility of the PoR or into certain applications at the location in question.
E18	Structure design	The first design in which the requirements of the PoR and the results of the feasibility studies have been adopted.
E19	Other third-party information	For example, floor plans, timetables, product specifications, laws and regulations, product labels.
E20	Professional Services Agreement	An agreement for professional advice and services such as design, feasibility, legal or technical advice.
E21	Specialist reports	Reports of specialist examinations (test results) prepared by a competent specialist, demonstrated by means of CV and associated work experience.
E22	Project implementation or quality plan	The project execution plan describes the processes, protocols, and schedule related to the execution of the work.
E23	Project plan	A plan that describes how the construction of the project will take place in order to bring the PoR to commissioning.
E24	Project Function Table	A table containing the functions that are needed during a project, including a description of the stages where those functions are required and of the parties that perform the functions.

REFERENCE	DOCUMENT/EVIDENCE TYPE	DESCRIPTION/NOTE
E25	Project strategy	The strategies developed in the design stage to support the design. Examples include: strategies for sustainability, acoustics, transmission, maintenance and use, fire management, building control, technology, health and safety, construction, transport information, sustainable procurement plan.
E26	Risk analysis	The risk analysis contains an estimate of the various design risks (and other risks) during a project, how these risks are managed and which party is responsible for them.
E27	Service Schedule	A list of specific services and tasks performed by a party involved in the project. These services and tasks are added to the agreement with the relevant party.
E28	Program of Requirements (Pve)	The Schedule of Requirements is drawn up after discussions with the client about the project goals and sustainability ambitions, the client's business case. In some cases, the PoR refers to the feasibility studies for the construction site.

4.2 Robustness of evidence

Evidence used for a BREEAM-NL certification must be reliable and of good quality when it comes to the source and traceability of the evidence. Below is an overview of quality requirements that a BREEAM-NL Assessor can ask for if evidence is provided.

- **Communication methods:** Newsletters, conversation reports, email conversations, or any other form of media used as evidence must clearly display the name of the asset and/or location, author/organization, and date.
- **Formal letters of correspondence:** letters must be addressed, dated and signed (electronic signature is sufficient).
- **Construction drawings/floor plans/installation technical drawings:** all these documents are provided with the name of the asset and/or location, title of the drawing, date, (if possible revision number and scale).
- **Specification/building manuals:** A specification/building manual must be clearly related to the project being assessed, and must be dated. If parts of a specification or a building manual have been made available, the table of contents and the cover page of the specification or manual must in any case be attached. It should include the name of the project and the date.
- **Photographic evidence:** This must be dated and have a title/description that clearly links the photographic evidence to the asset and the related issue.

4.3 NC: Evidence design and post-construction stage

Evidence of the design stage

During the assessment for the BREEAM-NL design certificate, you may in some cases use contracts to demonstrate that you want to meet the BREEAM-NL criteria. In these contracts, you must describe the actions that will be carried out and the evidence to be provided, to ensure that the criteria are met. PLEASE NOTE: the design team is not allowed to copy and paste BREEAM criteria into an official commitment. In the pledge, you state how you will meet the criteria within the context of the assessment. Copied and pasted BREEAM criteria do not provide this information.

While contracts can play a role in proving that your project is compliant, they are not a substitute for original project information. The Assessor may not award credits if there are grounds to question the written

commitments. This is true even if it is likely that official design information or specifications are available to confirm that the criteria have been met.

Evidence post-construction stage

The evidence during the post-construction stage requires that a design certificate has been obtained in order to award credits. If this is not the case, the Assessor must assess the evidence of both the design stage and the post-construction stage.

The evidence provided during the post-construction stage must relate to the completed building. This must demonstrate which work has actually been carried out. For example, if sub-meters are specified in the design stage, the information from the post-construction stage must show that they have actually been installed. Suitable evidence in such a situation can be an inspection report of the construction site, with supporting photos or construction drawings (as-built) showing the placement of the submeters.

Contracts are not suitable for demonstrating that your project meets the criteria during the final post-construction stage of the assessment. The only exception is when actions are necessary based on the criteria in the post-construction stage, for example actions after the handover and possibly during the use of the building. An example is a contractual agreement from the building owner or user that indicates that an evaluation will be carried out after commissioning. As with contracts in the design stage, the BREEAM-NL Assessor may not award credits if there is reason to doubt.

4.4 Evidence principles

In determining the appropriateness and robustness of the evidence for each issue, the BREEAM-NL Assessor should apply the principles set out in Table 10. If the evidence complies with these principles, it is admissible for the assessment. The principles below are not in a hierarchical order, they are all equally important in approving the evidence.

Table 10 - BREEAM-NL Evidence Principles

	PRINCIPLE	PURPOSE	QUESTION TO ASK
1	Evidence provided for all criteria for all issues sought		
	Evidence must show that ALL relevant criteria for the issue obtained are met.	Completeness	Are all criteria covered? Have all relevant definitions been addressed?
2	Unambiguous assessment		
	The assessment must demonstrate that compliance is made in an unambiguous manner. Evidence (and explanations) must make it clear to the reviewing party that the requirements are met.	Comparability of independent assessment	If a third party reviews my report with the attached evidence, will they be able to confirm that the requirements are met, and award the same credits as me?
3	Robust		
	Always ensure that the evidence is robust and relevant to the assessment. The evidence contains all relevant basic information.	The evidence is demonstrably robust and from a reliable source.	Is this the most robust form of evidence available to show compliance with the requirements? Does the evidence contain all the relevant basic information? Can it be fully controlled?
4	Using existing evidence		
	Use available and existing information to demonstrate compliance.	By using existing and available evidence, I	Is evidence that meets the previous principles already present and usable?

PRINCIPLE	PURPOSE	QUESTION TO ASK
In most cases, evidence will not need to be 'created'.	minimize time and costs.	If I have to ask for more evidence, does the project look for credits that they cannot sufficiently demonstrate that they meet?

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

5. Demarcation of the project

This scheme is based on an assessment of the entire building. Rarely does a building consist of only building type. The main function of an office is the office function. Offices usually also have meeting rooms, a canteen or other places where building users come together. These rooms have a meeting function. In the Assessmenttool it is possible to fill in the different surface areas per buildingtype.

Score in the case of mixed-use/combined use

In the Assessmenttool, the scores for various building types are automatically weighted in proportion to the GFA of each buildingtype. In this way, the total score is the score of the entire building.

Building type specific issues

Most issues apply to the entire building and grounds. Table 6 provides a list of issues that may be buildingtype-specific and do not apply to the building or site as a whole.

Small spaces and unrelated spaces

If the building has space(s) with a combined amount of less than 5% of the GFA, smaller than 200 m², that fulfil function(s) that are not related to the main function of the building, these function(s) can be disregarded. The Assessor validates whether this is the case.

5.1 Deadline for obtaining the completion certificate

The final certificate

Depending on the type of project, the completion certificate can be obtained up to twelve months after the completion or commissioning of the building. In exceptional cases, this period may be extended by a maximum of two times by six months. An extension must be requested before the expiry of the maximum period, as described in Instruction 122.

Project type entire building

For the project type of entire building, the completion certificate must be obtained within twelve months of building handover. By building handover, BREEAM-NL means the actual occupancy of the building, as intended. The assessment for the final certificate relates to the status of the building when it is put into use. In a staged building handover of the entire building, the building is put into use as soon as it is fully in use.

Project type shell and cores

For the project type of shell and central installations, the date of building handover is unclear. For this reason, the date of final to the client is used. The project has a maximum of twelve months to obtain the completion certificate. Final means the conditions as described in UAV/UAV-gc.

5.2 Instruction 108

In some cases, it is necessary to receive a completion certificate earlier than the maximum deadline, but it is not possible to meet all the criteria of the scheme. Instruction 108 describes for which issues and under what conditions credits may be awarded for the final certificate, while not all performance requirements have yet been met at the time of assessment by the Assessor. Visit the BREEAM-NL website for the full instruction.

6. How to read an issue

The light green area contains general information about the issue, such as how many credits are available and whether it is a minimum requirement.

Code and name of the issue

This box shows the purpose of the issue.

The issues are divided into one or more parts, for which points can be earned. For each part, the heading states how many credits are available, followed by the criteria that must be met.

The criteria often refer to tables. The tables referred to are grouped together under this heading.

To clarify the criteria, additional requirements and explanations have been added in this table. Each credit starts with the scope (the scope). Here is explained how the issue should be applied for different types of projects. The Compliance notes are numbered, so that the reference in the justification and validation becomes easier and clearer.

WAT04

WATER 

Waterefficiënte apparatuur

Het verminderen van drinkwaterverbruik door efficiënte uitvoering van water verbruikende voorzieningen die niet worden beoordeeld in WAT 01.

Beschikbare punten : **1**
 Minimale vereiste : **X**
 Verplicht vanaf : **X**
 Projectgebonden : **✓**
 Filtercredit : **✓**
 Exemplary performance : **X**

Criteria

De credit bestaat uit één deel:

- Waterefficiënte apparatuur (één punt).

Toon aan dat aan de volgende criteria wordt voldaan:

Eén punt – Waterefficiënte apparatuur

1. Het ontwerpteam heeft alle waterverbruikende voorzieningen in het gebouw en op het terrein met een niet-huishoudelijke watervraag gedocumenteerd (o.a. zwembaden, voertuigwasstraat en irrigatiesystemen).
2. Systemen en/of processen zijn dusdanig gespecificeerd om de drinkwatervraag te verminderen en tonen aan dat het totale drinkwaterverbruik van het gebouw aanzienlijk afneemt.

Tabellen

Geen.

Aanvullingen op de criteria

REFERENTIE	ONDERWERP	OMSCHRIJVING
<i>Toepassingsgebied</i>		
CN1	Toepasbaarheid van de criteria	In hoofdstuk X staat het toepassingsgebied voor elk criterium, per gebruiksfunctie en projecttype. Criteria die niet van toepassing zijn, worden daar weergegeven. Aanvullende of aangepaste criteria voor een specifiek projecttype en gebruiksfunctie staan in de aanvulling op de criteria van de credit.
CN1.1	Geen vraag naar drinkwater buiten huishoudelijke	Wanneer er geen vraag is naar drinkwater buiten de standaard huishoudelijke doeleinden omschreven in WAT 01 dan is deze credit (WAT 04) niet van toepassing. Let hierbij wel op de voorwaarden onder CN5.
<i>Algemeen</i>		
CN2	Waterbesparende maatregelen	Niet alle waterbesparende maatregelen kunnen in BREEAM-NL worden opgegeven. Het projectteam moet kunnen laten zien dat alle specifieke en bewezen maatregelen en technieken voor het project zijn uitgevoerd. De volgende maatregelen tonen aan dat er aan de criteria wordt voldaan:

For issues where a certain methodology or calculation tool must be used to determine whether the criteria are met, this is explained in the 'Methodology'

WAT 04

WATER 

Waterefficiënte apparatuur

REFERENTIE	ONDERWERP	OMSCHRIJVING
		<ul style="list-style-type: none"> a. Vocht-sensor gestuurde druppelirrigatie onder het maaiveld. De irrigatie moet in zones worden verdeeld, zodat verschillende groepen beplanting variabel gesproeid kunnen worden. b. Hergebruik van regenwater of grijswater met voldoende opslag – conform WAT 01 voor voertuigwasservices, toiletsystemen en irrigatie. c. Externe groenvoorziening (beplanting) die volledig afhankelijk is van plaatselijke neerslag, gedurende alle seizoenen van het jaar. d. Gespecificeerde beplanting die alleen bestaat uit soorten die goed gedijen in hete en droge omstandigheden. e. Gespecificeerde interne beplanting die geen extra water nodig heeft (bijvoorbeeld <u>moswanden</u>).
CN3	Voertuigwasstraten	Het voertuigwassysteem vangt afstromend water van de wasplaats op en gebruikt dit opnieuw. Het hergebruik moet volledig automatisch zijn.
CN4	Microbiële besmetting	Als er een voertuigwasstraat aanwezig is dan moet het ontwerp team een uitleg geven aan de Assessor hoe het risico op legionellabesmetting in het ontwerp tot een minimum is beperkt.

Methodiek

Geen.

Bewijsmateriaal

CRITERIA	ONTWERPFASE	OPLEVERFASE
Alle	Met één of meer bewijsstukken, zoals vermeld in hoofdstuk 4.0 BREEAM-NL Bewijsmateriaal, moet worden aangetoond dat het project aan de criteria voldoet.	

Definities

Niet-huishoudelijke watervraag

Voor deze credit wordt met de watervraag o.a. bedoeld: zwembaden, hottubs en hydrotherapie baden, irrigatiesystemen (intern en extern) en voertuigwasstraten. De watervraag voor huishoudelijke sanitaire doeleinden behoort niet bij deze credit, dit wordt beoordeeld in WAT 01.

Wasstraat voor voertuigen

Een commercieel automatisch, semiautomatisch of handbediend systeem voor het wassen van voertuigen. Dit is inclusief voorzieningen voor het wassen van wielen, het chassis, de transporteur en ruitenreiniger met borstels, sproeiarmen of handbediende hogedrukreinigers.

Aanvullende informatie

Geen.

Referenties

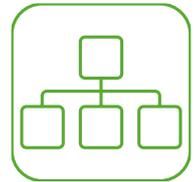
Geen.

Specific evidence is described with every issue. The first column indicates the criteria for which the evidence applies.

Definitions describe how important concepts are used to describe the Interpret.

Here you will find additional information about the content of the issue, as well as references to possible references

Management



SUMMARY

This category encourages sustainable management practices in the design and construction stage of the development. Attention is also paid to commissioning, transfer and aftercare, so that the utility building can be used properly. The influence and role of local residents, stakeholders and future users are important in this respect.

CONTEXT

The level of sustainability achieved upon completion is determined early in the process. It is important that the sustainability ambitions are clear from the start and are fully adopted by the project team and other stakeholders. The Management category focuses on ensuring sustainability performance. Attention is paid to the design, construction and final process. Not only sustainability is important, but also social aspects, such as the impact of development on the local community.

By having a clear focus on the sustainability ambition, making good choices that can be demonstrated, involving everyone and delivering what has been promised, a high-quality and sustainable project is ultimately realized that can actually be put to good use.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Value of the issues

MAN 01	Project management	Four credits
Value:	<ul style="list-style-type: none"> • Sustainability brief and responsibilities • Stakeholder consultation • BREEAM-NL Expert 	
MAN 02	Lifecycle costs	Four credits
Value:	<ul style="list-style-type: none"> • Lifecycle costs at a strategic level • Lifecycle costs at a granular level • Reporting investment costs 	
MAN 03	Responsible Building Practices	Five credits
Value:	<ul style="list-style-type: none"> • Legal, sustainable wood sources and sustainability manager • Environmental management on the construction site • Responsible construction site management • Monitoring the environmental impact of the construction site 	
MAN 04	Commissioning and transfer	Four credits
Value:	<ul style="list-style-type: none"> • Commissioning plan • Commissioning of the installations and control systems • Commissioning of the architectural envelope • Final and transfer 	
MAN 05	Transfer to management and aftercare	Three credits and EP credit
Value:	<ul style="list-style-type: none"> • Transfer to management and aftercare • Seasonal adjustment • Post-commissioning evaluation 	

This document is for information purposes only and should not be used for certification. Official Dutch version prevails.

Project brief and design

To recognise and encourage an integrated design process that optimises building performance.

Credits available	: 4
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

This issue consists of three parts:

- Sustainability brief and responsibilities (one credit);
- Stakeholder consultation (one credit);
- BREEAM-NL Expert (two credits).

Demonstrate that the following criteria are met:

One credit – Sustainability brief and responsibilities

1. A clear sustainability brief have been drawn up or endorsed by the client, prior to the adoption of the design stage, to ensure the input of relevant design team members. The sustainability briefs are project-specific and must at least include:
 - a. Any requirements from the end user, for example whether specific internal climate requirements apply. Specific attention must be paid to requirements that are related to the sustainability ambition and performance;
 - b. Sustainability goals, for example a BREEAM-NL performance target (see definitions), energy neutrality, nature-inclusive or circular, etc;
 - c. Timelines and budget;
 - d. List of professionals to contact, e.g. an ecologist, acoustic consultant, etc.;
 - e. Insight into external preconditions or limitations relevant to (the sustainability ambition of) the project, (see definitions).
2. Before completion of the design stage, the parties directly involved (see definitions) consulted with the aim of discussing the sustainability brief, defining and recording their roles, tasks and responsibilities for all project stages. The following must be recorded:
 - a. Who fulfills which role;
 - b. Who is responsible for what;
 - c. What contribution is expected from those involved.
3. When defining responsibilities, all activities required for the successful completion of the BREEAM-NL certification process must be taken into account.

One credit – Stakeholder consultation

4. Before completion of the design stage, relevant stakeholders (see CN2) were consulted by the design team on the basis of the components from CN3.
5. The project should demonstrate how the contributions of the stakeholders and the results of the consultation have influenced or changed the original schedule of requirements and the design stage. The disallowed contributions must also be explained.

Project design

6. Prior to the completion of the final design, feedback has taken place with the stakeholders, this includes at least the parts from CN3.

Supplementary for education and laboratory building types

7. For the building type education and laboratory, the consultation (see CN4) for stakeholders (see CN2) was carried out by an independent party (see CN5).

One credit – BREEAM-NL Expert (design)

8. A BREEAM-NL Expert New Construction (see definitions) was appointed prior to the design stage to supervise, steer and monitor the process in order to achieve the BREEAM-NL performance targets set for the project.
9. The defined BREEAM-NL performance targets are officially laid down between the client and the design or project team for the purpose of the design stage.
10. The BREEAM-NL New Construction Expert must participate in key design team meetings during the key design stages. This applies at least until the design certificate is obtained and the transfer of the work to the BREEAM-NL Expert who monitors progress. This can be the same person.
11. It has been demonstrated that the BREEAM-NL performance targets that have been agreed upon are achieved in the final design. This means that the BREEAM-NL rating in the design certificate must match or exceed the set performance targets. Only then can this credit be awarded.
12. It is a minimum standards that the client and design team be reported on the status of the sustainability ambitions during and prior to completion of each design stage (see CN6).

One credit – BREEAM-NL Expert (progress monitoring)

13. Criteria 8 to 12 have been achieved.
14. A qualified BREEAM-NL Expert New Construction (see CN7) will be appointed to monitor progress during the technical design, implementation design, construction and post-construction stages. This is done in relation to the BREEAM-NL performance targets agreed in the design stage. The progress is reported to the client and the design and construction team.
15. The BREEAM-NL Expert is required to participate in essential design and construction team meetings (see CN9) during the stages mentioned in criterion 14. Reporting during and prior to completion of each stage is a Minimum standards.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Relevant stakeholders	<p>Where applicable, the following relevant stakeholders should be involved:</p> <ol style="list-style-type: none"> Relevant parties from the immediate vicinity of the project (local residents, local businesses, etc.). Local neighbourhood groups (VVEs, business associations, sports clubs, etc.). Local nature associations. Archaeologists or historians, Monument Association, etc. <p>In the case of an educational building, these are also:</p> <ol style="list-style-type: none"> Local education authorities, college of directors, etc. <p>In the case of a laboratory, these are also:</p> <ol style="list-style-type: none"> Representatives of the users.
CN3	Scope of consultation	<p>Minimum scope of the consultation depends on the building, building type and scope of the project, but should usually include the following points:</p> <ol style="list-style-type: none"> Functionality, build quality and impact (including design). Adequate internal and external facilities (for future building users, visitors and neighbours). Effects on the local community, for example on local traffic and transport. Opportunities for shared facilities and infrastructure with the community and relevant stakeholders, where relevant and appropriate for the building type. Comply with legal (national or local) consultation requirements. Complete and accessible design. When external installations are used that affect the suitability of the installation, e.g. legionella prevention.
CN4	Additional consultation for laboratory and educational buildings	<p>For building types of laboratories, the minimum scope of the consultation also consists of:</p> <ol style="list-style-type: none"> The requirements of end users, such as appropriate dimensions, optimization and integration of equipment and systems. <p>For educational building types, the minimum scope of the consultation also consists of:</p> <ol style="list-style-type: none"> How the building and the grounds can best be designed to facilitate learning (learning environment). In the case of large-scale renovation or repurposing to educational function: Where the scope of the work involves changes in the internal layout and function, the consultation will consider how the design can best provide a range of

Project design

REFERENCE	SUBJECT	DEFINITION
		social spaces that suits the needs of pupils, students and other users.
CN5	Independent expert	<p>To meet criterion 7, which requires the use of an independent expert, the client or design team must demonstrate that one of the following options is met:</p> <p>a. They have used a party that is independent of the design process to carry out the necessary consultation in accordance with a method set up by this expert.</p> <p>OR</p> <p>b. If the consultation is carried out by an organisation involved in the design of the building, such as the project architect, this organisation must clearly demonstrate to the Assessor that the consultation process is independent. BREEAM-NL does not specify the form in which this proof must be provided. It is the responsibility of the design team or the person involved to convincingly demonstrate to the Assessor that there is a credible level of independence.</p>
CN6	Reporting obligation for design stages	The Minimum standards to report each design stage to the client and the design team can be demonstrated in various ways. It is not mandatory to draw up a new report for this. The reporting obligation can also be apparent, for example, from minutes of meetings or e-mail correspondence. It is up to the BREEAM-NL Expert and the project team to demonstrate this reporting obligation to the Assessor.
CN7	BREEAM-NL Expert	The responsibilities of BREEAM-NL Expert are included in a contractual agreement that shows that the person has sufficient resources and time to monitor, assess and achieve the objectives. This may also be laid down in the evidence for criteria 1 to 3.
CN8	BREEAM-NL	If the BREEAM-NL-related performance targets set at the end of the design stage stage have not been achieved in the final assessment. The credit awarded in the draft assessment for the appointment of the BREEAM-NL Expert should not be awarded in the final assessment. See relevant Definitions.
CN9	Essential Design Team Meetings	<p>Essential design team meetings are meetings where fundamental decisions are discussed and taken that affect the proposed building design and its construction in accordance with the design (and therefore in accordance with building sustainability and BREEAM performance). These meetings typically involve representatives from at least three of the following parties:</p> <ul style="list-style-type: none"> • Representatives of the customer or the developer; • The main contractor; • The architect; • Structural engineers; • Building installation engineers; • Cost consultants; • Environmental consultants; • Project management consultants.

Project design

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

External preconditions

For some projects, external preconditions may apply, such as restrictions on project size or height that are laid down in a zoning plan. The project may also be located in a protected area or designated as a monument. Other relevant factors are legal agreements, laws to protect ecology or biodiversity, and considerations around flood risks. Normal national or local building standards are not considered restrictions in this context.

BREEAM-NL Expert

A person who has been trained by DGBC in the operation of BREEAM-NL and the associated process guidance. Only Experts trained and recognized by DGBC are covered. It is essential that the Expert in question has completed the annual training during the project. In the context of this scheme, a BREEAM-NL Expert for New Construction must have been appointed. A list of trained BREEAM-NL Experts can be found on bream.nl.

The role of BREEAM-NL Expert does not have to be a specific, stand-alone role. This role may be assigned to an existing participant in the project team. It is important that a person is designated as responsible for coordinating and achieving the sustainability goals by providing appropriate expertise during the preparation, design, construction and post-construction stages of the project. The aim of the points for the BREEAM-NL Expert is to stimulate an integrated design and construction process in which BREEAM is used as a framework for determining, agreeing and achieving the desired sustainability performance for the project. The BREEAM-NL Expert can be approached by all parties involved at any time in the process to answer questions and can help realize possible new sustainable measures or initiatives. With the appointment of a responsible person, the project has insight into the state of affairs with regard to the realization of the sustainability ambitions at all times and can make adjustments if necessary.

BREEAM-NL related performance targets

BREEAM performance targets specifically relate to the BREEAM-NL rating and the required minimum standards. This does not necessarily include separately targeted BREEAM-NL issues or credits that can be traded during the project. When agreeing on a BREEAM-NL goal, it is advised to pursue or prioritize the individual BREEAM issues, credits and criteria. This allows for confidence that the agreed goal is achievable and will be achieved without having to make potentially expensive adjustments to the design during a later stage.

Project design

Directly involved

The purpose of criterion 2 is to indicate that the input of all those directly involved should be taken into account from the earliest stage of a project. This is essential for the smooth and successful achievement of the sustainability goals. Those directly involved include: the client, the end user of the building (if known), the design team (architects, structural engineers, installation consultants, building physics consultants, etc.) and the main contractor.

In terms of contractor involvement, it is important that they contribute to sustainable design solutions, comment on the usability and constructability of designs, and evaluate the impact on programming and costs. BREEAM acknowledges that in some projects it is possible that the contractor is not appointed at an early stage, which makes compliance with criterion 2 difficult. In such cases, criterion 2 must be met, provided that an experienced person with relevant construction or contract experience is involved before the contractor is appointed. This can be a contractor who has been appointed as a consultant in this stage, or a construction project manager.

Additional information

Appoint BREEAM-NL Expert

The aim is to encourage and reward project teams that appoint a BREEAM-NL Expert and thus ensure that the sustainability goals are continued during the construction stage on the one hand and that the BREEAM rating for the building pursued by the client on the other hand is achieved.

References

None.

This document is for informational purposes only and cannot be used for certification. The official BREEAM-NL prevails.

Life cycle cost and service life planning

Encouraging a life-cycle cost analysis to be carried out at the design stage, so that the design and implementation are optimised throughout the building's lifecycle.

Credits available	: 4
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of three parts:

- Lifecycle costs at a strategic level (two credits);
- Lifecycle costs at a granular level (one credit);
- Report investment costs (one credit).

Demonstrate that the following criteria are met:

Two credits – Strategic level lifecycle costing (LCC)

1. A life-cycle cost analysis, based on the step-by-step plan (see methodology) and ISO 15686-5:2017, was carried out for the complete design, before finalising the design stage.
2. The life cycle cost analysis shows that the following building components have been examined at a strategic level:
 - a. Structure;
 - b. Building envelope;
 - c. Installations.
3. Demonstrate with appropriate examples from the design process that the LCC has been used at a strategic level to influence the design of the building and the installations. The aim is to minimise lifecycle costs and maximise critical value (see definition).

One credit – Detail-level lifecycle costing (LCC)

4. A detailed life-cycle cost analysis, based on the step-by-step plan (see methodology) and ISO 15686-5:2017, was carried out in the design stage. This is done prior to applying for the environmental permit for the building activity and at the latest before the start of the technical design.
5. The life cycle cost analysis shows that the following (building) components have been examined at a detailed level:
 - a. (Head)Supporting structure and building envelope;
 - b. Installations;
 - c. Finishes, including tenant facilities;
 - d. Layout of the plot.
6. Demonstrate with appropriate examples from the design process that the LCC has been used at a strategic level to influence the design of the building and the installations. The aim is to minimise lifecycle costs and maximise critical value (see definition).

Lifecycle costs

One credit – Capital cost reporting

7. Report the capital costs (see definitions) in euros per square metre of gross floor area (see definitions), excluding VAT, for the project in the Assessmenttool.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Life Cycle Cost Analysis (LCC)	<p>The life cycle cost analysis has been carried out and the following components have been demonstrated throughout the building's lifetime:</p> <ol style="list-style-type: none"> Construction costs according to NEN 2699. Maintenance costs with minimal: preventive corrective and replacement maintenance. Operational costs with minimal: energy consumption, cleaning and management costs. End of Life: both costs and potential returns. The life cycle cost analysis uses a calculation period of which is prescribed by the client (e.g. thirty, forty, fifty or sixty years). The values are expressed in fair and discounted cash flows. <p>The life cycle cost analysis involves a project-specific integral assessment at building level that takes into account the relationship between the various building components. For example, the effect of a different building envelope on the installations and supporting structure, taking into account construction costs, maintenance costs and operational costs.</p>
CN3	Time of execution of the LCC.	<p>Both analyses should be carried out at the earliest possible stage of the design process, so that decisions do not have a detrimental effect on the (initial) budget or the timing of the design.</p> <p>It is also important that these analyses are repeated at certain points in the design process, to ensure that the most optimal solution remains intact during the development of the design. The LCC analysis at the strategic level takes place in the early design stage, before the completion of stage 04 Design stage (STP 2014).</p> <p>There is an undefined time between the LCC analysis at the strategic level and the LCC analysis at the detailed level. The LCC analysis at a detailed level was completed prior to the application for the environmental permit for the building activity, but at the latest before the technical design started.</p>

Lifecycle costs

REFERENCE	SUBJECT	DEFINITION
CN4	Appropriate examples	The appropriate examples showing that the LCC analysis has influenced the design process show the impact they have on the entire project, what problems have been solved, and what benefits they have. Considerations were made according to the step-by-step plan (see methodology). A document that substantiates the choices has been approved by the client. This can also be demonstrated, for example, by the fact that the choices made are reflected in the next design stage.
CN5	Standard finishes	If the building is finished according to a standard package for the user and an LCC has been drawn up at a detailed level in the past, this may also be used to demonstrate that the requirements are met.
CN6	Capital cost reporting	The investment costs are reported in the Assessmenttool. If the final information is not available during the design assessment, the criterion may be assigned based on the predicted net present value. This includes contingencies, and a commitment must be made to provide this information for the final assessment.
CN7	Independent review of the portions of this issue	All three parts of this issue can be obtained independently of each other. So if no LCC has been carried out at a strategic level, but at a detailed level, this credit can be achieved separately.
CN8	Variants at a strategic and detailed level	All realistic variants (at least two) per building component must be considered in the LCC according to the step-by-step plan. If no realistic variants can be analysed on the basis of the building type, this can be deviated from. It must be well substantiated why variants are not realistic. This is done to ensure that the possible variants that contribute to the building are considered.

Methodology

Roadmap for lifetime costs (LCC)

The life-cycle cost analysis must be drawn up in accordance with the following step-by-step plan:

Step 1: Define the Goal and Process

- Determine what you want to achieve with the intended result.
- Determine how a decision is made.
- Coordinate the goal and weighting with the client.

Step 2: Research the alternatives

- Identify the possible alternatives.
- Establish the generic and specific assumptions for each alternative.

Step 3: Work out the alternatives

- Determine the numbers and capacities for the alternatives.
- Determine the investment costs, maintenance costs, replacement costs and operational costs (at least energy costs, cleaning costs and management costs). Determine the possible benefits.

Step 4: Compare and weigh the alternatives against each other

Lifecycle costs

- a. Put the alternatives side by side.
- b. Make a sensitivity analysis of the outcomes.
- c. Incorporate any weighting into your calculations, including the extra aspects.

Step 5: Give advice & Make a decision

- a. Determine which alternative best suits the starting points (see step 1). Make a decision or give advice.
- b. Present the alternatives to the client.
- c. Make up your mind.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Analysis at the strategic level and at the granular level

The analysis at a strategic level, before completing the design stage stage, includes functional matters such as location, external environment, maintenance sensitivity, internal environment, etc. (Level 4 – Elements from NEN 2699:2017).

The analysis at a detailed level, in the DO stage, includes technical matters such as foundations, walls, floors, energy used, ventilation, water capacity, etc. (Level 5 – Technical solutions from NEN 2699:2017).

Construction costs according to NEN 2699

The costs associated with the realization of a structure, including the costs of design, engineering, execution and other construction-related activities.

Critical value

The critical value is aimed at maximizing the value over the entire life of the building, based on the requirements of the client. This is different from minimizing lifecycle costs. It is a specific analysis of how the ongoing maintenance and operation of the building can affect business needs. For example:

- a. Where disruption to operations is costly, a specification with long periods between maintenance cycles and a shorter maintenance time may be desirable.
- b. If maintaining aesthetics is important, a maintenance cycle may be based on aesthetic maintenance rather than functional longevity.
- c. When maximum recyclability and reusability are important, an alternative, more expensive specification may be required.
- d. If the investment costs are limited, the specification with the lowest LCC may not be affordable and the best available option within the budget will be chosen instead.

Lifecycle costs

Additional information

Reporting construction costs

In practice, there is a lack of data on the construction costs resulting from a more sustainable building design. This is an obstacle to the adoption of more sustainable solutions. By valuing the reporting of data related to costs within this issue, the aim is to break down these barriers and ensure that BREEAM continues to encourage cost-effective and financially advantageous solutions.

The information collected is used to encourage research into the costs and savings of sustainable developments or BREEAM certified buildings. All submitted data will be kept confidential and will only be used anonymously.

Standard for Life Cycle Cost Analysis

ISO 15686-5:2017 describes the standardized method for life-cycle costing. The objectives of this Directive are:

- LCC implementers a standardized methodology for applying life-cycle costing, applicable to the construction industry and to the key stages of the design and procurement process.
- Process mapping of the LCC stages – to help structure how the results should be planned, generated, interpreted, and presented for different purposes and levels of LCC planning.
- Instructions for defining the sponsor's specific requirements for life-cycle costing and the required outputs and forms of reporting – and for deciding which method of economic evaluation should be applied.
- Simplification and demystification – by providing practical guidance, instructions and definitions, along with informative detailed examples on how to carry out life-cycle costing (for construction).
- An industry-accepted methodology to enable a more accurate, consistent, and robust application of LCC estimates and option valuations, creating a more effective and robust foundation for LCC analysis and benchmarking. ISO 15686-5:2017 also aims to help remove confusion about scoping and terminology and address concerns about the uncertainty and risks that undermine confidence in the lifecycle costs of construction procurement.

References

- Step-by-step plan for lifespan costs, NVBK, Dace, et al. – <https://www.nvbk.nl/kennisbank/boek-levensduurkosten-%E2%80%93-slim-investeren%2C-lang-profiteren>.
- ISO 15686-5:2017. Buildings and Structures - Life Cycle Planning - Part 5: Maintenance and Life Cycle.
- NEN 2699:2017. Investment and operating costs of immovable property - Definitions and classification.

Responsible construction

Encouraging construction sites that are managed in a responsible and accountable manner in terms of environmental and social aspects.

Credits available	: 5
Pre requisite	: ✓
Minimum standard	: ✓
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of four parts:

- Legally harvested and traded timber and sustainability manager (Pre requisite);
- Environmental management on the construction site (one credit);
- Considerate construction (two credits);
- Monitoring the environmental impact of the construction site (two credits).

Demonstrate that the following criteria are met:

Pre requisite – Legally harvested and traded timber and sustainability manager

1. All timber used on the construction site, including formwork, fencing and other timber used temporarily in construction, is certified by a certification system approved by the Timber Procurement Assessment Committee. *Note: For other materials, there are no prerequisites at this stage.*
2. Involve a sustainability manager who, during the work on the construction site, sets performance targets for the construction site together with the client and contractor, in line with the project goals.
3. The sustainability manager has sufficient time and resources to:
 - a. Working with the project team to consider the relationships between BREEAM-NL issues and help them in achieving and when possible going beyond the design intent, to maximise the performance of the project against the agreed performance targets in the construction, handover and post-construction stages.
 - b. Monitoring the progress of the construction against the performance targets agreed (criterion 2) at all stages where decisions affect the BREEAM-NL objectives.
 - c. Proactively identifying risks and opportunities related to the procurement and construction process and the achievement of the agreed objectives (criterion 2).
 - d. Provide feedback to the executing contractors and project team as needed, to support them in taking corrective action and achieving their agreed performance targets.
 - e. Monitor, when relevant, coordinate the obtaining of evidence from the project team.

One credit – Environmental management on the construction site

4. The main contractor works with an Environmental Management System with at least the most important (construction) activities in the scope. This Environmental Management System must be certified by a third party, according to ISO14001/EMAS or an equivalent standard.
5. The project has gone through the procedure according to a project environmental impact assessment (EIA). If the assessment reveals significant environmental effects, an EIA is also drawn up.

Responsible construction

6. Applying best practice policies, procedures and measures to prevent pollution from activities on the construction site, which are demonstrated within Table MAN 03.1.

Up to two credits – Considerate construction (Minimum standard starting from Very Good rating)

7. The following criteria are met:
 - a. One credit can be awarded if the main contractor has met the requirements in Checklist A1, where the construction site has been independently assessed by the assessor and where six items from each of the four categories of Checklist A1 are met (see Appendix 1).

OR

 - b. One credit can be awarded if the project to be assessed is recognized by Conscious Builders Version 3 with a total score of at least 6/10 credits.
 - c. Two credits can be awarded if the main contractor has met the requirements in Checklist A1, where the construction site has been independently assessed by the assessor and where all items of each of the four categories of Checklist A1 are met (see Appendix 1).

OR

 - d. Two credits can be awarded if the project to be assessed is recognized by Conscious Builders Version 3 with a total score of at least 8/10 credits.

Monitoring the environmental impact of the construction site

8. In order to monitor the environmental impact of the construction site, environmentally responsible construction site management must be stimulated in terms of environmentally conscious use of materials, limitation of energy and water use. Responsibility is assigned to the sustainability manager for monitoring, recording and reporting of energy use, water consumption and transport data (where measured) as a result of all on-site processes (and specific off-site monitoring) throughout the project. To ensure proper collection of information, this person must have the appropriate authority and responsibility to request and access the required data.

One credit – Utility consumption (Minimum standard starting from Excellent rating)*Energy*

9. Criterion 8 has been achieved.
10. The components for 'Energy use' from checklist A11 (see Appendix 6) are met.
11. Report the total emissions of CO₂, NO_x and particulate matter during the construction stage in the Assessmenttool.

Water consumption

12. Criterion 8 has been achieved.
13. The components for 'Water consumption' from checklist A11 (see Appendix 6) are met.

Responsible construction

14. Report the total net water consumption (m³), as well as the consumption minus the recycled water consumption in the Assessmenttool.

One credit – Transport of building materials, earthworks and waste (minimum standard from the rating Outstanding)

15. Criterion 8 has been achieved.
16. The components for 'Transport to the construction site' from checklist A11 (see Appendix 6) are met.
17. Report separately for materials, earthwork and waste, the total transport related CO₂, NO_x and particulate matter emissions in the Assessmenttool.

Tables

Table MAN 03.1 Checklist of procedures and measures to prevent contamination from activities on the construction site

PART	ACTION	POST-CONSTRUCTION STAGE
Sound and vibration	Goal: to minimize the impact of noise and vibration on the environment.	
A	Plan work that causes a lot of noise nuisance at times of the day when it causes the least nuisance to the environment.	
B	Use soundproofing devices.	
C	Use noise barriers in activities that involve shock and/or explosion.	
D	Avoid transportation through residential areas.	
Air quality	Goal: prevent emissions of (fine) dust, NO_x or other air pollution on the construction site and surroundings.	
A	Minimize emissions of (fine) dust from building materials through the use of coverings, lids, storage (containers), control equipment and humidification.	
B	Minimize (fine) dust from transport and transport by means of, for example, water spraying when this is effective.	
C	Prevent the burning or burning of materials on the construction site.	
D	Place dust screens where a lot of (fine) dust is released due to material processing.	
Water management	Goal: prevent water pollution from construction activities.	
A	Make a drainage plan for the construction site in advance. Mark the places where the water drains to provide insight into risks (plan may change during construction).	

Responsible construction

PART	ACTION	POST-CONSTRUCTION STAGE
B	Make a drainage plan for the construction site in advance. Mark the places where the water drains to provide insight into risks (plan may change during construction).	
C	Minimize the length and steepness of slopes.	
D	Provide protective ground cover to stabilize/retain soil at slopes, channels and gullies. For example, by jute mats.	
E	Provide planting as soon as possible.	
F	Prevent erosion/washing away of soil by settling ponds, silt fences or water treatment.	
G	Separate waste and clean water drainage.	
H	Ensure adequate drainage.	
I	Make sure that activities that can cause water pollution take place in a protected area, so that rivers, surface water and water sources are not polluted.	
Hazardous substances	Goal: prevent the contamination of local water sources by hazardous substances.	
A	Provide adequate secondary spill containment for fuel and oil storage. For lubricating or hydraulic oil, among other things.	
B	Provide adequate training of workers on how to handle fuels and chemicals and how to react in the event of a leak.	
C	Provide a liquid-tight surface where refueling or liquids are processed.	
D	Provide anti-spill and cleaning equipment. And train employees in their use.	
E	Provide sanitary facilities for all employees.	

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Reusable construction site wood, reusable formwork, recycled wood.	Reusable wooden formwork or reusable construction site wood does not automatically suffice. All wood used must be reused or 'legally harvested and traded' and certified. The timber must be certified with a scheme approved by the Timber Procurement Assessment Committee (TPAC). When wood from another (construction) site is (re)used as construction site wood, it must be demonstrated that the wood has a legal and certified origin.
CN3	Environmental Management System (EMS) equivalent.	As an equivalent to ISO 14001 or EMAS, the CSR performance ladder level 3 or higher is also accepted. If a company is still in the process of obtaining an ISO 14001 certificate, but has not yet obtained it, it can meet the requirements for a design certificate if it is demonstrated that it is in the ISO 14001 procedure. The evidence is the registration or contract with an ISO 14001 certified institution, which shows that the procedure has been initiated. The certificate must be obtained for the completion certificate.
CN4	Monitoring construction work by sustainability manager	To monitor the progress of the construction against the agreed performance targets (criterion 3), the sustainability manager should ideally be based on the construction site or visiting the construction site regularly to carry out random checks and make recommendations. The sustainability manager has sufficient visibility into the construction activities to identify risks of non-compliance. Visits therefore take place during important stages at times when: <ol style="list-style-type: none"> Works can be observed before they are covered or new works start Significant risks of conflict or error arise Timing can affect compliance with requirements and performance goals Essential supporting documents must be provided at specific times

Methodology

None.

Evidence

Responsible construction

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	
4-16	During the design stage of the assessment, where the contractor has not yet been appointed, the client must include the obligation that the contractor must meet the specific criteria.	

Definitions

BREEAM-NL Expert

A person who has been trained by DGBC in the operation of BREEAM-NL and the associated process guidance. Only Experts trained and recognized by DGBC are covered. It is essential that the Expert in question has completed the annual training during the project. In the context of this scheme, a BREEAM-NL Expert for New Construction must have been appointed. A list of trained BREEAM-NL Experts can be found on bream.nl.

Responsibly and legally produced wood

Timber that has been certified with a scheme approved by the Timber Procurement Assessment Committee (TPAC). For an up-to-date overview: <http://www.tpac.smk.nl/>.

Building site

The construction site and the work site together.

Chain of Custody

The process in which the path of wood from a certified (production) forest to the end user is documented and followed. All steps, from felling trees in a certified forest, to cutting the wood, to final to the end user, must be carefully recorded to ensure that the wood comes from certified sources. This process prevents certified wood from being mixed with non-certified wood.

Sustainability Manager

Members of formal schemes approved by Dutch Green Building Council in connection with the provision of BREEAM-NL related design advice. They are able to enable achievable and successful targeting, planning, prioritization and monitoring or BREEAM certification regarding the design of the building. Currently, the following schemes are considered to meet this requirement:

- BREEAM-NL Expert New Construction;
- BREEAM-NL expert new construction and renovation.

The sustainability manager does not have to be a specific role, there is a person as responsible (for example within the project team or from the client) for achieving the sustainability goals by providing appropriate expertise during the preparation and design stages of the project. The aim of the points for sustainability manager is to stimulate an integrated design and construction process that uses BREEAM as a framework for identifying, agreeing and achieving the desired sustainability performance for the project.

Responsible construction

Main contractor

The responsible organisation(s) for overseeing the construction stage of the project, whether contractor or manager. It is the construction site that must meet the BREEAM-NL requirements from the checklists instead of each individual contractor. Different contractors (several main contractors or also subcontractors) may have obligations to meet the criteria. One of the contractors or chief foreman may be responsible for ensuring compliance during construction activities. It is ultimately the responsibility of the project team to determine and demonstrate compliance.

Scope

The land that is temporarily needed to be able to realize the construction of the project and that is not part of the construction site.

Wood

Wood for the construction site is considered to be wood used to facilitate construction. Including formwork, construction site fence, scaffolding planks and other temporary timber used on the construction site. Construction timber and wood used for finishing are not assessed here (this is included in MAT 03).

TPAC

The Timber Procurement Review Committee (TPAC) assesses timber certification systems against the Dutch Procurement Criteria and advises the State Secretary on which systems and their schemes are permitted for Dutch procurement policy. TPAC has clear procedures in place to ensure that the assessment of certification schemes is transparent, reliable and verifiable. For an up-to-date overview of approved schemes:

<http://www.tpac.smk.nl/>.

Additional information

None.

References

None.

Commissioning and handover

Encouraging a good way of commissioning and transferring buildings and installations, so that optimal operation is guaranteed in the use stage.

Credits available	: 4
Pre requisite	: ✓
Minimum standard	: ✓
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of four parts:

- Commissioning plan (Pre requisite);
- Commissioning building services (one credit);
- Testing and inspecting building shell (two credits);
- Handover (one credit).

Demonstrate that the following criteria are met:

Pre requisite – Commissioning plan

1. There is a commissioning plan for commissioning and testing the project. The plan includes sufficient time for the commissioning and (re)commissioning of the installations and control systems, as well as for testing the structural envelope. The Commissioning plan (see methodology) has been drawn up by the Commissioning Manager.
2. The Commissioning Plan takes into account the various norms and standards that apply to all commissioning of the project. This plan is in line with ISSO 107 or ASHREA 202.
3. A commissioning manager is appointed before applying for the environmental permit. The commissioning manager is responsible for planning, executing and monitoring the pre-commissioning, commissioning and testing activities. This also includes recommissioning work.
4. The main contractor is responsible for the proper execution of the commissioning activities by the Commissioning manager.

One credit – Commissioning building services (Minimum standard starting from Very Good rating)

5. In the design stage, a Commissioning manager was contracted with the following responsibilities.
 - a. Review of the design and making changes with a view to commissioning.
 - b. Integrate commissioning work into the construction planning and during the construction work.
 - c. Management of commissioning, testing, handover of the building and aftercare.

In the case of simple installation concepts, the above work can be carried out by a commissioning specialist (see definitions).

Commissioning and transfer

Up to two credits – Testing and inspecting building shell

One credit - Thermographic examination

6. A thermographic survey was carried out which showed that the thermal insulation was installed correctly and that no thermal irregularities were found.

One credit - Air permeability measurement

7. An air permeability measurement has been carried out according to the description in CN7.

One credit – Handover (Minimum standard starting from Excellent rating)

8. A user manual has been made available to users and (non-technical) facility managers of the building. A draft version of the manual is discussed with the intended users to best suit their needs.
9. Training is provided for building users or building managers of the building upon commissioning. This includes at least:
- The design objectives of the building.
 - The contact details of the aftercare team or the aftercare manager and the commissioning manager and the possibility for the user satisfaction survey.
 - Explanation and demonstration of the installed control systems and associated installations, to ensure that they can be used optimally.
 - Explanation of the user manual and other relevant building documents such as design drawings, technical specifications, maintenance strategy, maintenance manual, commissioning measurements, log books and the like.
 - Maintenance requirements, including maintenance contracts and installments.

Tables

Table MAN 04.1 Air permeability per m² building envelope shell area

TYPES OF ROOMS	AIR PERMEABILITY PER M ² BUILDING ENVELOPE SHELL AREA (M ³ /H.M ²) AT 50 PA (QV50)
Industrial function - conditioned room with a temperature below 0 °C	0,2
Industry function - conditioned room with a temperature below 0 °C - 12 °C	0,7
Industrial function - conditioned room with a temperature from 12 °C	0,9
Industrial function – Rooms with heating only from 12 °C	1,0

Commissioning and transfer

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Sports function	If there is a swimming pool in the project, the installations related to the swimming pool must also be part of the commissioning.
CN1.2	Training if the user is unknown	If the end user is not known when certifying the project type of shell and central installations, only the building manager needs to be trained.
CN1.3	Process-related equipment	Equipment that is required for process or plant purposes and is part of the project may be disregarded for this issue. This only applies if the equipment is not part of the building-related energy processes, such as the use of residual heat from these installations. If the equipment is part of this, it must be included.
<i>General</i>		
CN2	Commissioning Manager	An independent expert person whose task is to draw up a commissioning plan and to put together a team of commissioning specialists. He or she is independent of the installation consultant and the installation company. He or she monitors the (desired) performance for the client that has been determined in the Commissioning Plan. The person has demonstrable experience as a commissioning manager, and/or has followed training for this (e.g. "Commissioning Manager" at TVVL). Persons who are included in the register of Registered Commissioners with Commissioning Netherlands with this rating in any case meet this rating.
CN3	Commissioning of the building services	The Commissioning Manager checks whether the control systems are set up and functioning correctly. The report reports that: <ol style="list-style-type: none"> Commissioning of air and water systems have been carried out when all control equipment is installed, wired and functional (HEA 04 and WAT 01, respectively). Commissioning of lighting systems is carried out when all control equipment is installed, connected and functional (Ref. HEA 02) The commissioning report is present and includes the results of the air and water flow, the results of physical measurements of room temperatures, outside temperature and other important parameters, as applicable. The BMS or control element installation before performing the seasonal test in auto mode operates with acceptable internal climate conditions in accordance with the requirements.

Commissioning and transfer

REFERENCE	SUBJECT	DEFINITION
		<ul style="list-style-type: none"> e. The user interface of the final control systems is fully installed and functional; so including all BMS schematics and graphics and dashboard settings. f. The users of the control systems are fully trained in the operation of all systems.
CN4	Approval of energy performance calculation for ENE 01	After completion of the commissioning work (excluding seasonal adjustment), the commissioning manager must test the energy performance calculation against the actual situation. In the case of the issue ENE 01, the commissioning manager must provide a statement that the energy performance calculation is satisfactory from an installation point of view.
<i>Thermographic and airtightness testing</i>		
CN5	Commissioning of the architectural envelope: Thermographic research	<p>A thermographic examination has been carried out.</p> <ul style="list-style-type: none"> a. The research meets the requirements set in NEN-EN 13187 Thermal properties of buildings. b. Any defects identified through the thermal inspection are corrected, after which the building is re-examined to confirm that it meets the requirements. c. The examination and testing is carried out by an expert person (CN10).
CN6	Commissioning of the structural envelope: Counteracting thermal irregularities	<p>Thermal research based on NEN-EN 13187 Thermal properties of buildings – Qualitative detection of thermal irregularities in the building envelope – Infrared method, showing that:</p> <ul style="list-style-type: none"> a. There are no significant thermal leaks present; b. There are no excessive thermal bridges present; c. No significant air infiltration takes place, except where it is deliberately designed and installed (e.g. ventilation openings).
CN7	Commissioning of the architectural envelope: Conditions for air permeability measurement	<p>The measurement according to NEN-EN ISO 9972 meets the following requirements:</p> <ul style="list-style-type: none"> a. The air permeability measurement was carried out in both a negative pressure and an overpressure situation. b. The measurement was carried out with a confidence of $\geq 90\%$, the underpressure and overpressure values should both be reported. c. At least six measuring points have been chosen (five intervals). d. The interval between the measuring points is ≥ 5 pascals and ≤ 10 pascals. e. The measuring point with the lowest pressure is at least 25 pascals. f. The measuring points and other starting points have been recorded and described in a report, which has been drawn up in accordance with NEN-EN ISO 9972. g. The results of the air permeability measurement must be converted and compared with the $q_v; 10$ value from the energy performance calculation. If no energy performance calculation has been made due to the function of the building, the result of the measurement must be compared

Commissioning and transfer

REFERENCE	SUBJECT	DEFINITION
		with the Qv50 value (air permeability per m ² of envelope area) from Table MAN04.1 (see methodology).
CN8	Commissioning of the architectural envelope: Permeability measurement	The basic principle is that the entire volume of a building is tested for airtightness, unless it is substantiated that this is not possible and a sample (in part of the building) must be used. If, due to the specific situation substantiated in the measurement report, it can be justified that a representative sample is desired, the principles in ATTMA TSL2 chapter 5 can be used to determine the sample.
CN9	Repairs	All repair work of defects resulting from the thermography or airtightness study is carried out in a robust and durable manner. The repair work has the same performance as the newly performed work.
CN10	Expert person	To carry out an air permeability measurement or thermographic examination, it is important that this is carried out by expert persons. An expert person has at least a completed HBO education in the field of research and can demonstrate that he has carried out such research on three similar projects in the last three years.
<i>User manual</i>		
CN11	User manual	There is a user manual for all building users. The user manual for non-technical building users must include: <ul style="list-style-type: none"> a. A simple manual for the tenant/occupier and non-technical manager of the building is provided with information on the use of the building, the installations and the environmental performance of the building. b. The manual contains a brief description of the building with the principles of the design, the most important basic building specifications and the indoor environmental criteria used. In order to indicate how the building types as efficiently and effectively as possible. c. The manual provides an introduction and demonstration of installed systems and key functions, the controls and their interfaces, to ensure that users are familiar with the operation. d. If the point for Building Passport is pursued for issue Materials 07 – detachability, the manual for facility managers must include how they can view it. e. If the point for Building Passport is pursued for issue Materials 07 – detachability, the manual for facility managers must include how they can view it. f. The user manual must include a procedure for testing air and water quality, in accordance with the BAL H15 Environment and Planning Act.

Commissioning and transfer

Methodology

Commissioning plan

The commissioning plan is drawn up in a design stage and is available before the start of construction.

The commissioning plan consists of:

- a. The parts on which commissioning is carried out have been named and the demarcation and scope of the work have been clearly defined. The commissioning, where present, shall relate to at least the following installations:
 - Heating systems;
 - Water distribution systems;
 - Lighting systems;
 - Ventilation systems;
 - Cooling systems;
 - Automated control systems (BMS);
 - And furthermore on all other systems where there is a relationship with points in the BREEAM-NL assessment.
- b. A suitable timetable for:
 - Testing the functional design;
 - Investigating and inspecting the construction site to check the execution;
 - The commissioning and (re)commissioning of building services and control systems;
 - Testing the structural envelope after completion of the report.
- c. The plan describes the roles of the Commissioning team and what tasks and responsibilities everyone has.

The desired performance and starting points for the building and installations are described, with references to the standards and measurement methods used on which these performances must be demonstrated. This includes references to best practice commissioning values, commissioning procedures or other appropriate standards.

Industrial building with rooms at different conditioned temperatures

If several rooms in one building are conditioned at different temperatures, each room must comply with the airtightness value corresponding to the temperature at which the room is conditioned (see table MAN 04.1). It is possible to measure rooms with different setpoint temperatures together. In that case, the strictest air permeability values apply. Two examples with three options each have been elaborated below.

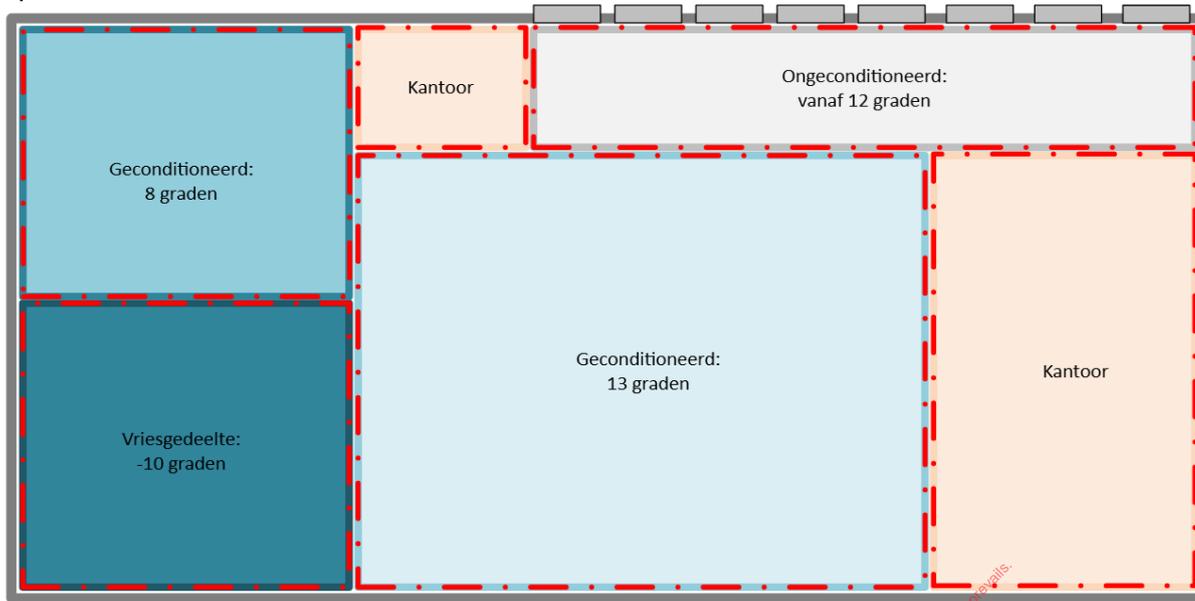
Example 1:

An industrial building consists of two office sections, an unconditioned industrial section (heating only from 12 °C), a conditioned section with two rooms: one with a setpoint temperature of 8 °C and the other with a setpoint temperature of 13 °C. The freezer compartment has a setpoint temperature of -10°C. The two office spaces are located in the industrial part.

In this example, there are several measurement options:

Commissioning and transfer

Option 1



Each room is measured separately.

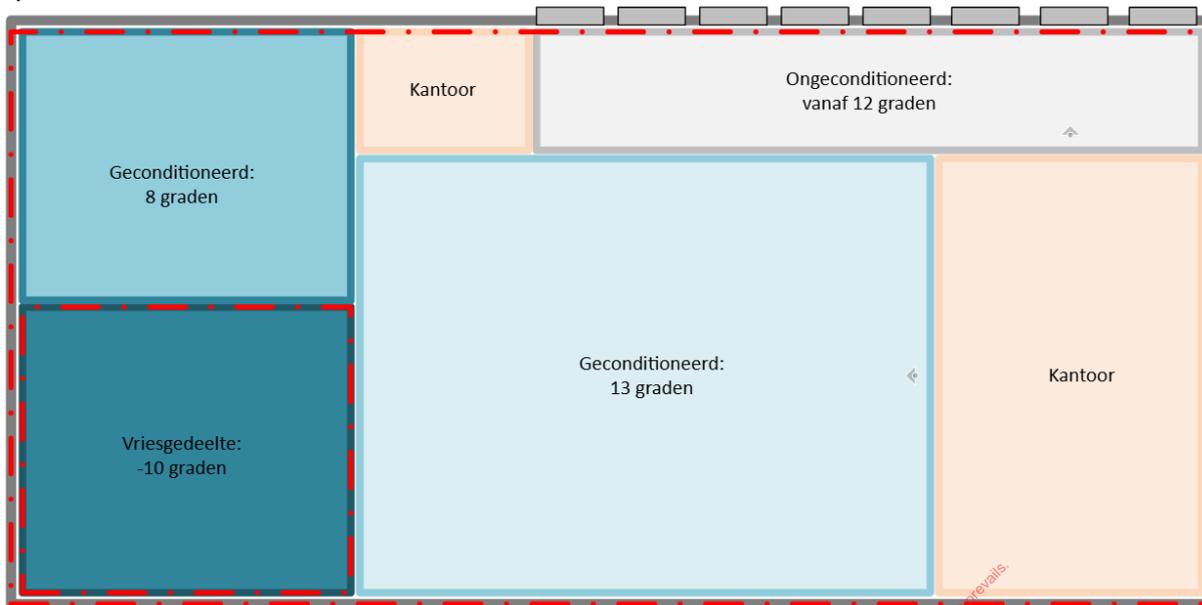
Freezer compartment:	Qv50 from 0.2
Conditioned 8°C:	Qv50 from 0.7
Conditioned 13 °C:	Qv50 from 0.9
Unconditioned 12 °C:	Qv50 of 1.0
Office areas:	BBL level

Total number of measurements: six

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Commissioning and transfer

Option 2



The freezer room is measured and a measurement is carried out for the entire building.

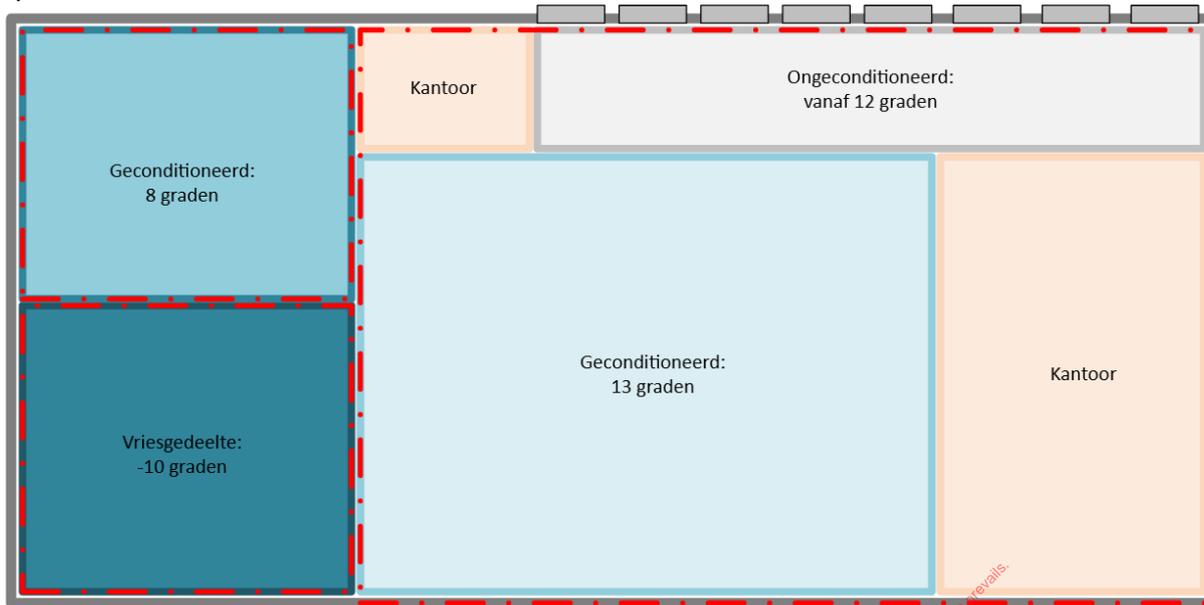
Freezer compartment:	Qv50 from 0.2
Conditioned 8°C:	Qv50 from 0.7
Conditioned 13 °C:	Qv50 of 0.7 (most stringent requirement applies)
Unconditioned 12 °C:	Qv50 of 0.7 (most stringent requirement applies)
Office areas:	BBL level

To determine the Qv10 of the office part, the Qv50 measurement for the total building may be converted to a Qv10 value. If the entire building meets at least a Qv10 value at BBL level, it can be assumed that both office spaces are sufficient.

Total measurements: two

Commissioning and transfer

Option 3



The freezer compartment is measured separately and the conditioned rooms of 8 °C are measured separately. The conditioned space of 13 °C, two office spaces and unconditioned space are measured together.

Freezer compartment:	Qv50 from 0.2
Conditioned 8°C:	Qv50 from 0.7
Conditioned 13 °C:	Qv50 of 0.9 (most stringent requirement applies)
Unconditioned 12 °C:	Qv50 of 0.9 (most stringent requirement applies)
Office areas:	BBL level

Number of measurements: three

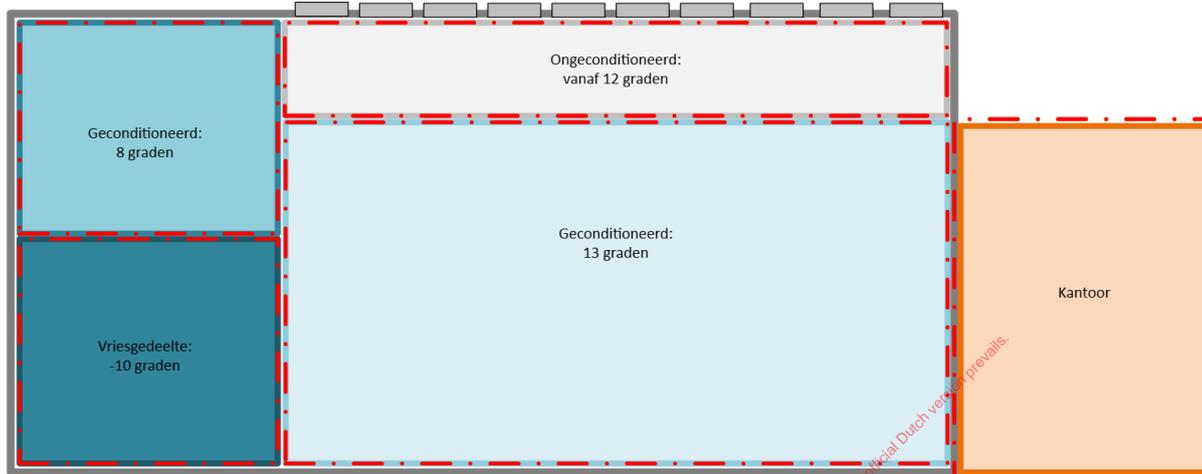
To determine the Qv10 of the office spaces, the Qv50 measurement may be converted to a Qv10 value. If the conditioned space of 13 °C, two office spaces and unconditioned space meet at least a Qv10 value at BBL level, it can be assumed that both office spaces are sufficient.

Commissioning and transfer

Example 2:

An industrial building consists of one office part, an unconditioned industrial part (with only heating from 12 °C), a conditioned part with two rooms: one with a setpoint temperature of 8 °C and the other with a setpoint temperature of 13 °C. The freezer compartment has a setpoint temperature of -10°C. The office is an adjacent part of the building that is adjacent to the industrial part.

Option 1



Each room in the industrial area and the office is measured separately.

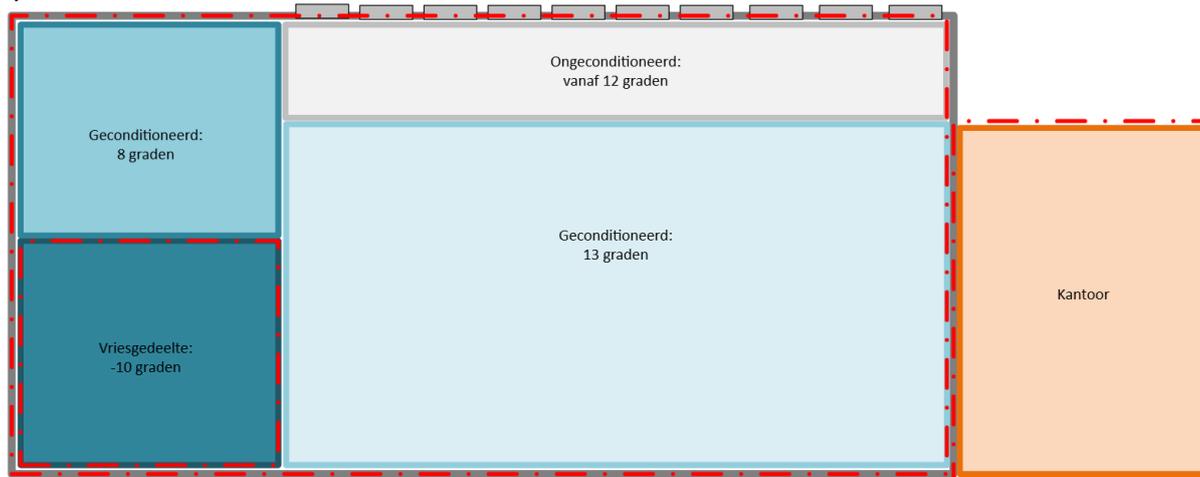
Freezer compartment:	Qv50 from 0.2
Conditioned 8°C:	Qv50 from 0.7
Conditioned 13 °C:	Qv50 from 0.9
Unconditioned 12 °C:	Qv50 of 1.0
Office areas:	BBL level

Number of measurements: five

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Commissioning and transfer

Option 2



The freezer room, the entire industrial area and the office are measured separately.

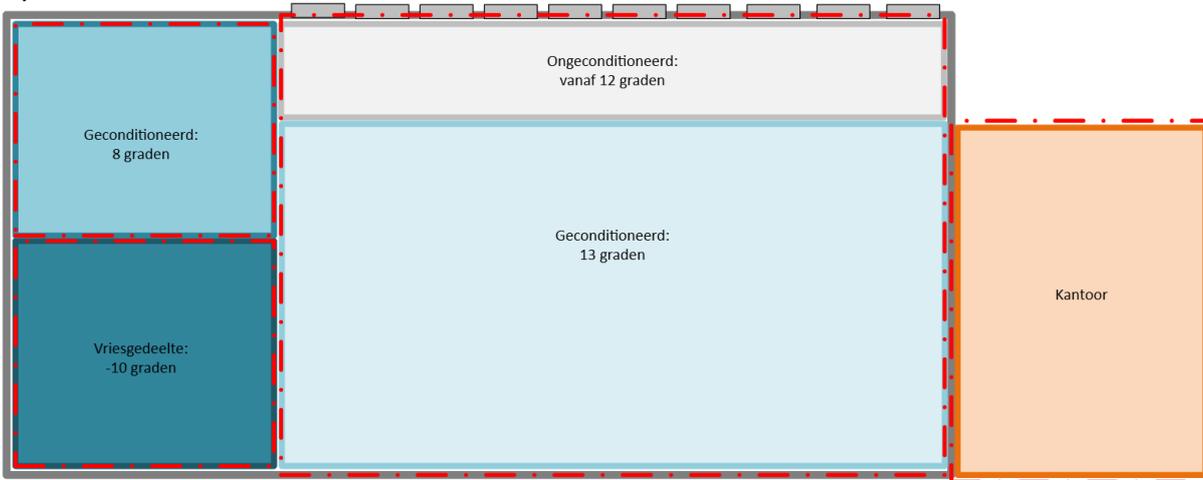
Freezer compartment: Qv50 from 0.2
 Conditioned 8°C: Qv50 from 0.7
 Conditioned 13 °C: Qv50 of 0.7 (most stringent requirement applies)
 Unconditioned 12 °C: Qv50 of 0.7 (most stringent requirement applies)
 Office areas: BBL level

Number of measurements: three

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Commissioning and transfer

Option 3



The freezer room, the conditioned room at 8 °C and the office are measured separately. The unconditioned space and conditioned room at 13 °C are measured together.

- Freezer compartment: Qv50 from 0.2
- Conditioned 8°C: Qv50 from 0.7
- Conditioned 13 °C: Qv50 from 0.9
- Unconditioned 12 °C: Qv50 of 0.9 (most stringent requirement applies)
- Office areas: BBL level

Number of measurements: four

With all options, it is important that all rooms of the building are part of the air measurement.

In case 2, where the office area is not part of the industrial building, a separate air measurement of the office area must always be carried out to demonstrate that the minimum BBL level has been met.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	
All	<p>The commissioning report (design stage) shows that before the start of construction, the commissioning manager:</p> <ul style="list-style-type: none"> • Has carried out an assessment to test the design against the requirements in the Schedule of Requirements. • Actief has contributed ideas about the entire commissioning process. • Was able to give advice on the process of final and commissioning of the building. 	<p>The Commissioning Manager draws up a Commissioning report. The commissioning report reports on how the commissioning manager manages the team in carrying out performance tests and the work in the stages before and after the transfer.</p>

Commissioning and transfer

Definitions

Simple installation concept

A project with only lighting and heating systems is seen as a building with a simple installation concept.

Commissioning Specialist

A commissioning specialist is a specialist who works independently and is qualified to inspect, test and adjust all systems under operating conditions. The person has demonstrable experience as a commissioning specialist and/or has followed training for this (e.g. "Commissioning Specialist" at TVVL). Persons who are included in the register of Registered Commissioners with Commissioning Netherlands with this rating in any case meet this rating.

(Un)conditioned spaces (industrial function)

Unconditioned rooms are rooms that are only heated. Due to the activity, process or product in this room, it is not energetically efficient to be able to heat and cool this room.

Conditioned rooms are spaces that can be heated and cooled. Because of the activity, process or product, it is important to keep this space within a certain temperature limit.

Additional information

None.

References

- NEN-EN 13829: Thermal properties of buildings – Determination of the air permeability of buildings – Overpressure method.
- BS EN 13187: Thermal properties of buildings – Qualitative detection of thermal irregularities in the building envelope – Infrared method.

Aftercare

Encouraging a good transfer of the project to the management stage and aftercare during the first year, so that optimal operation in the user stage is guaranteed.

Credits available	: 3
Pre requisite	: X
Minimum standard	: ✓
Project	: ✓
Filter issue	: X
Exemplary performance	: ✓

Criteria

The issue consists of four parts:

- Transfer to management and aftercare (one credit);
- Seasonal commissioning (one credit);
- Post-occupancy evaluation (one credit);
- Recognised certification system (EP credit).

Demonstrate that the following criteria are met:

One credit – Handover to management and aftercare

1. Facilities and resources are available to provide aftercare support to the building owner and the building users, this includes at least:
 - a. Before commissioning, there is a meeting with the aftercare team or aftercare manager and the user's facility management with the following topics:
 - I. Introduction of the aftercare team or aftercare manager and what aftercare facilities are available, the user manual (if available), the training schedule and the content of the training courses
 - II. Presentation of important information, including the design principles and how the building and installations can be used optimally.
 - b. Training and instruction in the building for facility management and building managers, including a tour of the building and introduction to the existing installations. It explains how these should be operated, with a view to the design principles and operational requirements.
 - c. Initial aftercare support is available for at least the first month after commissioning, for example through weekly presence of the aftercare team or the aftercare manager on site. They support the users and management of the building. The time interval depends on the complexity of the construction and construction work.
 - d. Long-term aftercare support is available for at least the first year after occupancy, for the building users. This can be done, for example, via a helpline, a designated person or another suitable system to support users and the management of the building. This is emphatically not about support that is primarily intended for resolving final points or warranty issues.
2. Facilities and resources are available for the collection and monitoring of energy and water consumption data, for at least the first twelve months of the building's use. This is done to make an analysis of differences between actual and predicted performance, with the aim of adjusting systems or user behavior accordingly.

One credit – • Seasonal commissioning (minimum standard starting from Pass rating)

- There is a contract with the commissioning manager and the team of specialists that carry out seasonal commissioning, including adjustment, evaluation and adjustment, as mentioned in CN3, for a period of twelve months (four seasons) after commissioning.

One credit – Post-occupancy evaluation

- The client or building user undertakes to carry out a first-year evaluation by an independent third party one year after commissioning.
- The client or the building user undertakes to publish the information from the first-year evaluation in an appropriate manner. The aim is to share good examples and opportunities for improvement and to inform about changes in user behaviour, control techniques and procedures, as mentioned in CN6 and CN7.

EP Credit – Recognised certification system

- The client or building user certifies the building with a BREEAM-NL certification system for building management.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Collecting and monitoring energy and water use	This can be coordinated or carried out by the aftercare team, by the building owner or, if the building user is known, by the user or their facility management team. Compliance with this will have to be recorded in writing by the party.
CN3	Seasonal commissioning	By means of contracts with, and documents from, installers and commissioning managers, it is demonstrated that seasonal adjustment, evaluation and adjustment has been recorded for the period after commissioning: <ol style="list-style-type: none"> The building is tested at full and partial load. This means heating equipment in the middle of winter, cooling and ventilation equipment in summer and under partial load in

REFERENCE	SUBJECT	DEFINITION
		<p>spring and autumn, whereby the partial load must mainly be tested for the change from warm to cold and vice versa.</p> <p>b. The testing of the building is also carried out during periods of extreme (high or low) occupancy in terms of occupants.</p> <p>c. The contract also includes the recommissioning of building systems after adapting to changed conditions and incorporating changes in the operating instructions in the operating and operating manuals.</p> <p>In the case of a simple installation concept (see definitions), the building is assessed for thermal comfort, ventilation and lighting, at intervals of three, six, nine and twelve months after commissioning. This assessment takes place by carrying out measurements and analyses on the one hand and by feedback and interviews with users on the other (see CN5). For example, the building is checked every quarter to ensure that it is performing as expected, after which the necessary adjustments are made to the system controls.</p> <p>The current status of the seasonal adjustment at the time of requesting the final certificate must be demonstrated.</p>
CN4	Post-occupancy evaluation: external evaluation	<p>By means of a contract with an external party, it is agreed that an external evaluation will be carried out one year after commissioning. This evaluation will focus on:</p> <p>a. The assessment of the design intent and the construction process (assessment of design, procurement, construction and final processes).</p> <p>b. Feedback from a wide range of building users, including facility management, on the design and environmental conditions of the building:</p> <ul style="list-style-type: none"> • Internal environmental conditions such as light, noise, temperature, air quality. • Control, operation and maintenance. • Facilities and amenities. • Access and layout. • Other relevant issues. <p>c. Sustainability performance (energy use, water consumption, performance of all sustainable functions or technologies, e.g. materials, renewable energy, rainwater harvesting, etc.).</p> <p>d. Feedback is given to the design team and developer to use for future projects.</p> <p>It is also demonstrated through contracts that:</p> <p>a. The installer and technical managers active in this building will work with the results of the external evaluation.</p>
CN5	Independent party	<p>To meet the criterion for the use of an independent party, the customer/design team must demonstrate one of the following options:</p>

REFERENCE	SUBJECT	DEFINITION
		<p>a. The party has not contributed to the design process, the execution of the construction and installation work and is not the owner or user of the building.</p> <p>OR</p> <p>b. If the first-year evaluation is done by an organisation involved in the design or use of the building, for example the project architect or user, this organisation must be able to demonstrate to the Assessor the independence of the consultation process in a robust way. BREEAM has not defined what form this certificate should take. The design team or the relevant person is obliged to clearly prove and convince the Assessor that there is a credible level of independence.</p>
CN6	Appropriate method of publication	<p>a. An appropriate method of publication concerns communication to direct stakeholders, such as users, building managers and building owners. In addition, external communication must also be carried out.</p> <p>b. Publishing a case study is an appropriate way, this is published through one of the following media:</p> <ul style="list-style-type: none"> • Website of the building owner or user, trade journals or press release. • Industry-specific website or information industry information portals. <p>If it is not possible to publish in an appropriate manner because the information can be classified as commercially or technically sensitive, it is sufficient to provide information at an organisational level to internal and external stakeholders. Alternatively, the sensitive parts can be removed from the case study.</p>

REFERENCE	SUBJECT	DEFINITION
CN7	Relevant information for publication	<p>This includes the following information about the building and its performance:</p> <ul style="list-style-type: none"> a. A basic description of the project and building; b. BREEAM assessment and score; c. The main innovative and low-impact design features of the building; d. Costs; e. Project size: floor area, construction site area; f. Facilities available for use by the community (when relevant); g. All steps taken during the construction process to reduce the environmental impact, i.e. innovative construction management techniques; h. Predicted and actual carbon dioxide emissions or classification of the energy performance certificate (if available); i. Results of the POE study to share lessons from the project, including: <ul style="list-style-type: none"> • User satisfaction • Energy and water consumption, renewable energy generation and use of recycled and greywater.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All Evidentiary Conditions	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

BREEAM-NL recognised certification scheme for building management

A DGBC-approved scheme for building management. Trustmark managers who believe that their trustmark should also fit into the list can contact DGBC. These must include at least the following components:

- Conducting a user satisfaction survey and collecting energy and water consumption data;
- Analysis of the consumption data and the satisfaction survey to determine whether the building is functioning correctly and to adjust this when necessary;
- Setting and monitoring targets for water and energy use.

Recognised certification schemes

Instruction 120 includes the current recognised certification schemes. Use this instruction to claim the EP credit.

NB: If the certificate cannot be submitted after two years after the building has been put into use, the status of the BREEAM-NL New Construction certificate will be evaluated.

BREEAM-NL In-Use

BREEAM-NL In-Use is the management instrument to get started with integrated sustainability in a concrete and measurable way. The scheme makes it possible to gain insight into the sustainability performance achieved by monitoring and improving it during the management stage. The application of BREEAM-NL In-Use guarantees the continuous monitoring of realized processes. See www.breeam.nl/in-use for schedule-specific details and how to register.

Commissioning/performance assurance

Commissioning is the process aimed at the quality control and performance assurance of installations. During design, construction and under operating conditions, the inspection, testing and optimal adjustment of at least the heating, cooling, lighting and ventilation systems and the measurement and control technology with the aim of ensuring good performance assurance of the installations, so that optimal operation is guaranteed.

This issue can make use of existing systems for Commissioning or performance assurance. In America, the ASHRAE tables with the corresponding NIBS specifications are used. These documents are also taught in the TVVL course Commissioning. For more info www.breeam.nl/hulp.

Simple installation concept

A project with only lighting and heating systems is seen as a building with a simple installation concept.

First-year evaluation

Various methods can be used for the first-year evaluation. Part of the evaluation is a user satisfaction survey, for which various providers offer methods. It is important that the method focuses on the use of the building.

Comparison of current and forecasted performance

In most cases, it is difficult to compare actual and forecasted building performance due to variations in assumptions in the models used. Experience shows that buildings consume an average of one and a half to two times as much energy as predicted. When making the comparison, it must also be explained what causes the discrepancies between prediction and performance.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Health



SUMMARY

This category focuses on improving the health, well-being and safety of building users. The issues in this category promote the design and application of buildings that are healthy, safe and comfortable for all building users, with attention to the immediate environment.

CONTEXT

"Good health and well-being" is goal 3 of the United Nations Sustainable Development Goals (SDGs). On average, people spend more than 90% of their lives in and around buildings, and the rest of the time is mostly used to travel between the buildings. The built environment therefore has a large share in the well-being and health of the users. The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or other physical infirmity" and that "the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political opinion, economic or social condition".

There is evidence to show that the indoor climate of buildings, including visual comfort, air quality, thermal comfort and acoustic comfort can have a significant impact on our physical and mental health. Health consequences associated with time spent in buildings include lung complaints, allergies, cardiovascular diseases and a range of psychological complaints. Higher-risk individuals, including young children, the elderly, the disabled, and the infirm, may experience a range of other health impacts arising from their environment. Many health effects can have a major impact and sometimes be life-threatening.

Value of the issues

HEA 01	Natural light	Four credits and EP credit
Value:	<ul style="list-style-type: none"> • Combating daylight nuisance • Daylighting • View • Daylight glare evaluation 	
HEA 02	Artificial lighting	Two credits
Value:	<ul style="list-style-type: none"> • Indoor and outdoor lighting • Zoning and lighting control by users 	
HEA 03	Non-visual effects	One credit
Value:	<ul style="list-style-type: none"> • Non-visual effects of lighting 	
HEA 04	Internal air quality	Five credits and EP credit
Value:	<ul style="list-style-type: none"> • Air quality • Ventilation • Natural ventilation • Emissions from construction products and finishing materials • Measuring air quality upon completion of the building • Emissions from construction products and finishing materials 	
HEA 05	Thermal comfort	Three credits
Value:	<ul style="list-style-type: none"> • Thermal modeling • Prepared for climate change • Distribution into thermal zones and post-control temperature by user 	
HEA 06	Acoustic performance	Four credits and EP credit
Value:	<ul style="list-style-type: none"> • Internal sound insulation' • Room acoustics • Façade sound insulation • Installation noise level • Reducing speech intelligibility in offices 	
HEA 07	Secure access and accessibility	Two credits
Value:	<ul style="list-style-type: none"> • Secure access • Inclusive and accessible design 	
HEA 10	Biophilic design	Two credits AND EP credit
Value:	<ul style="list-style-type: none"> • Basic biophilic design • Additional biophilic design 	
HEA 11	Biophilic design	One credit
Value:	<ul style="list-style-type: none"> • Safety advice 	

Natural light

Ensure that daylight is taken into account in the design stage to ensure good visual performance, visual comfort and general well-being of building users.

Credits available	: 4
Pre requisite	: X
Minimum standard	: X
Project	: X
Filter issue	: X
Exemplary performance	: ✓

Criteria

The issue consists of four parts:

- Glare control (one credit);
- Daylighting (up to two credits);
- View (one credit);
- Evaluation of daylight glare (EP credit).

Demonstrate that the following criteria are met:

One credit – Glare control

1. The building is designed to mitigate glare, reflection, or blinding caused by incoming daylight. This can be achieved through the building's form and layout or through specific design measures. Examples are provided in CN4.
2. The applied shading systems meet the glare control requirements, achieving Glare Control Class 3, as determined in accordance with NEN-EN 14501:2021.
3. The operation of the shading system is on the interior side and continuous

Up to two credits – Daylighting

4. The degree of daylight entry for each designated building type complies with NEN 17037:2018 and NPR 4057 for the relevant occupied spaces.
5. The percentage of floor area that must comply is stated in Table HEA 01.1 and see the methodology for determining the relevant occupied spaces.
6. The relevant living spaces comply with one of the levels mentioned in Table A.1 of NEN 17037:2018 +A1:2022 for daylight openings in vertical and inclined planes. Relevant occupied spaces with horizontal daylight openings meet one of the levels in Table A.2 from NEN 17037:2018+A1:2022 (CN7).

One credit – View out

7. $\geq 95\%$ of the floor area of the occupied spaces meets at least the criteria "level minimum" of view determined in accordance with NEN 17037:2018+A1:2022 Daylight in buildings according to chapter 5.2 with appendix C.

EP credit – Evaluation glare from daylight

8. The credit 'Glare control' has been achieved (criteria 1 to 3).

Natural light

9. The Daylight Glare Probability (DGP), determined with NEN 17037:2018+A1:2022, does not exceed 0.40 for more than 5% of the annual operational hours of the building at all workplaces in all relevant occupied spaces (see methodology).

Tables

Table HEA 01.1 Minimum area that must meet the criteria

FUNCTION OF USE	ONE CREDIT	TWO CREDITS
	Percentage that must comply (see methodology)	
Office:		
• Office spaces incl. open-plan offices	80%	90%
Healthcare:		
• Patient areas (day rooms, wards)	-	80%
• Staff and public areas	80%	90%
Education:		
• Teaching rooms	60%	80%
Retail:		
• Sales area	35%	-
• Other rooms	80%	90%
Hotel:		
• Rooms	35%	-
Meeting function:		
• Meeting room, conference, childcare (other)	80%	90%
• Remaining	80%	90%
Industrial:		
• Production area, packing area	80%	90%
• Other areas (storage – logistics)	35%	35%
Laboratory:		
• Lab-Function Rooms (CN1.1)	80%	90%
Sports:		
• Fitness, swimming pool (CN1.1)	80%	90%
Atrium:		
• Internal area of an atrium	90%	-

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Rooms excluded from daylight requirements	The following rooms may be excluded from the daylight criteria: <ul style="list-style-type: none"> • A media room. • Laboratory where the research requires strictly regulated environmental conditions such as continuous

Natural light

REFERENCE	SUBJECT	DEFINITION
		<p>exclusion of natural light (e.g. laser laboratory, microscope room and climate chamber).</p> <ul style="list-style-type: none"> • Spaces for art. • Sports area where natural daylight is undesirable due to the type of sport practiced and, for example, at a wellness center. • Other areas where the exclusion or limitation of natural daylight is a functional requirement. This must be substantiated by the project team. • Spaces such as one-person phone booths that are in addition to the minimum number of workplaces required based on the number of building users. These rooms are designed for short-term use and do not have, for example, a fixed monitor and (ergonomic) office chair which encourages you to stay there for a longer period than necessary.
CN1.2	Spaces (partially) excluded from the view requirements	<p>The following rooms may be disregarded for the view criteria:</p> <ul style="list-style-type: none"> • In the case of a laboratory room that is (too) sensitive to daylight (e.g. laser laboratory, microscope room and climate chamber). • In the case of a sports function: swimming pool, wellness and fitness. • Spaces with movable workplaces. These are spaces where people are present during the building's operating hours, but do not constantly work in the same position. For example, forklifts. • Spaces such as one-person phone booths that are in addition to the minimum number of workplaces required based on the number of building users. These rooms are designed for short-term use and do not have, for example, a fixed monitor and (ergonomic) office chair which encourages you to stay there for a longer period than necessary.
CN1.3	Functions of use excluded from the EP credit	<p>EN17037 uses DPG to assess glare protection for rooms where activities are similar to reading, writing or using screens, and where building users cannot choose the position and viewing direction. DGP cannot be used in situations where vertical illumination is not a good indicator for perceiving glare. This applies, for example, to sales areas in shops, sports halls, industrial spaces, and deep or dark spaces with small daylight openings. Also, DGP cannot be applied to places in a room that are far from daylight openings or that receive little daylight, as well as in rooms with horizontal daylight openings.</p>
CN1.4	Applicability of the criteria in the case of shell and central installations	<p>If the building is designed to prevent nuisance from glare, reflection or glare from daylight, as described in criteria 1 to 3, and these measures are included in the energy performance calculation of ENE 01, this issue can be pursued. If no design measures are taken, this issue is filtered by indicating that in the assessment data.</p>
<i>General</i>		
CN2	Traffic routes	<p>Traffic routes within open-plan offices and industrial spaces are permitted and do not have to be included, provided it is clear that no workplaces are located here. Examples to indicate traffic routes are different color carpeting, suspended ceiling.</p>

Natural light

REFERENCE	SUBJECT	DEFINITION
CN3	Storage and logistics areas	If space is used for the storage of goods, but building users are present several times a day during the building's operating time, 35% of the total area minus the footprint of the racking must comply. The goal is that at least 35% of this surface area meets the criteria.
<i>Glare control</i>		
CN4	Design measures to mitigate daylight glare	<p>Permitted design measures for reducing nuisance caused by glare, reflection or glare:</p> <ol style="list-style-type: none"> Measures integrated on the outside of the building, such as overhanging eaves, overhangs or fixed slats. Ininitely operable light protection systems on the interior side by building users, such as slats and interior blinds. External blinds, such as brise soleil, drop-arm awnings, sliding screens, external blinds. The location and/or design of the building minimizes the risk of light pollution, for example: north-facing windows or adjacent obstacles provide shade during the day. A combination of the above. <p>Facilities that <u>do not</u> meet the requirements for light pollution:</p> <ol style="list-style-type: none"> Blackout curtains. Tinted glass. Window film. <p>Light pollution must be prevented in both the summer and winter situation, taking into account the position of the sun. If fixed systems are used, design reports must guarantee that (future) building users are not bothered by light nuisance during the building's operating hours.</p>
CN5	Combination of measures to mitigate glare	By using a light-resistant type of glass, it is possible to use a lighter colored fabric and meet the glare control requirements. To test this combination of measures, the 'Glare Control Calculation Model' must be used. This is published on the issue help page on www.richtlijn-breeam.nl .
CN6	Control of shading systems	Building users who benefit directly from the light protection have the option of operating the light protection. Whether this is a physical button on the façade near the workplaces, or whether each workplace has its own control option is up to the project team. In some cases, such as in a classroom, fitness or swimming pool, the criteria are met if the light protection can be operated by a teacher or staff.
<i>Daylighting</i>		
CN7	Illuminance and daylight factor	Table A.1 and A.2 of NEN 17037:2018+A1:2022 mentions the use of the daylight factor as an alternative to illuminance, as stated in the note below the tables. However, in HEA 01 - Natural light, the use of the daylight factor is not allowed.
CN8	Equivalent living spaces	If certain occupied spaces are equivalent in terms of daylight penetration (such as dimensions, shape, window area, transmission factor, celestial angle, reflection factors, etc.), the daylight calculation only needs to be carried out for one of the equivalent rooms. Copies of design drawings and an overview of all occupied spaces must clearly indicate for which occupied

Natural light

REFERENCE	SUBJECT	DEFINITION
		spaces daylight calculations have been carried out and which occupied spaces are equivalent to each other.
CN9	Room depth criterion – spaces illuminated from two opposite sides	For rooms that are illuminated by daylight from two opposite sides, the maximum room depth that can be adequately illuminated by daylight is twice the limiting room depth (d) measured from window wall to window wall. The reflection of the imaginary internal wall should be considered as one.
CN10	Daylight other than through side windows, or different shapes of windows	In the case of daylight entry through, for example, skylights, skylights, frosted glass, skylights, solar tubes, sunpipes or deviating shapes of windows, the room depth criteria cannot be used. In such a situation, the contribution to daylight penetration must be calculated in full with a validated daylight calculation program.
CN11	External obstacles on surrounding plots and internal obstacles	<p>When calculating illuminance, obstacles caused by obstacles on surrounding plots (such as buildings) must be taken into account. The starting point is information available at the time of the building application (zoning plan). For illuminance calculations, the reflectance of external obstacles should be considered as 0.2. An exception to the illuminance of 0.2 for reflection is when measurements of external reflection have been taken on site.</p> <p>Internal obstacles such as the racks in a storage area, for example, must also be taken into account. These should be considered as solid walls.</p>
CN12	Borrowed light	'Borrowed light' means, among other things: skylights, skylights, daylight tubes, or glass partitions (such as with frosted glass). For occupied spaces where 'borrowed light' is taken into account in order to meet the criteria for daylight, this must be substantiated with calculations or results from a validated computer program for daylight calculations with which an integral daylight calculation is submitted.
CN13	Surface that must meet the criteria	<p>The percentage of floor area that must at least meet the criteria is shown in table HEA01.1. The floor area must be determined for each function. This floor area is divided into relevant occupied spaces. The total floor area of these occupied spaces must be equal to or greater than the percentage shown in table HEA01.1. An example calculation has been worked out in the methodology.</p> <p>Workplaces in rooms that do not meet the criteria should at least receive a degree of daylight. This can be done through a window or by means of borrowed light (CN12).</p>

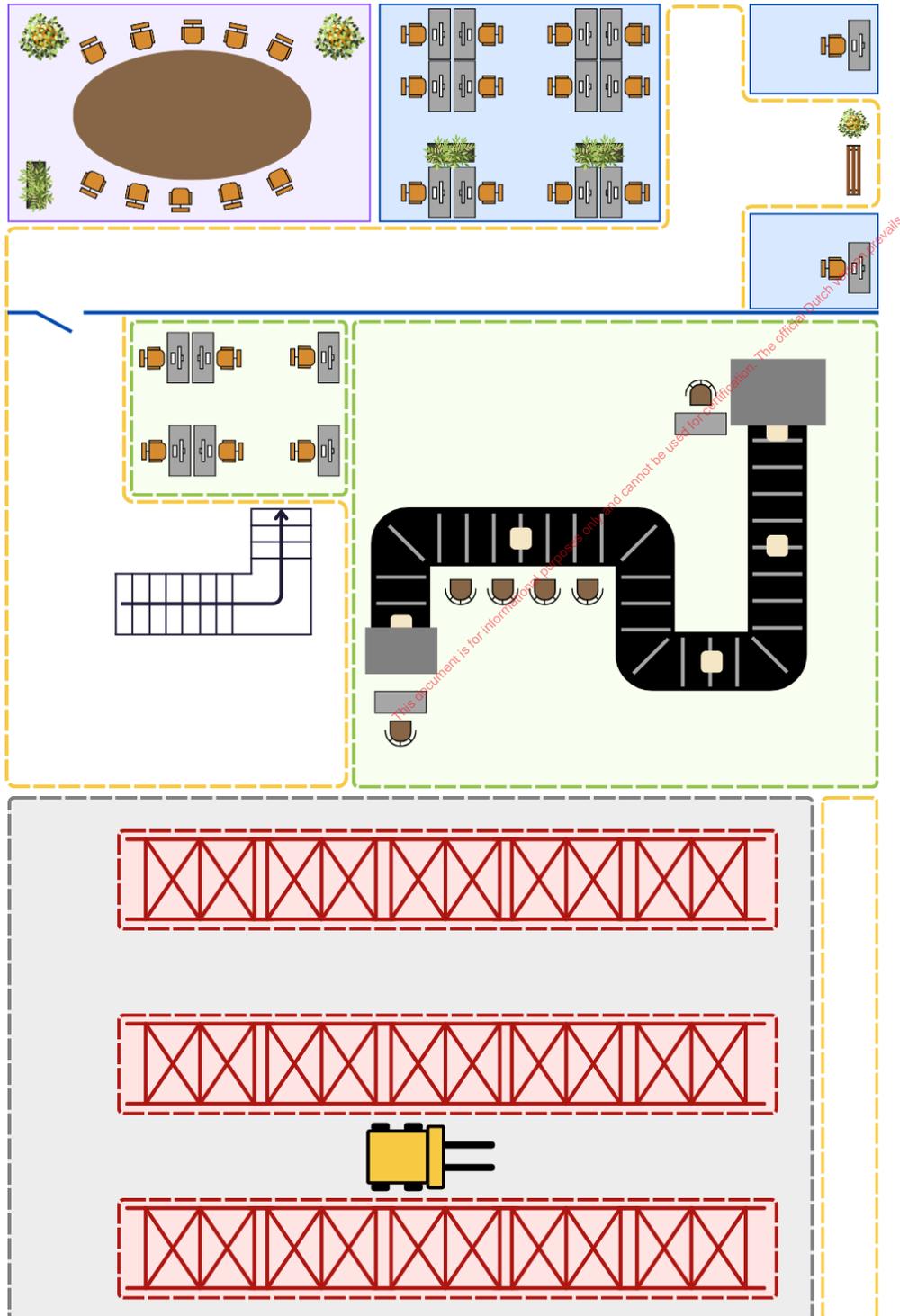
Natural light

Methodology

Example calculation to determine the percentage of floor area related to the number of relevant living spaces that must meet (criteria 4 to 6)

Six relevant rooms each have a floor area of 150 m². The total relevant floor area is 900 m². In the case of the office user function, 80% of this floor area must meet the criterion for one credit. 720 m² must meet the criteria described in NEN 17037:2018+A1:2022. This corresponds to 4.8 rooms. The number of rooms must always be rounded up, so in this example, five rooms must meet the conditions in the NEN 17037:2018+A1:2022 to achieve the credits.

Example calculation of surface area that must meet (industrial function and office function):



Natural light

In this theoretical example, the areas within the orange dotted line are traffic areas/routes. These do not have to meet any criteria (CN2).

The area within the grey dotted line has the function of Industrial function, Other areas (storage – logistics) as described in table HEA 01.1. Based on the table, 35% of the floor area must meet the criteria for daylight. Based on CN3, the footprint of the racks may be disregarded (framed in red). The total GFA of the gray industry part is 3000 m². The GFA footprint of the racks together is 1000 m².

The conclusion is that 35% of this building part of 2000 m² = 700 m² of the floor area must meet the daylight criteria.

The light green area also has an industrial function and is divided into two parts. According to table HEA 01.1, this space falls under Industry function, Production area, packing area. The large part has a conveyor belt with a number of sitting and standing workstations along this conveyor belt. The space with conveyor belt is 1000 m² in total. The other light green space is on a mezzanine. The final assembly takes place there. There are also a number of standing workplaces here. This space also falls under Industrial function, Production area, packing area. In total has a size of 200 m². The total area of the Industrial Function, Production Area, Packing Area is 1200 m² and two spaces can be distinguished.

Conclusion for two credits:

Both rooms must meet the criteria for daylight. The mezzanine is 200 m² and therefore more than 10% of the surface area Industrial function, Production area, packing area. According to CN13, at least 90% of the surface must meet rounded to whole spaces for two credits.

Conclusion for one credit:

The mezzanine may be disregarded. 20% of 1200 m² = 240 m². It means that the mezzanine does not have to meet the criteria for daylight if the production area does meet the criteria. However, the mezzanine must be able to experience a degree of daylight in accordance with CN13. This can be done by means of a window or via borrowed light (CN12).

The HEA 01 issue distinguishes between the type of industrial surface based on the presence of workplaces and the work that takes place there. The credits are awarded based on the entire industry function. In this example, it means that if the space with the conveyor belt and mezzanine meets the criteria, but the storage part does not, the entire industrial function does not meet.

The blue spaces are an open-plan office of 300 m² and two identical spaces of 20 m², each with one workplace. The total area is 340 m². Here, 90% of the floor area must be sufficient, rounded off to entire rooms. A maximum of 34 m² may not meet the criteria for daylight. Since both rooms with one workstation are smaller than 20 m², one of the two one-seater workstations does not have to suffice. But according to CN13, it should be possible to experience a degree of daylight. This can be done by means of a window or via borrowed light (CN12).

The conclusion is that for two credits, a maximum of one 'one-seater workplace' may not meet the criteria for daylight. All other spaces with an office function must meet the criteria for daylight.

Daylight calculations

Calculation model

The daylight calculations require detailed computer models to simulate the daylight lighting at calculation credits within the assessed areas. The calculation model must include all relevant occupied spaces and any external surfaces that may affect the light received.

Natural light

The calculations should be performed using climatic data for the location of the site (via an appropriate weather file in the software) at a minimum hourly interval for a typical year, and with appropriate simulation parameters as described in the following sections.

Surface reflection

When calculating daylight lighting, internal and external surfaces and obstacles should be modeled, including appropriate values for surface reflection. Equipment and furniture do not need to be brought along. If trees affect daylight in the new development, they should be included according to the guidelines in the BRE report BR209, Site layout planning for daylight and sunlight: a guide to good practice.

If surface finishes are specified or measured on site, they can be used in daylight calculations, including suitable factors for maintenance and furniture. Maximum reflectance for the following surfaces is indicated below.

SURFACE	MAXIMUM REFLECTION
White painted surfaces	0.8 indoors and 0.6 outdoors
Light pastel internal walls	0,7
Light wood internal floors	0,4

The surface reflectance values used should be specified in the assessment, along with a specification of the materials. If surface reflectance values have not been measured or specified, the default values should be used as indicated below.

SURFACE	STANDARD REFLECTANCE VALUES
Internal walls	0,7
Internal ceilings	0,7
Internal floors	0,2
External walls and obstacles	0,2
External land	0,2

External obstacles must be taken into account, including future buildings for which planning permission has been granted.

Glass permeability

For clean, clear double-glazed glass with a low emission coating, a value of 0.68 for diffuse transmittance can be used unless a specific value is specified. For other types of glass, the diffuse transmittance can be calculated by multiplying the manufacturer's normal light transmittance by 0.91. The correct values in the calculation software must be handled carefully, as many software programs use the normal light transmittance, which is readily available from the glass manufacturer, and apply corrections for light coming from oblique angles.

The glass permeability, including maintenance factors, must be included in the calculations, along with modeling the window frames. If window frames are not specifically included in the calculation model, the window factors should be applied based on the ratio of glass to total opening for the type of opening used. These factors usually vary with the opening size and whether there are any divisible parts. If opening types are not specified, the results for the total opening must be multiplied by a standard window factor, as shown below.

Natural light

OPENING TYPES	STANDARD WINDOW FACTORS
Windows with small panes	0,5
Normal windows with divisible parts	0,6
Patio doors	0,7
Horizontal skylights	0,7

Daylight calculations should also include a maintenance factor for the glass to compensate for the decrease in light transmittance due to dirt accumulation over time. The visible light transmittance of the glass must be corrected with the maintenance factor in the daylight calculations. This factor per project is determined in accordance with the tables NA.2, NA.3 and NA.4 from the NEN 17037:2018+A1:2022 (see help page)

Calculation grid

Daylight illumination shall be calculated on a grid of credits on a reference plane within each area assessed. The reference plane is usually considered to be the horizontal working plane at 0.85 m above the floor, unless otherwise specified for the activities taking place in the assessed areas.

The calculation grid over the horizontal work surface may exclude a band along the walls, unless this is part of the relevant living space used by building users. This band may not be wider than 0.5 meters.

Borrowed light

For areas where borrowed light is used to meet daylight criteria calculations or results of appropriate lighting design software must be provided to demonstrate that such areas meet the BREEAM criteria (if the light from these sources is required for the relevant dwelling space to comply).

Evaluation of daylight glare criteria 8 and 9*Daylight Glare Probability (DGP)*

DGP is a measure of discomfort from glare in rooms that are laterally lit. It takes into account how bright daylight is at eye level as well as the brightness and position of possible sources of glare in a person's field of vision. While you can calculate DGP with a formula, this is usually done with dedicated daylight analysis software.

The values of DGP can be classified as follows:

$DGP \leq 0.35$:	Brilliance is usually not noticeable.
$0.35 < DGP \leq 0.40$:	Brilliance is noticeable, but not distracting.
$0.40 < DGP \leq 0.45$:	Glare is noticeable and often disturbing.
$DGP \geq 0.45$:	Brilliance is unbearable.

According to EN17037 standards, a DGP value of more than 0.45 should not occur more than 5% of the time in rooms where activities such as reading or working with a screen take place. For medium protection, the DGP value should be a maximum of 0.40, and for high protection a maximum of 0.35, even for no more than 5% of the time.

The standard occupancy hours are from 8:00 am to 6:00 pm from Monday to Friday. Other hours can also be used as needed.

DGP calculations should be performed with a computer model of space, as described earlier. These calculations must be done at a height of 1.2 meters for each workplace.

Natural light

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Saloons

A space intended for the stay of people for at least a continuous period of 30 minutes per day.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Artificial lighting

Ensure that the artificial lighting and operation by building users are included in the design stage, to ensure a high level of visual comfort.

Credits available	: 2
Pre requisite	: X
Minimum standard	: ✓
Project	: Partly
Filter issue	: ✓
Exemplary performance	: X

Criteria

The issue consists of two parts:

- Indoor and outdoor lighting (one credit);
- Zoning and lighting control by users (one credit).

Demonstrate that the following criteria are met:

One credit – Interior and exterior lighting (minimum standard starting from the Pass rating)

- All artificial lighting in occupied spaces is free of visible undesirable effects, such as flickering and stroboscopic effects, in normal and dimmed operating mode. This can be achieved by:
 - The application of fluorescent and gas discharge lighting, in which the light sources are controlled by electronic high-frequency ballasts.
 - The use of LED lighting systems, which meet the criteria for flicker ($PstLM \leq 1.0$) and strobe effects ($SVM \leq 1.6$), described in the NEMA 77-2017 provisions. This applies to both the normal and dimmed operating states, taking into account the possible influence of voltage fluctuations on the power grid (see CN2 and Table HEA 02.1).
- Artificial lighting in all areas of the building meets the illuminance (lux) appropriate to the tasks to be performed. The concentration and comfort of the building users has been taken into account. This can be demonstrated by using lighting that provides illuminance in accordance with the NEN-EN 12464-1:2021 standard, "Light and lighting – Workplace lighting for indoor workplaces". The lighting of the occupied spaces meets at least the following lighting parameters from this standard, which are associated with the specific task/function:
 - Horizontal practice illuminance (E_m).
 - Vertical practice illuminance (E_m).
 - Uniformity (U_o).
 - Glare value (UGRL).
 - Color rendering (Ra value).

Outdoor lighting (CN1.1)

- The exterior lighting of the site is designed to provide an illuminance (lux) suitable for the tasks to be performed, especially in the evening and at night. As proof of this, the general outdoor lighting is specified according to NEN-EN 12464-2:2024, "Light and lighting technology – Workplace lighting for outdoor workplaces". NPR 13201 + A1:2018 applies to road lighting, and NEN-EN 12193:2018 applies to sports lighting. The lighting design of the outdoor area meets at least the following lighting technical quantities, as defined in the relevant standards:
 - Horizontal practice illuminance (E_m).
 - Uniformity (U_o).
 - Glare value (UGRL).

Artificial lighting

- d. Color rendering (Ra value).

One credit – Zoning and lighting control for building users

4. The interior lighting is zoned in all rooms with the following functions and is easily accessible to the user as follows:

Office:

- a. In offices, a maximum of four workplaces per zone applies.
- b. Workstations next to façade openings form a different zone than those located further from façade openings.
- c. In open-plan offices, a maximum zone of 40 m² applies (see also CN3).

Education:

- a. In auditoriums, classrooms, lecture halls and auditoriums, the performance area, the circulation area and the audience area can be operated separately.
- b. Light controls are easy to operate manually for the teacher/presenter, both during teaching and when entering and leaving the room.

Meeting function:

- a. In library rooms, book shelves, reading corners and the desk are zoned separately.
- b. Meeting rooms are zoned separately.
- c. Group rooms in childcare and waiting areas are divided into seating and activity zones.
- d. In dining areas, such as restaurants and eateries, the serving area (kitchen), sitting (bar) and dining area are zoned separately.
- e. In conference rooms and congress rooms, the performance area and the audience area can be operated separately.
- f. Other occupied spaces: the maximum area is 60 m².

Hotels:

- a. Zoning to hallway, bathroom, sleeping area and workplace per hotel room.

Retail:

- a. Separate zone layout for shop windows, showrooms and counters before and after opening hours.

Laboratory:

- a. The maximum area is 52 m².

Sports:

- a. Zoning according to use such as changing rooms, bathing areas, training rooms, sauna rooms, treatment room.

Industrial:

- a. For fixed workplaces, such as places for packaging or other static work, a maximum zone of 40 m² applies.
- b. Workstations next to façade openings form a different zone than those located further from façade openings.

5. The lighting control of circulation areas is zoned separately and easy to operate, but does not necessarily have to be accessible to users.

Artificial lighting

Tables

Table HEA 02.1 Overview of test conditions and requirements per type of lighting

TYPE OF LIGHTING	TEST CONDITIONS	FLICKER <i>PST LM</i>	STROBOSCOPIC EFFECT <i>SVM</i>
LED lighting in normal operating state (undimmed)	Stable mains voltage	≤ 1.0	≤ 1.6
LED lighting in normal operating condition	Mains voltage with five standardised mains voltage variations	≤ 1.0	N/a.
LED lighting in dimmed operating condition (50% of nominal light level)*	Stable mains voltage	≤ 1.0	≤ 1.6
Mains voltage with five standardized voltage variations	Mains voltage with five standardized mains voltage variations**	≤ 1.0	N/a.
Fluorescence and Gas Discharge Lighting	No	N/a.	N/a.

* When using different dimming techniques with the same driver or fixture (also known as hybrid dimming), an additional measurement should be taken at 20% of the nominal light level.

** This only applies to luminaires with integrated dimming technology.

Compliance note

REFERENCE	SUBJECT	DEFINITION
Scope		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Applicability of the criteria in the case of project type shell and cores	<p>Criterion 2 does not apply to the project type of shell and central installations. Depending on whether the interior and/or exterior lighting is specified, different situations are possible:</p> <ol style="list-style-type: none"> When a specific lighting power is entered (see issue ENE 01 CN1.1) and the outdoor lighting is specified, criteria 1 and 3 for indoor lighting and outdoor lighting can be met. If no outdoor lighting is specified, either on the exterior façade or on the site, the criterion for outdoor lighting does not apply. In this case, if a specific lighting power has been entered (see a.), the issue for indoor and outdoor lighting can be achieved by only meeting criterion 1 for indoor lighting. If no specific lighting power has been entered for a project type of shell and cores (see issue ENE 01 CN1.1), criterion 1 cannot be met. In that case, the issue for indoor and outdoor lighting can still be achieved by only meeting criterion 3 for outdoor lighting. If no specific lighting power has been entered for a project type of shell and central installations (see issue ENE 01 CN1.1), and the exterior lighting (both on the outer façade

Artificial lighting

REFERENCE	SUBJECT	DEFINITION
		and on the site) is not specified, the issue HEA 02 must be filtered.
CN1.2	Ambient lighting	If it is not desirable to meet the lighting requirements in a certain space, such as a company restaurant or atrium, because of the mood lighting, the expert must substantiate this and assess the Assessor.
CN1.3	Retail	All criteria apply to the shop function, except for the sales area(s). This space may be excluded from the criteria for indoor lighting.
CN1.4	Sport	The criteria for indoor lighting do not apply to wellness areas and swimming pools. The operation of the lighting control within the sports function is only intended for the staff.
CN1.5	Hotels	Lighting in hotel rooms should only meet the required illuminance for workplaces if the room is also used as a workplace (for example, if there is a desk or table).
CN1.6	Lighting zones and control of auditorium spaces	The specified control elements depend on the size and use of the room. In an auditorium with an ascending seating area and a formal lectern (for demonstrations or presentations), the lighting control is usually as follows: <ul style="list-style-type: none"> a. Maximum normal lighting for entry, exit and cleaning. b. Lighting in the performance room off and lighting in the public area reduced to a low intensity for the use of a beamer, but with sufficient light so that the audience can take notes. c. All lighting off for the use of a beamer and for visual demonstrations and performances. d. Separate lighting for the music stand.
CN1.7	Zoning and lighting control criteria not applicable	The media and production areas may be excluded from the criteria for zoning and lighting control.
CN1.8	Control elements not for children (education, meeting function – childcare)	Lighting control should only be accessible to teachers or staff members, and not to children.
<i>Interior lighting</i>		
CN2	Criteria and test conditions for criterion 1	<p>The criteria for flicker and stroboscopic effect are defined in NEMA 77-2017 using the measures Pst LM (flicker level) and SVM (stroboscopic visibility), as described in IEC CIE TN 006:2016. The criteria from Table 6 of NEMA 77-2017 are for flicker and stroboscopic effect, respectively: Pst LM \leq 1.0 and SVM \leq 1.6.</p> <p>The flicker test method is described in Edition 2 of IEC TR 61547-1:2020. Tests are carried out under standardised mains voltage variations and, if applicable, in dimmed condition with the dimming technology of the lighting system itself or with a standardised independent dimmer according to NEMA SSL-7A-2015.</p> <p>The test method for stroboscopic effects is described in IEC TR 63158:2018, which also includes testing in the dimmed state, as described above. The tests in the dimmed state are carried out at a light level of 50% of the nominal light level in the</p>

Artificial lighting

REFERENCE	SUBJECT	DEFINITION
		<p>undimmed state (100%). This test must be representative of the entire driver.</p> <p>If other dimming techniques are used at a lower dimming level with the same driver, they should be tested separately at a light level of 20% of the nominal light level. The values for Pst LM and SVM shall be specified for the test situations in Table HEA02.4 for each combination of LED fixture, dimmer, and driver that occurs in the installation.</p>
<i>Zoning</i>		
CN3	Occupancy or workplace layout not known	If the occupancy or layout of the workstations is not known, the lighting control must be divided into grids of up to 40 m ² .
CN4	Small spaces	Buildings that consist entirely of small spaces (less than 40 m ²) and do not require division into lighting zones or control meet the criteria on zoning by default.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Separate regulation of classified zones

Light switches or control elements for the specific area of the building that are accessible to and can be operated by people in the area. These control elements are located in or near the zone that is being controlled.

High-frequency ballasts

High-frequency ballasts for fluorescence and guest discharge lighting increase the frequency of the mains from 50 Hz to approximately 30 kHz. The advantage of high-frequency control gear over regular (conventional) control gear is that the stroboscopic effect, which can be caused by light modulations with a frequency of twice the mains frequency (100 Hz), is not visible.

Outdoor space of the building

This includes car parks, access roads, walkways and areas for the storage and inspection of goods. The criteria only relate to the lighting of the outdoor areas of the building, insofar as this has been installed in-house.

Uniformity of illuminance

Quality criterion indicating the course of illuminance levels on the work surface. An evenly lit work surface is an important indicator of the quality of the lighting. The uniformity depends, among other things, on the light distribution of the luminaires, the position of the luminaires in relation to the work surface (or the road surface) and the distance between the luminaires.

Artificial lighting

In indoor lighting, we speak of a uniformly illuminated work surface when the ratio between the lowest illuminance (E_{\min}) and the average illuminance (E_{gem}) is reasonably balanced. This value is between 0 and 1 and is calculated by dividing the minimum illuminance by the average illuminance. In formula: $U = E_{\text{hor min}} / E_{\text{hor avg}}$.

Illuminance (E)

The amount of light that falls on a standard unit of area. The unit of illuminance is lumens per square meter or lux (lx).

In formula: illuminance E (lux) = luminous flux Φ (lumens) / area A (m^2).

The illuminance is independent of the reflection factor of the surface or surfaces on which the light falls.

Color rendering index (Ra)

The color rendering index indicates how well a light source reproduces colors faithfully, without disturbing the original hue of the object. The index ranges from 1 to 100, with 1 representing the worst color rendering and 100 representing perfect color reproduction. This index indicates in percentage how well or evenly the colors of objects are rendered by the light source.

Practical illuminance (E_m)

The real-world illuminance is the lowest value of the average illuminance in the task area between two maintenances. This value is reached when all the old lamps of an installation need to be replaced and the fixtures cleaned.

Glare control – Interior lighting

The glare control is a measure of the limitation of glare caused by the emitted light of a luminaire. The degree of glare nuisance is indicated by the Unified Glare Rating (UGR), which indicates the extent to which luminaires in the room cause light nuisance, as seen from the user's eye level and viewing direction, based on a regular pattern of the luminaires.

Flickering (PstLM)

The flickering of a light source, referred to as a 'flicker', mainly occurs with LED lighting that is dimmed, but also with cheaper variants. This has a significant impact on the ability to concentrate and can cause complaints such as headaches and eye strain. Flicker is caused by the driver of the LED lighting, which converts alternating current into direct current via a rectifier. Using an inferior rectifier can cause the flicker effect.

Stroboscopic effect (SVM)

The stroboscopic effect of lighting is more difficult to observe than flicker. That is why the Stroboscopic Visibility Measure (SVM) has been developed to make this effect measurable. This method makes it possible to quantify the visibility of the stroboscopic effect in conventional lighting.

Additional information

None.

Artificial lighting

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Non-visual effects of light

Ensure that the non-visual effects of light are taken into account in the design stage, so that positive influences on the psychology and physiology of building users are promoted through a healthy biological rhythm.

Credits available	: 1
Pre-requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of one part:

- Non-visual effects of lighting (one credit).

Demonstrate that the following criteria are met:

One credit – Non-visual effects of light

1. At least one credit has been obtained for the issue HEA 01 in the "daylighting" section.
2. All workplaces in relevant occupied spaces, assessed in HEA 01, of the building must receive at least 150 lux mEDI at eye level (1.2 m above the floor) for at least four hours a day (from noon). This can be achieved with a combination of daylight and artificial lighting (see methodology).
3. Electric lighting systems and controls are available to adjust the brightness and color of the emitted light over time. This makes it possible to lower the mEDI at the eye level of the building users in the afternoon and evening, depending on the type of application.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes

Methodology

Non-visual effects of light

Non-visual effects of light can be quantified via the melanopic Equivalent Daylight Illumination (mEDI), expressed in lux. This is the illuminance of daylight that produces a melanopic irradiance, or circadian stimulation, equivalent

Non-visual effects

to that of the light source in question. It can be calculated or measured based on illuminance and spectral power density using the CIE S 026 Toolbox (see cie.co.at/publications/cie-system-metrology-optical-radiation-iprgc-influenced-responses-light-0).

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Computer simulation

Software tools that can be used to model more complex room geometries for daylight simulation.

Illumination

The amount of light that falls on a surface per unit area, measured in lux.

Melanopic Equivalent Daylight Illumination (mEDI)

The illuminance of the CIE standard daylight source D65 that produces a melanopic irradiance equal to the respective light source. Measured in lux.

Non-visual effects

Non-visual effects of light, also known as non-image-forming (NIF) or non-visual (NV) responses to light, are the physiological effects of light that differ from visual perception. These effects may include: mildly introduced melatonin suppression; pupillary light reflex; regulation of the circadian rhythm; influence on heart rate and alertness; or effects on mood and attention.

Reflection

The ratio of the luminous flux reflected from a surface to the luminous flux that falls on it.

Work surface

The CIBSE SLL Lighting Handbook and the CIBSE SLL Code for Lighting define the work plane or reference plane as the area on which work is normally performed.

Saloons

A space intended for the stay of people for at least a continuous period of 30 minutes per day.

Additional information

None.

References

None.

Indoor air quality

Promoting a healthy living and residential climate through adequate air exchange, natural ventilation and minimal air pollution by building products and finishing materials.

Credits available	: 5
Pre requisite	: ✓
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of six parts:

- Air quality (Pre requisite);
- Ventilation (two credits);
- Natural ventilation (one credit);
- Emissions from construction products (one credit);
- Post-construction indoor air quality measurement (one credit);
- Emissions from construction products and finishing materials (EP credit).

Demonstrate that the following criteria are met:

Pre requisite – Air quality

1. The building has been optimized to guarantee optimal indoor air quality (see methodology).

Two credits – Ventilation

Air exchange in the case of natural and mechanical ventilation

2. All occupied spaces have an air exchange facility, consisting of a component for the supply of fresh air and a component for the extraction of indoor air (exhaust air grille or overflow grille).
3. In all occupied spaces, the indoor air is refreshed at least to the extent indicated in Table HEA 04.1, depending on the function, the floor area, the maximum number of people present and the maximum occupancy rate.
4. The amount of air exchange is determined in accordance with the provisions of the NEN 1087:2001 Standard Ventilation of buildings – Determination methods for new construction.

Filter requirements mechanical ventilation

5. Within the mechanical ventilation system, filters are used to ensure that all supplied air is filtered. The filters ensure an air quality that meets the SUP2 class according to the NEN-EN 16798-3 standard.

Preventing contamination from the outside in the case of mechanical ventilation

6. In order to prevent the ingestion of polluted air from external sources of pollution (CN3), one of the following criteria must be met for a building that is mechanically ventilated:
 - a. The air inlets are designed in accordance with the standards below most suitable for the type of building:
 - I. 16798-4 Sections 8.8.1 to 8.8.4.
 - II. BRE FB 30.
 - III. BRE IP 9/154.
 - IV. CIBSE TM21.

Indoor air quality

- V. ANSI/ASHRAE Standard 62.1:2022 Sections Section 5.5 and Normative Appendix B.
- b. Alternative calculation methods, such as wind tunnel studies or Computational Fluid Dynamics (CFD) modelling, are allowed if these methods demonstrate that the positions of air inlet and air outlet do not cause significant 'recirculation' of emitted air under normal wind conditions.
- c. The air inlets of the mechanical ventilation system must be at least ten metres horizontally away from external sources of contamination.

Note: When the building or building areas are naturally ventilated, all ventilation grilles and all windows that can be opened are at least ten metres horizontally away from external sources of air pollution (CN3).

Preventing used/exhaust air from retaking in the case of mechanical ventilation

- 7. To prevent used/exhaust air from being re-occupied, a building that is mechanically ventilated must meet one of the following criteria:
 - a. All air inlets of the mechanical ventilation systems of the building have a maximum dilution factor of the value specified in Table HEA 04.2 at the location of the inlet opening. For calculating the dilution factor, see methodology.
 - b. If it has not been demonstrated that there is a maximum dilution factor at the location of the inlet opening according to table HEA 04.2, the distance between air inlets and outlets must be at least ten metres horizontal.

Preventing pollution of air in the building caused by internal sources of pollution.

- 8. To prevent the air inside the building from being contaminated by internal sources, the following criteria must be met:
 - a. At the building level, no system of 'recirculation' is used within the central mechanical ventilation system (CN4).
 - b. No internal thermal insulation of air ducts has been applied.
 - c. Spaces intended for printers and/or copiers and open spaces with occasional sources of air pollution are extracted separately. It must also be prevented that the exhaust air from these rooms is mixed with air that is used elsewhere in the building for air exchange.
 - d. To prevent legionella contamination any humidification system only consists of steam humidification. The steam humidification system meets the conditions of ISSO publication 55.3 and is provided with a VDI 6022 hygiene certificate.

Measuring the CO2 content in rooms with highly fluctuating occupancy (meeting, shop, sports and educational functions).

- 9. In the case of mechanical ventilation, a monitoring system is in place that measures the CO2 content and controls the flow rate of the air exchange in such a way that the CO2 concentration in occupied spaces (in the 'breathing zone') is a maximum of 400 ppm above the outside air concentration (CN2 and CN5) during the time of use.
- 10. When the building is ventilated naturally, a digital alarm signal should be automatically sent to the responsible (technical) building manager if the CO2 concentration is 400 ppm above the outdoor air concentration (CN2 and CN5). The building manager must then be able to take measures to ventilate the building, for example by opening windows automatically or switching on roof ventilation via control technology.

One credit – Natural ventilation

The building ventilation strategy is designed to be as flexible and adaptable as possible for future building users and climate scenarios that the building's occupied spaces can be supplied with fresh air through a natural ventilation strategy. This can be demonstrated by:

Indoor air quality

11. 90% of the floor area of the occupied spaces, rounded up on entire rooms, can be ventilated by means of natural ventilation.
12. 90% of the floor area of the occupied spaces, rounded up to entire rooms, contains at least one window that can be opened per grid of 3.60 m.
13. The windows to be opened provide at least a capacity for natural ventilation for a occupied space as stated in Table HEA 04.1, as determined in accordance with NEN 1087.
14. In occupied spaces where there are workplaces that are more than seven metres away from the nearest ventilation facility, there must be windows (or equivalent facilities) for natural ventilation that can be opened in the opposite façade. The distribution over both facades must guarantee sufficient flow of air by means of cross ventilation.
15. The windows must be easy for the user to operate. This control provides for infinitely variable control or control with at least three fixation positions, one of which is ajar and one fully openable window surface that can be ventilated on at least two levels.

One credit – Emissions from construction products and finishing materials

16. At least four of the five groups of building products and finishing materials included in Table HEA 04.3, which have been applied on the inside of the building, must comply with the set emission limits, conditions of determination and other additional conditions set out in the table.

One credit – Post-construction indoor air quality measurement

17. The formaldehyde concentration was measured before commissioning and is $\leq 30 \mu\text{g}/\text{m}^3$. After commissioning, no work is carried out in which products or materials affect the formaldehyde concentration.
18. The concentration of total volatile organic compounds (TVOC) is measured before commissioning and is $\leq 500 \mu\text{g}/\text{m}^3$. After commissioning, no work is carried out in which products or materials influence the TVOS concentration.
19. If the measured values exceed the limits, a plan should be made to get the concentration of formaldehyde and TVOS within the prescribed limits before commissioning. After taking the measures, testing must be done again to confirm that the limits are now being met.
20. The testing, measurement and reporting of the emissions, as referred to in criteria 19 and 20, shall, where applicable, be carried out in accordance with the following standards:
 - a. ISO 16000-2: Indoor air – Part 2: Sampling strategy for formaldehyde.
 - b. ISO 16000-3: Indoor air – Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chambers – Active sampling.
 - c. ISO 16000-5: Indoor air – Part 5: Sampling strategy for volatile organic compounds.
 - d. ISO 16000-6: Indoor air – Part 6: Determination of volatile organic compound content in indoor air and test chambers by active sampling for TENAX TA,[®] thermal desorption and gas chromatography using MS/FID.

EP Credit – Emissions from construction products and finishing materials

21. All groups of building products and finishing materials included in Table HEA 04.3 that have been used on the inside of the building must comply with the set limit values for emissions, determination conditions and other additional conditions set out in the table at Exemplary Performance.

Indoor air quality

Tables

Table HEA 04.1 Minimum required ventilation capacity for air exchange and/or natural ventilation of occupied spaces and per function

FUNCTION OF USE	MINIMUM REQUIRED VENTILATION CAPACITY [M ³ /H PP]	MINIMUM CAPACITY OF NATURAL VENTILATION PER LIVING SPACE (DM ³ /S PER M ² FLOOR AREA OF LIVING SPACE)
Office function	60	6
Industry function	45	N/a.
Teaching function	43,2	9
Accommodation function	45	3
Health care -all	45	3
Sports function -all	60	3
Laboratory	60	N/a.
Meeting function -Meeting room - Other/childcare	60 43,2	6 9

Table HEA 04.2 Dilution factor of air pollution

TYPE OF DRAIN	ATTRIBUTE	STANDARD	DILUTION FACTOR		
Own building and different from own building	Ventilation	All flow rates	NEN 1087:2019	0,0075*	
	Flue gas in gas-fired appliances	Rated load combustion appliances < 130 kW	NEN 2757-1		
		Rated load combustion appliances > 130 kW	NEN 2757-2		
	Flue gas in appliances with other fuels	Rated load combustion appliances < 130 kW	NEN 2757-1	0,001	
		Rated load combustion appliances > 130 kW	NEN 2757-2		

* The methodology describes how the dilution factor can be calculated on the basis of NEN 1087:2019.

Indoor air quality

Table HEA 04.3 Limit values for emissions of construction products and finishing materials

PRODUCT TYPE	MAXIMUM CONCENTRATION OF FORMALDEHYDE	MAXIMUM CONCENTRATION OF TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC)	MAXIMUM CONCENTRATION OF CATEGORY 1A AND 1B CARCINOGENS	DETERMINATION METHODS**	ADDITIONAL REQUIREMENTS
1. Interior paint and varnishes.	$\leq 0.06 \text{ mg/m}^3$	$\leq 1.0 \text{ mg/m}^3$	$\leq 1.0 \text{ mg/m}^3$	NEN-EN 16402:2019 OR BS EN 16000-9:2016 OR BS EN 16516:2017 OR ISO 16000-10**	Must comply with TVOS content limits (see Table HEA02.4)
Exemplary Performance	$\leq 0.01 \text{ mg/m}^3$	$\leq 0.3 \text{ mg/m}^3$ as well as Total Semi-VOCs: TSVOCs < 0.1 mg/m^3			
2. Wood-like board materials, including particle board, fiberboard, MDF, OSB, cementitious fiberboard, plywood, solid wood panels, and acoustic boards. This also includes wooden floors, such as parquet, as well as wood constructions such as	$\leq 0.06 \text{ mg/m}^3$ (Excluding MDF) MDF: $\leq 0.08 \text{ mg/m}^3$	$\leq 1.0 \text{ mg/m}^3$	$\leq 0.001 \text{ mg/m}^3$	BS EN 16000-9:2016 OR BS EN 16516:2017 OR BS EN 717-1:2004 (formaldehyde only) OR ISO 16000-10**	

Indoor air quality

PRODUCT TYPE	MAXIMUM CONCENTRATION OF FORMALDEHYDE	MAXIMUM CONCENTRATION OF TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC)	MAXIMUM CONCENTRATION OF CATEGORY 1A AND 1B CARCINOGENS	DETERMINATION METHODS**	ADDITIONAL REQUIREMENTS
laminated wood.					
Exemplary Performance	≤ 0.02 mg/m ³	≤ 0.3 mg/m ³ as well as Total Semi-VOCs: TSVOCs < 0.1 mg/m ³			
3. Floor finishes, including vinyl, linoleum, cork, rubber, carpet and wood laminate flooring. Also cast floors.	≤ 0.06 mg/m ³	≤ 1.0 mg/m ³	≤ 0.001 mg/m ³	ISO 10580:2012 OR BS EN 16000-9:2016 OR BS EN 16516:2017 OR ISO 16000-10**	
Exemplary Performance	≤ 0.01 mg/m ³	≤ 0.3 mg/m ³ as well as Total Semi-VOCs: TSVOCs < 0.1 mg/m ³			
4. Suspended ceilings, partition wall and plus acoustic and insulation technical materials.	≤ 0.06 mg/m ³	≤ 1.0 mg/m ³	≤ 0.001 mg/m ³	BS EN 16000-9:2016 OR BS EN 16516:2017 OR BS EN 717-1:2004 (wood only – formaldehyde) OR ISO 16000-10**	
Exemplary Performance	≤ 0.01 mg/m ³	≤ 0.3 mg/m ³ as well as Total Semi-VOCs: TSVOCs < 0.1 mg/m ³			
5. Adhesives and sealants,	≤ 0.06 mg/m ³	≤ 1.0 mg/m ³	≤ 0.001 mg/m ³	BS EN 13999-(1-4)-2013 OR	

Indoor air quality

PRODUCT TYPE	MAXIMUM CONCENTRATION OF FORMALDEHYDE	MAXIMUM CONCENTRATION OF TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC)	MAXIMUM CONCENTRATION OF CATEGORY 1A AND 1B CARCINOGENS	DETERMINATION METHODS**	ADDITIONAL REQUIREMENTS
including floor adhesives.				BS EN 16000-9:2016 OR BS EN 16516:2017 OR ISO 16000-10**	
Exemplary Performance	$\leq 0.01 \text{ mg/m}^3$	$\leq 0.3 \text{ mg/m}^3$ as well as Total Semi-VOCs: TSVOCs $< 0.1 \text{ mg/m}^3$			

^ The values in this table apply to the finished product, i.e. after the last coating or treatment has taken place.

* After 28 days in test chamber, the material must comply with the emission limits or sooner when prescribed in the relevant test standard. The emission values of the applied test chamber method must be extrapolated to predict the concentration in the theoretical model or reference chamber (depending on the standard used). The extrapolated value should be compared with the emission values in this table.

** Results of tests according to ISO 16000-10 can be considered equivalent to the relevant test requirements for emissions of construction products, provided that the product manufacturer can demonstrate that the results of tests according to ISO 16000-10 correspond to the results that would be obtained with EN 16516 or ISO 16000-9.

If test results for a product exceed the TVOC emission values, equivalence with the above requirements can still be achieved if it is demonstrated that the R-value is less than 1 after 28 days.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Application in the case of project type shell and cores	Pre requisite: criterion 1; Ventilation: criteria 2 to 10; Natural ventilation: criteria 11 to 15.
CN1.2	Ventilating rooms with a large volume of air (industrial function)	The dominant process in an industrial space determines the minimum ventilation rate. This means that the ventilation volume can be higher or lower than the 45 m ³ per person per hour, depending on the activities that take place. However, there must always be at least facilities that guarantee a ventilation

Indoor air quality

REFERENCE	SUBJECT	DEFINITION
		<p>volume of at least 10 m³ per person per hour. The ventilation volume must be apparent from the ventilation strategy.</p> <p>For industrial spaces, it is necessary to draw up a ventilation strategy or plan that provides at least insight into the following aspects:</p> <ol style="list-style-type: none"> The average number of people in the room during usage hours. The processes or activities that take place in space. The possible emissions of CO₂, particulate matter, formaldehyde, VOCs and other harmful substances from these processes and activities. How the ventilation systems function and are adjusted based on the process, the activities and emissions of harmful substances, and the occupancy. <p>If the ventilation strategy or plan shows that more than 45 m³ of air per person per hour is required due to the production or storage of harmful substances from materials, processes or activities in industrial areas, this higher ventilation volume must be maintained. If it is not known which processes or harmful substances are released into the room, there must be at least 45 m³ per person per hour of ventilation.</p> <p>The ventilation strategy must demonstrate conclusively that ventilation below 45 m³ does not pose any risks to health or comfort.</p> <p>For more information on these criteria, see the additional information.</p>
CN1.3	Rooms (partly) excluded from the ventilation requirements	<p>Spaces such as one-person phone booths that are in addition to the minimum number of workplaces required based on the number of building users. These rooms are designed for short-term use and do not have, for example, a fixed monitor and (ergonomic) office chair which encourages you to stay there for a longer period than necessary.</p> <p>These rooms do not have to meet the minimum ventilation rate of a living room, but must be actively ventilated on the basis of presence and CO₂ content.</p>
CN1.4	(Clothing) retail	For clothing stores, where clothes are hung directly in the store, good ventilation is important because of the high emission of chemical fumes. Unlike other stores, clothing stores require continuous ventilation of 30 m ³ per person per hour.
CN1.5	Sports (sauna)	The ventilation criteria 2 to 10 do not apply to a sauna.
CN1.6	Sports (swimming pool)	<p>It is ensured that the water and air quality complies with the Environment and Planning Act, Bal Chapter 15, Article 15.16. In addition, the concentration of trichloramine in the air must be below 200 µg/m³ at all times.</p> <p>For good air quality, the air treatment system must measure and monitor the outdoor air component. The relative humidity control should have setpoints that depend on the outside temperature.</p>

Indoor air quality

REFERENCE	SUBJECT	DEFINITION
CN1.7	Room excluded from natural ventilation	<p>The following occupied spaces, where relevant to the building type, are excluded from the definition of occupied spaces for the purposes of Part 3 of this Issue:</p> <ol style="list-style-type: none"> Swimming pools or hydrotherapy pools (sports function); Sauna, steam room or a hammam (sports function); Catering and small staff kitchens (meeting function); Laboratories or other areas for which severe environmental conditions are a functional requirement of the space; Retail spaces; Ancillary spaces in industrial buildings (industrial function). <p>Residential areas that require local exhaust ventilation, for example laboratories, workshops and food technology rooms, must nevertheless demonstrate that they meet the criteria for the possibility of natural ventilation, unless they count as an excepted room according to this CN.</p>
<i>General</i>		
CN2	CO2 outdoor concentration	<p>The CO2 limit values mentioned correspond to the CO2 limit values mentioned in NEN 16798-1. If the local, temporary, CO2 concentration is unknown, an outdoor concentration of 400 ppm may be assumed. Keep in mind that in inner-city environments in particular, the outdoor concentration may in reality be higher.</p>
<i>Ventilation</i>		
CN3	External sources of pollution	<p>These resources include, but are not limited to, the following:</p> <ol style="list-style-type: none"> Highways of the main access roads at the assessed location. Parking lots, loading/unloading docks and entry/exit areas. Other building outlets, including from building installations and factory, industrial or agricultural processes. <p>Service and access roads with limited and irregular access (e.g. roads for waste collection only) are unlikely to be a major source of external pollution. These roads can therefore be disregarded in the assessment of this issue. This does not apply to pick-up and drop-off zones or taxi ranks.</p>
CN4	Room-level recirculation	<p>In accordance with the criteria, recirculation at building level is not permitted. If there are rooms within the building that require recirculation, it is possible to apply recirculation at room level. At all times, the purpose of the issue must be taken into account and there has been coordination with the Assessor involved.</p>
CN5	Space with a highly variable occupancy	<p>Rooms with a highly fluctuating occupancy do not need to be continuously ventilated at the minimum ventilation volume, except in clothing stores (CN1.4). To ensure sufficient fresh air in the room, CO2 must be controlled.</p>
<i>Emissions of construction products</i>		
CN6	Scope of application emissions from construction products and finishing materials	<p>The assessment of construction products and finishing materials only concerns those products whose emissions affect the quality of the indoor air. This means that the criteria only apply to the construction products and finishing products that are located on the inside of the vapour barrier.</p>

Indoor air quality

REFERENCE	SUBJECT	DEFINITION
CN7	Furnishings and furniture	Loose furniture, such as desks, chairs and cabinets, do not fall within the scope of this issue. Only finishes and furnishings that are integral to the building, such as interior walls, acoustic cladding and fitted wardrobes, are tested.
CN8	Alternative measurement method for air quality TVOS	For the criteria related to measuring air quality, it is allowed to perform the measurement via the WELL Building Standard as an alternative to the BREEAM-NL requirements. This alternative measurement plan must at least include a schedule that demonstrates that the measurements were carried out before the building was put into use. The analysis was carried out, in accordance with CN10, by an accredited organization where the sampling may be carried out by an accredited WELL Performance Testing Agent. The measurement plan must also demonstrate that (loose) equipment is included in the measurement. The (T)VOC concentration must be determined by an accredited laboratory.
CN9	Regulations for testing VOC emissions	The regulations for testing and measuring emission limits are based on standardized emission test chambers. Performer, vial, drying out and other withdrawal test methods are explicitly excluded. Alternative methods are permitted only if the conditions associated with the standardised test chambers correspond to the methods described in Table HEA04.3. Prior permission must be requested by the BREEAM Expert for alternative methods.
CN10	Accreditation for organizations to perform analyses for the sake of performing analyses	Where an organisation used for the analysis of indoor air or emissions from construction products is not accredited according to ISO/IEC 17025, the organisation must be accredited, either by a national accreditation body or by a member of one of the following accreditation groups: <ol style="list-style-type: none"> European Cooperation for Accreditation. International Accreditation Forum. International Laboratory Accreditation Cooperation.
CN11	Accreditation of organizations to perform sampling	If another organization takes samples on behalf of the analyze/testing laboratory, this organization does not need to be accredited as specified in CN10.
CN12	Paint in wet rooms	The evidence must include that the paint, grout and sealant used in wet areas protects against mould growth. This can be demonstrated by means of tests carried out or with product information or manufacturer's declaration. The European standard for such tests are NEN-EN15457 and NEN-EN15458.
CN13	BREEAM-approved alternative schemes for emissions of construction products	Overview of approved alternative health labels is available on the help page in the online guideline and BRE Guidance Note 22.

Methodology

Optimal air quality

A process is initiated that leads to design, specification and installation decisions and actions during the design and construction stages, which ensure healthy indoor air in the building. This includes the following components:

- Eliminating sources of contamination.

Indoor air quality

- Diluting and controlling pollution sources.
- Procedures for ventilating contamination prior to commissioning.
- Procedures for naming and conducting third-party testing and analysis to confirm that the sources of contamination in the occupied spaces have been removed before commissioning.
- Procedures for maintaining indoor air quality during use, which are transferred to the user upon final. This can include, for example, maintenance and cleaning of HVAC systems, ducts and filters, or an explanation of the correct application of natural ventilation.

Dilution factor

There are several ways to determine the dilution factor or the minimum distance between the air supply and exhaust.

NEN 1087:2019 design standard

The NEN 1087 is designed to meet the dilution factor of 0.01. This dilution factor is mandatory in the BBL. To meet the BREEAM-NL requirement, a dilution factor of 0.0075 must be demonstrated. To determine the minimum distance between the air supply and exhaust of the building, determined in accordance with NEN 1087, distance must be multiplied by 1.3.

NEN 2757-2:2006 and NEN 2757-2:2021 for larger buildings

The NEN 2757-2 has two methods to calculate the dilution factor. Methods 1 and 2 for the 2757-2:2006 and a) and b) for the 2757-2:2021. Methods 1 and a) are suitable for low buildings and may be used for tall buildings with flat roofs. For methods 1 and a), a rated power of the combustion appliance used shall be provided. In the context in which the NEN 2757-2 is often applied for BREEAM-NL, there is no combustion appliance and no nominal power to be increased. Methods 1 and a) are therefore not to be used. Methods 2 and b) can be used to determine the dilution factor at the air supply.

Sources of pollution

To prevent the intake of polluted air, sources of air pollution must be identified. Criterion 6 refers to External sources of air pollution and refers to CN3 where sources of pollution are mentioned.

Sources of pollution include at least the following sources:

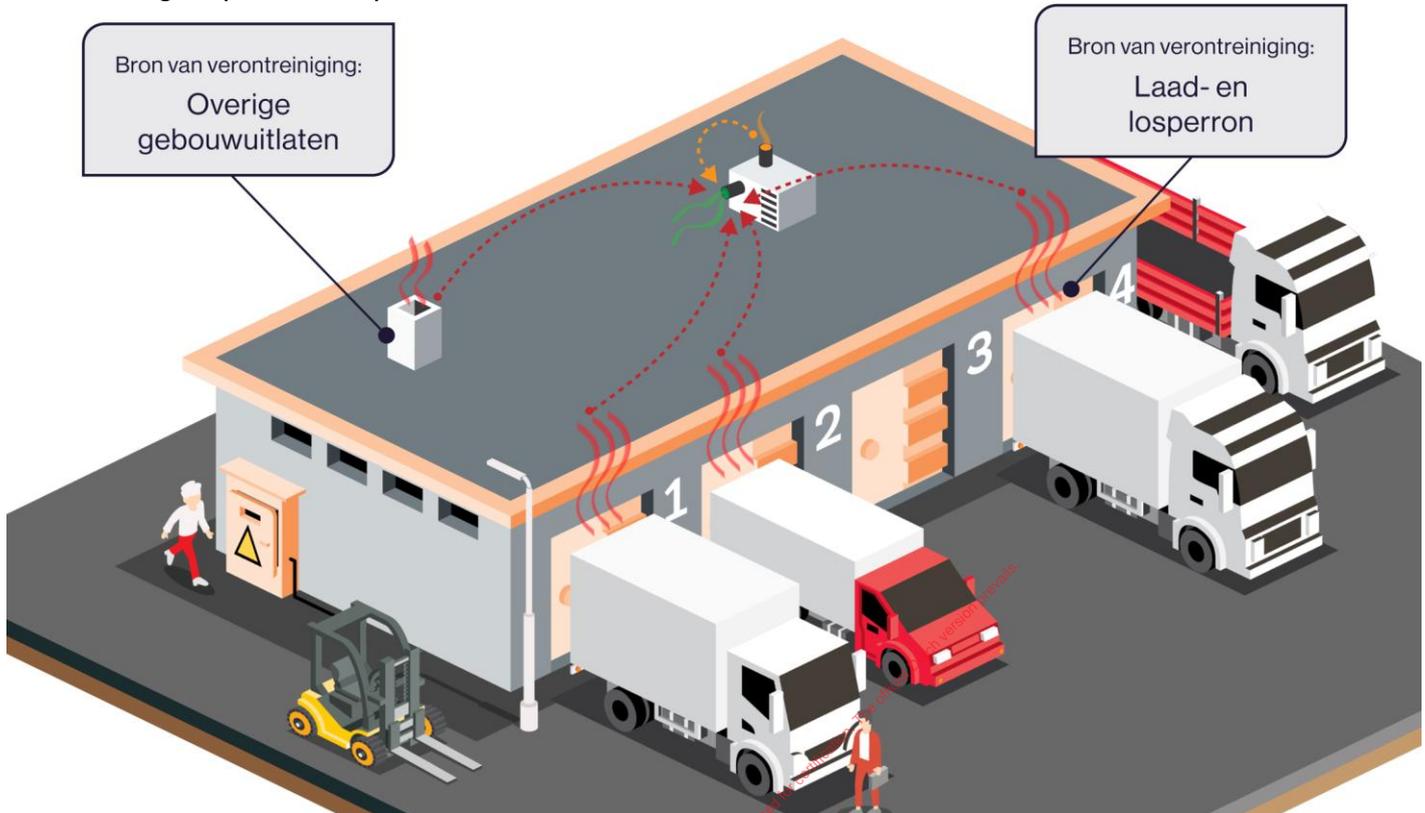
- Nearby traffic routes;
- Parking spaces/entry and exit points;
- Loading and unloading dock;
- Sewer venting;
- Other building outlets such as: exhaust air from a kitchen/canteen, process installations, factory, industrial or agricultural processes.

The exhaust air outlet is not considered a source of pollution. The minimum distance between the air supply and exhaust must be determined in accordance with the NEN 1087:2019 Design Standard or 2757-2.

Indoor air quality

Example

The following simplified example shows an elaboration of a theoretical situation.



- The chimney is a source of pollution. It is the discharge of a process installation.
- The trucks are parked on a loading/unloading platform and are sources of pollution.
- There is an air handling unit on the roof near loading/unloading platforms 2 and 3.
- Orange is the exhaust of the air handling unit.
- Green is the supply of fresh air.

The distance between the chimneys and the air supply and the distance between the truck and the air supply must be at least 10 meters horizontally. The distance between exhaust air and air supply is determined in accordance with NEN 2757:2006 or NEN 2757:2021 or NEN 1087:2019 Design standard. This distance can be less than ten meters horizontally because the exhaust air is not considered a source of pollution.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	
1	Procedural documents that demonstrate that the process for ensuring good indoor air quality within the design of the building, this includes minutes, drawings and relevant paragraphs of the specifications.	Relevant product information, test results and photo report from the assessor confirming that the principles from the design stage have been achieved.
At swimming pools	<ul style="list-style-type: none"> • A copy of the manufacturer's schedule of requirements, specifications or an official product specification, showing that a monitoring system is used for 	<ul style="list-style-type: none"> • An inspection report from the assessor confirming that a provision has been included to control air pollution with trihalomethanes/chloroform and that the

Indoor air quality

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
	<p>swimming pool functions, demonstrating (according to the WHVBZ manual) that the maximum concentration of bound chlorine in the swimming water is ≤ 0.4 mg/l.</p> <ul style="list-style-type: none"> Calculations showing that the installed equipment can keep the concentration of bound chlorine below 0.4 mg/l at the given bath load. 	<p>monitoring system, as specified in the design certificate, has been applied.</p>

Definitions

Lounges with varying occupancy

In practice, the occupancy in the aforementioned occupied spaces varies greatly, so that there are many times during which limited ventilation is sufficient. Examples of these areas are: meeting rooms, auditoriums, classrooms, auditoriums, waiting rooms, shops (except clothing stores – see CN1.4), restaurants, canteens and fitness and gymnastics rooms.

Saloons

A space intended for the stay of people for at least a continuous period of 30 minutes per day.

Openable window

An opening window is defined as the geometrical free ventilation surface that is created when a ventilation opening, e.g. a window, is opened to the normal operating range for the purpose of ventilation (except for openings that occur when windows are opened for cleaning and similar purposes). It does not concern the glass surface of a façade or the glass surface of the window that can be opened (unless it can be opened completely).

Cross ventilation

Cross ventilation provides the fastest and most effective natural air exchange in occupied spaces and takes advantage of the pressure differences between the façade of the building facing the wind and the façade facing away from the wind. The fresh air flows in on one side of the façade and the used indoor air flows out on the other side.

Volatile Organic Compound (VOC) and Semi-Volatile Organic Compound (SVOS)

Any organic liquid or solid that spontaneously evaporates at the prevailing temperature and atmospheric pressure with which it is in contact (source: EN ISO 11890). In addition to VOCs, you also have semi-volatile organic compounds (SVOS). These are volatile organic compounds that are only released over a longer period of time. These semi-volatile organic compounds are stored in house dust or attach themselves to surfaces.

Additional information

EU taxonomy

The EU Taxonomy sets a criterion for new construction that building components and materials used in construction that may come into contact with users emit less than 0.06 mg formaldehyde per m³ and less than 0.001 mg of the other categories 1A and 1B carcinogenic volatile organic compounds per m³. This is in accordance with criterion 23 of this issue. To do this, the building must be certified as a 'complete building' with BREEAM-NL.

Indoor air quality

CN1.2 - Ventilation of rooms with a large air volume (industrial function)

Ventilation in buildings is essential for the health of the users. The required ventilation depends on the function of the building and the number of users. Table HEA 04.1 shows the minimum ventilation quantity for different functions and standard situations.

One aspect that is not taken into account in this methodology is the volume of the space. The need for ventilation in a small room with many users is greater than in a large room with few users. In both cases, ventilation is necessary. However, the need can vary depending on several factors.

CN1.2 deals with a common situation in large industrial projects. This addition to the criteria offers projects the opportunity to ventilate less than the values in table HEA 04.1 prescribe in (very) large rooms with relatively few users.

This supplement is intended to prevent unnecessary ventilation in industrial spaces, but should never be at the expense of the health of the users. For this reason, drawing up a ventilation strategy for these rooms is required. Examples have been given to provide context for various "dominant processes," where it is allowed to deviate from the minimum ventilation amount.

Some theoretical situations

Distribution center

In a distribution centre, the industrial function is often used to store materials and goods that demonstrably do not emit harmful substances. During operating hours, users are regularly present to move materials within the room or to trucks. Natural ventilation can take place via grilles. Roof extraction can guarantee a minimum flow rate of 10 m³ per person per hour. The dominant process is the storage of materials and goods.

Please note that the type of material or product may require more ventilation. If substances derived from products and materials can harm the health of users, the ventilation rate must be adjusted accordingly.

Sorting center

In a sorting centre, there are often standing workstations along a conveyor belt, where users are continuously present. These workplaces fall under the industrial use function, and the ventilation quantity must comply with table HEA 04.1. For goods and materials stored within the same industrial area, a flow rate of 10 m³ per person per hour may be maintained. Two processes can be distinguished: sorting goods and storing them.

Workshop

A workshop falls under the use function industry. Depending on the processes in the room, a higher ventilation rate may be required, for example during welding. This higher ventilation rate can be achieved by local extraction in specific areas where welding is carried out, or by maintaining it for the entire room. In a workshop, the minimum ventilation quantity shown in table HEA 04.1 applies. This is important because there are users in the room during the day, who have to meet the ventilation requirements. The ventilation is likely to be higher than the values in Table HEA 04.1, depending on the dominant process.

References

None.

Thermal comfort

Ensuring optimal thermal comfort for building users through substantiated design measures and the right choice of temperature control.

Credits available	: 3
Pre requisite	: X
Minimum standard	: ✓
Project	: X
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of three parts:

- Thermal modeling (one credit);
- Prepared for climate change (one credit);
- Division into thermal zones and post-regulation temperature by user (one credit).

Demonstrate that the following criteria are met:

One credit – Thermal modelling (minimum standard from the rating Very Good)

1. A dynamic thermal simulation was carried out in which the method and the minimum standard in Table HEA 05.1 were met for 95% of the operating time for all occupied spaces.
2. The simulation calculation was carried out in accordance with the provisions of NEN 5060:2018 Hygrothermal properties of buildings with reference climate data of the design year ref T5 (5%).
3. An analytical measurement and evaluation of the general thermal comfort of the building have been carried out:
 - a. In the design stage, this is an analysis and evaluation of the results from the dynamic thermal situation.
 - b. In the post-construction stage, this is a practical measurement in which the thermal comfort is verified and reported.
 - c. Measures have been taken to correct deficiencies in thermal comfort.

To analyze and realize thermal comfort in non-cooled rooms with a setpoint temperature lower than 16 °C (industrial function) (CN1.2).

4. An analysis and evaluation of thermal comfort of uncooled rooms has been carried out;
 - a. In the early design stage, an analysis was carried out into how passive design techniques can be incorporated into the design to ensure the thermal comfort of building users.
 - b. The design techniques were realized in the post-construction stage.
 - c. In the post-construction stage, a practical measurement was carried out in which the thermal comfort was verified and reported.
 - d. Measures have been taken to correct deficiencies in thermal comfort.

One credit – Prepared for climate change

5. Criteria 1 to 3 have been achieved.
6. The simulation calculation, performed to meet criteria 1 to 3, is used to simulate a predicted climate change based on the design year, reference T1 (1%), complying with the methodology and the minimum standard in Table HEA 05.1 for 95% of the usage time.

Thermal comfort

7. If criterion 6 is not met with the proposed measures, the project team must demonstrate that it is possible to achieve this in the future with additional passive design measures.

One credit – Thermal zone division and post-regulation temperature by user

8. Criteria 1 to 3 have been achieved.
9. The heating and cooling systems are designed in such a way that the temperature in the different zones can be adjusted within a range of -2 °C to +2 °C around the 'room setpoint' and an RMOT between 0 °C and 22 °C, according to the rules in ISSO 74:2024. The following definitions apply to the different zones, depending on the use:
- Office function: A zone is an enclosed office space with a maximum of four workstations. In open-plan office spaces, the maximum zone is 40 m², and the climate system must be able to adjust the temperature in that zone (see CN5).
 - Educational function: A zone is any classroom where lessons are given.
 - Accommodation function: A zone is each individual guest room/room.
 - Meeting rooms: A zone is a separate meeting room, as long as it is not divisible.
 - Group rooms in childcare: A zone is any group room.
 - Meeting function – other types (no meeting room or childcare): A zone is any meeting room.
10. The post-control of the temperature must be easy and understandable for a building user to operate, with a temperature change of 2 °C every two hours after adjustment.

OR

11. Criteria 1 to 3 have been achieved on the basis of the minimum standard class A in accordance with ISSO 74:2024. Includes post-regulation of the temperature. It must be simple and understandable for a building user to operate and with a temperature change effect of 2 °C every two hours after adjustment.

Thermal comfort

Tables

Table HEA 05.1 Minimum standards for thermal comfort

BUILDING TYPE	MINIMUM STANDARDS
Office and meeting	Meets one of the following standards: a. ISSO 74:2024 Class B. b. ISO 7730:2005 Table A.1 – Operative temperature – category B temperature requirement: $-0.5 < PMV < +0.5$.
Education	Complies with the standard: a. Program of Requirements Fresh Schools 2021 class B or A.
Industry (conditioned at a temperature from 16 °C or higher)	Meets one of the following standards: a. ISSO 74:2024 Class C. b. ISO 7730:2005 Table A.1 – Operative temperature – category B temperature requirement: $-0.5 < PMV < +0.5$. * For industrial functions, the summer period (June-September) and winter period (November-February) may be calculated separately. This makes it possible to set a separate setpoint for both periods. In 95% of the operating time, the limit values from this table must be met for all occupied spaces.
Other building types and functions	Meets one of the following standards: a. ISSO 74:2024 Class B. b. ISO 7730:2005 Table A.1 – Operative temperature – category B temperature requirement: $-0.5 < PMV < +0.5$.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Project type shell and cores	Criteria 1 to 7 apply to the relevant project types and uses. Where assumptions are to be made for thermal modelling, they should be acceptable and representative of the usage patterns and loads typical of the building.
CN1.2	Industrial uncooled rooms.	Rooms that only maintain a minimum temperature below 16 °C due to processes, activities or the type of products and do not actively cool to maintain a maximum room temperature can achieve a maximum of one credit for the issue HEA 05 – Thermal comfort, provided that criterion 4 is met. If criterion 4 is not met, no measures have been taken to ensure the thermal comfort of the users of that space.
CN1.3	Education (post) temperature control	Criteria 8 to 11 of this issue are intended for staff ministry only, not for apprentices. In addition to active post-control, the temperature can also be influenced in summer by manually adjustable external sun shading and windows that can be opened.
CN1.4	Sports criteria 1 to 6	The guarantee of thermal comfort in swimming pools is done in accordance with the design guidelines in VDI 2089, Sheet 1,

Thermal comfort

REFERENCE	SUBJECT	DEFINITION
		2010. For swimming pools, static calculations are sufficient. Criteria 1 to 6 do not apply to saunas or wellness areas.
CN1.5	Sports criteria 8 to 11	Criteria 8 to 11 do not apply to swimming pools. For fitness and wellness areas, adjustability must be realized per living room. This means that the service must be carried out by staff and that rooms that can be divided must be individually controllable.
CN1.6	Laboratory criteria 1 to 11	Rooms in which thermal comfort for persons is subordinate to process conditions and the temperature sensitivity is ≤ 1.5 K in relation to the normative value can be excluded from assessment. For other laboratory areas, where thermal comfort is not subordinate to process conditions, the same requirements apply as for office spaces.
<i>General</i>		
CN2	Typical occupancy and usage patterns	The standard occupancy of the building is determined on the basis of a realistic assumption by the design team and tested by the Assessor. The data from the assessment of the maximum permitted occupancy rate with regard to fire safety and evacuation can be used as a starting point for the maximum occupancy.
CN3	Clothing Isolation (clo), Activity Level and Metabolism (MET) Parameters	The limit values in ISSO 74 are based on an activity level of up to 1.4 MET and a clothing protocol with an insulation value between 0.5 and 1.0 clo. If there are deviations in metabolism or clothing insulation, the limit values should be adjusted accordingly, as described in ISSO 74. In situations with a strict clothing protocol, the beta upper limits must be applied. In calculations according to NEN-ISO 7730, the following parameters must be stated: assumptions about clothing insulation for both winter and summer, activity level and metabolism (MET value).
CN4	Analytical measurement and evaluation of thermal comfort (criterion 3)	The design certificate requires a report and analysis of the temperature exceedance calculations, as described in Table HEA 05.1. For the completion certificate, the 'analytical measurement and evaluation' includes the verification of thermal comfort by means of practical measurements. ISSO 74:2024, section 4.3, explains how this practical measurement should be carried out and how the results should be presented. This procedure must be followed. A practical measurement for verifying thermal comfort requires certain preconditions, as described in ISSO 74:2024 – 4.3. Important preconditions include: <ul style="list-style-type: none"> a. The measurements must take place for at least three consecutive weeks; b. The measurements must take place in representative weather; c. The measured temperature must remain within the required temperature limits 95% of the time. If there is no suitable period during the certification for a meaningful practical measurement, this must be substantiated by the organization that performs the measurements. In

Thermal comfort

REFERENCE	SUBJECT	DEFINITION
		addition, an engagement letter must be provided to the Assessor, showing that the practical measurement will still be carried out.
CN5	Analysis, measurement and evaluation of thermal comfort (criterion 4)	<p>For the design certificate, an analysis was carried out that considers passive design techniques in order to be able to apply them in the building.</p> <p>For the completion certificate, a practical measurement must be carried out to verify the thermal comfort. Conditions that this measurement must meet.</p> <ol style="list-style-type: none"> The measurements must take place for at least three consecutive weeks. The measurements must take place between June and August in representative weather; The measured temperature must not exceed the temperature of the analysis by more than 2 °C during the measurement period. <p>If there is no suitable period during the certification for a meaningful practical measurement, this must be substantiated by the organization that performs the measurements. In addition, an engagement letter must be provided to the Assessor, showing that the practical measurement will still be carried out.</p>
CN6	Open-plan offices or spaces larger than 40 m ²	<p>For open-plan offices or spaces larger than 40 m², it must be demonstrated that the installation facilities are present at room level. This is important in case the open space is divided into smaller units in the future. It should be possible to regulate the temperature per 40 m² within a range of -2 °C to +2 °C with an adjustment speed of 2 °C every two hours after adjustment. The necessary technical installations must already be physically present, but the controller does not need to be installed if the space has not yet been divided. It must be possible to install a regulator.</p> <p>This requirement does not apply to rooms that are several storeys high and cannot be divided into smaller rooms without large-scale renovation. However, it must be demonstrated that division is only possible by means of a large-scale renovation.</p>
CN7	Parameters	For the simulation, the chosen parameters must correspond to the design and starting points used for other issues. The parameters should not only be adjusted for a better outcome on paper. This should be evident in the design of the building and the installations, as recorded in the evidence of issue ENE 01, among others.
CN8	95% user time	According to Dutch best practices, the minimum standard for thermal comfort must be met for 95% of the operating time. Please note that the time of use may vary by building type and function. The relevant time of use for the building must be determined in the starting points of the calculation.
CN9	Software to simulate dynamically	The software must meet the requirements of simulation calculations in accordance with NEN-EN-ISO 52017-1:2017 and NEN-EN-ISO 52016-1:2017.

Thermal comfort

REFERENCE	SUBJECT	DEFINITION
		<p>Examples of dynamic simulation calculation models are:</p> <ol style="list-style-type: none"> VABI-VA114, TRNSYS. IDA-ICE (Indoor Climate and Energy). TASE, Energy+ WEI model (ECN). DGMR Building Performance Simulation. <p>Note: Certified NL-EPBD software for determining the energy certificate or drawing up a tailor-made advice does not meet the requirements of a dynamic thermal simulation.</p>
CN10	Temperature control	<p>With regard to criteria 8 to 11, the following systems are meant:</p> <ul style="list-style-type: none"> • Wall thermostats; • Thermostatic valves on radiators and convectors; • Control knobs on electric heaters and heaters; • Control knobs of air conditioners and other refrigeration appliances; • Sliders or adjustable air breakers on heating or cooling appliances or ventilation systems; • Temperature control with windows that can be opened; • Control application on a phone or tablet.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Saloons

A space intended for the stay of people for at least a continuous period of 30 minutes per day.

Passive design

Passive design techniques use a building's shape, orientation, and choice of materials to reduce or eliminate the need for mechanical cooling, heating, ventilation, and lighting. Examples of passive design are:

- Optimising spatial planning, orientation and solar gain to control the heat load caused by solar radiation and to maximise the entry of daylight.
- Adapting the building shape and use of materials to improve natural ventilation strategies.
- Effectively utilising the heat storage capacity (thermal mass) of building materials to reduce high indoor temperatures and make the most of night-time ventilation and cooling.

Thermal comfort

Thermal comfort

In NEN-EN-ISO 7730:2005, Ergonomics of the thermal environment, the analytical determination and interpretation of thermal comfort is included. This is defined by calculations of the PMV and PPD values, as well as local thermal comfort criteria, and indicates the state of mind of being "satisfied with the thermal environment." The term "thermal comfort" describes this state of mind and is usually expressed in terms of "feeling too hot" or "feeling too cold." The parameters for measuring thermal comfort are laid down in NEN-EN-ISO 7726:2001.

Suggested Mean Thermal Sensation (PMV)

The PMV predicts the average perception of the indoor environment by a large group of people on the basis of a seven-point scale based on the heat balance of the human body. A thermal balance occurs when the heat production in the body is equal to the heat output to the environment. The thermal feeling scale runs from 1 (way too cold) to 7 (way too hot), with 4 being the neutral point: comfortable and not too cold or too hot.

Predicted number of dissatisfied people (PPD)

The PPD predicts the percentage of people who are too cold or too hot in a room. According to ISO 7730, (thermally) dissatisfied persons are defined as those who are hot, warm, cool or cold.

Dynamic thermal simulation

A dynamic thermal simulation is a calculation model that simulates the heat management and cooling of a building in relation to the future heating and cooling needs, given the entered parameters such as heat generation, building envelope, climate installations applied and other relevant inputs.

NEN 5060:2018 Design year ref T5 and ref T1

The NEN 5060:2018 provides a reference year for energy calculations and two design years: ref T5 (5%) and ref T1 (1%) for TO calculations. For the VABI software, these correspond to the file RA2018T5 for criteria 1 to 3 of this issue and RA2018T1 for criteria 4 to 6 of this issue.

Separate user control

Heating or cooling control elements for a specific area of the building that are accessible and can be operated by persons in that area. Such control elements are located in or near the area being controlled, are clearly visible and easy to operate by the user.

Additional information

None.

References

None.

Acoustic performance

Ensuring that the acoustic performance of the building and sound insulation are of good quality at different noise levels.

Credits available	: 4
Pre requisite	: ✗
Minimum standard	: ✗
Project	: Partly
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of five parts:

- Indoor ambient noise (one credit);
- Reverberation times (one credit);
- Façade sound insulation (one credit);
- Sound insulation building services (one credit);
- Reducing speech intelligibility in offices (EP credit).

Demonstrate that the following criteria are met:

One credit – Indoor ambient noise

1. All occupied spaces comply with the limit values for internal sound insulation, in accordance with Table HEA 06.1. Insulation requirements are set for both the transmission of 'airborne noise' and structure-borne noise. Both must be met.
2. A qualified acoustic consultant will carry out sound insulation measurements with calibrated equipment to check that the relevant rooms comply with the limit values. In rooms where the limit value is exceeded, additional measures are required to meet the criteria before measurements are taken again for final and commissioning. When determining the airborne sound insulation (DnT, A – utility) and the impact sound level (LnT; A), the NEN 5077:2019 standard is used.

One credit – Reverberation times

3. The mean reverberation time (T30), measured with a medium frequency of 125 to 2,000 Hz (across the octave bands), must comply with the limit values in Table HEA 06.2 for the various occupied spaces, with the exception of:
 - a. The reverberation time in the 125 Hz octave band may deviate from the average by a maximum of 30%. Table HEA06.2 includes reverberation time requirements for an empty (unfurnished) room. This ensures that the room has a certain basic room acoustic quality, even without furnishings.
 - b. For sports facilities, the NOCNSF code standard ISA-US-BF1 (May 2005) and the NOCNSF test standard ISA-N/A1.1 (June 2005) apply, or the KVLO standards for gymnastics halls, in which the average reverberation time (T20) over the octave bands from 125 Hz to 4,000 Hz must be adhered to. See Table HEA 06.3.
4. A qualified acoustic consultant will carry out reverberation time measurements with calibrated equipment to check that the relevant rooms comply with the limit values. In rooms where the limit value is exceeded, additional measures are required to meet the criteria before measurements are taken again for final and commissioning. The NEN 5077:2019 standard is used to determine the reverberation time achieved. ISO 3382-3 is used for measurements of the distance attenuation of noise, in addition to NEN 5077:2019.

Acoustic performance

One credit – Façade sound insulation

5. Acoustic calculations were carried out for the façade of the building in accordance with NEN-EN-ISO 12354-3:2017 and NPR 5272:2003 + C1:2005. This must demonstrate that the characteristic sound insulation of the façade ($G_{A,k}$) against external noise exposure in all residential areas of the building meets the requirements in Table HEA 06.4.
 - a. These requirements apply to both road traffic noise and rail noise. For industrial noise, 2 dB less stringent requirements may be applied. The starting point is a noise exposure in the form of L_{den} in dB for road traffic noise and railway noise. For industrial noise, the daily value L_{etmaal} in dB(A) should be taken as the starting point.
 - b. The noise exposure per type of noise source (road traffic and rail traffic) must be based on the cumulative L_{den} values of all surrounding (rail) roads, including roads with a speed of 30 km/h and trams.
 - c. For aviation noise, the requirements of the BBL 2012 minus 3 dB are adhered to.
6. A qualified acoustic consultant will carry out noise measurements inside and outside the building with calibrated equipment to check that the relevant rooms comply with the limit values. In rooms where the limit value is exceeded, additional measures are required to meet the criteria before measurements are taken again for final and commissioning. The NEN 5077:2019 standard is used to determine the realized noise level of the façade.

One credit – Sound insulation building services

7. Acoustic calculations were carried out for the building in accordance with NEN-EN-ISO 12354-3:2017 and NEN 5077:2019. This shows that the installation noise level ($L_{I,A}$ – utility), based on all building-related installations (indoor and outdoor), meets the requirements in Table HEA 06.5.
 - a. The limit values of $L_{I,A}$ apply to all continuously operating installations, such as mechanical ventilation, heat generation and heat recovery. This is an equivalent background noise level, assuming that recurring peak sounds are no more than 10 dB louder. For non-continuous installation noises, such as elevator noises or sanitary noises, the requirement for the maximum noise level ($L_{I,A,max}$) applies in Table HEA 06.5. The requirements for $L_{I,A}$ and $L_{I,A,max}$ are based on the octave bands with mid-range frequencies from 63 Hz to 8,000 Hz.
8. A qualified acoustic consultant will carry out installation noise measurements in the building with calibrated equipment to check that the relevant rooms comply with the limit values. In rooms where the limit value is exceeded, additional measures are required to meet the criteria before measurements are taken again for final and commissioning. The standard and guideline NEN 5077:2019 are used to determine the realized noise level of installations.

EP Credit – Reducing speech intelligibility in offices

9. All criteria have been met.
10. Additional provisions have been made to reduce speech intelligibility in office landscapes, in the form of:
 - a. Structural solution: Open office floors are designed and finished in such a way that the sound attenuation in the room in the event of distance doubling (DL_2 , S-value) must be determined according to the provisions of ISO 3382-3. The starting point is an $L_p, A, S, 4$ m value of a maximum of 48 dB. See also CN7.
 - b. Organizational solution: Sufficient enclosed workplaces and call stations are created, so that nuisance activities (such as consultations and telephone calls) take place as little as possible in the open office landscape.

Acoustic performance

Tables

Table HEA 06.1 Limit values for internal airborne sound insulation and structure-borne sound level

Building type	Space type	MINIMAL AIRBORNE SOUND INSULATION		MAXIMUM STRUCTURE-BORNE SOUND LEVEL
		To living space [$D_{nT,A}$ in dB]	From circulation space (with door) [$D_{nT,A}$ in dB]	To living space [$D_{nT,A}$ in dB]
Office	Working area normal	<ul style="list-style-type: none"> • 42 without door • 37 with door 	33	57 (If there are several organisations per floor, then 48)
	Work area increased privacy	<ul style="list-style-type: none"> • 45 without door • 39 with door 		
	Consultation room normal	<ul style="list-style-type: none"> • 42 without door • 37 with door 		
	Doctor's office increased privacy	45		
	Sanitary facilities or other noise-producing areas (including anteroom)	48		
	Adjacent office landscape wall with door	33		
	Adjacent office landscape with a closed wall	42		
	Adjacent office landscape to living space with raised privacy wall with door	39		
	Adjacent office landscape to living space with increased privacy with closed wall	45		
Meeting	Meeting room normal	42	33	57
	Meeting room increased privacy	45		
	Nursery sleeping area	33		
Education	Group room and classroom	<ul style="list-style-type: none"> • 43 without door • 38 with door 	31	59
	Workstations in the hallway to the adjacent group room or room with door	38	N/a.	
	Workstations in the hallway to the adjacent group room or room with a closed wall	43	N/a.	

Acoustic performance

		MINIMAL AIRBORNE SOUND INSULATION		MAXIMUM STRUCTURE-BORNE SOUND LEVEL
	Lecture hall	53	33	
	Music/games room	60		
	Workshop	53		
	Practical room	43		
	Aula (as a multifunctional room)	43		
Sport	Sports hall/gymnasium (*depending on noise sensitivity adjacent living room). See CN1.3 for standard	53	33 (When it is a path to education)	25*
	Swimming pool	38	33	59
	Wellness	42	33	57
Hotels	Sitting/sleeping area	48	33	52
Healthcare	Sitting/sleeping area	48	33	52
Laboratory	Open workspace	42	33	57

Extra note: in the case of fully glazed partition constructions (which are visually transparent), partition constructions without a door may be reduced by 2 dB due to the visual interaction between the adjacent living space.

Table HEA 06.2 Limit values reverberation time

BUILDING TYPE	SPACE TYPE	MAXIMUM AVERAGE REVERBERATION TIME (NOT EQUIPPED)***
Office	Private workplace	≤ 0.8 s
	Concentration workplace/call location (enclosed space)	≤ 0.6 s
	Open workspace (10 or more workspaces) (office landscape/call center)*	≤ 0.6 s
	Circulation areas	≤ 1.0 s
	Large circulation area (atriums/courtyards)	≤ LOG (V/20), up to 2.5 sec
Meeting	Meeting room	≤ 0.8 s
	Nursery sleeping area	≤ 0.8 s
	Restaurant < 49 m ²	≤ 0.8 s
	Restaurant ≥ 50 m ²	≤ 1.0 s
	Circulation areas (up to 20 m ²)	≤ 1.0 s
	Large circulation area (atriums/courtyards)	≤ LOG (V/20), up to 2.5 sec
Education	Group room and classroom	≤ 0.8 s
	Circulation areas	≤ 1.0 s
	Large circulation area (atriums/courtyards)	≤ 0.8* LOG (/20), up to 2.0 sec
	Open learning environment**	≤ 0.6 s
	Lecture hall	≤ 1.0 s
	Music/games room	≤ 1.0 s
	Practical room	≤ 0.6 s

Acoustic performance

BUILDING TYPE	SPACE TYPE	MAXIMUM AVERAGE REVERBERATION TIME (NOT EQUIPPED)***
	Aula (as a multifunctional room)	≤ 0.8 – 1.0 s
Sport	Gym/gym (depending on volume)	See Table HEA06.3
Hotels	Sitting/sleeping area	≤ 0.8 s
	Circulation areas	≤ 1.0 s
Healthcare	Sitting/sleeping area	≤ 0.8 s
Laboratory	Open space/closed workplace	≤ 0.6 s

* Decrease in requirement: 6 dB per distance doubling in accordance with ISO 3382-3 (in accordance with class B from Healthy Offices in Housing).

** The layout and design, together with the absorption and diffusion of sound by materials, is essential to obtain the right acoustics in open learning and working environments, among others. Since the heights of the screens are often max. 1.5m in the Netherlands, will have to be worked with zoning.

If the occupied spaces have already been set up during the measurements, the requirements in Table HEA05.2 will be 0.2 s stricter and 0.15 s stricter specifically for education.

Table HEA 06.3 Maximum permissible average reverberation time (T20) average for sports halls and gymnasiums in accordance with KVLO and NOC*NSF

CATEGORY	VOLUME (MIN) M ³	VOLUME (MAX) M ³	T20(S)
A1	-	1700	≤ 1.0
A2	1701	2100	≤ 1.1
A3	2101	2400	≤ 1.2
B1	2401	3200	≤ 1.3
B2	3201	4350	≤ 1.4
B3	4351	6300	≤ 1.5
C1	6301	7400	≤ 1.6/1.7*
C2	7401	9500	≤ 1.7/1.8*
C3	9501	12400	≤ 1.9
D1	12401	17250	≤ 2.0
D2	17251	29000	≤ 2.3
E	29001	-	≤ 2V/3S**

* Highest values in accordance with NOC*NSF guideline.

** Sum of all compartments (wall/floor/ceiling).

Acoustic performance

Table HEA 06.4 Characteristic sound insulation of the façade by function

FUNCTION	REQUIREMENT
Office	$G_{A,k} \geq$ noise exposure – 35 dB with a minimum of 23 dB
Education	$G_{A,k} \geq$ noise exposure – 30 dB with a minimum of 23 dB
Hotels	$G_{A,k} \geq$ noise exposure – 30 dB with a minimum of 23 dB
Childcare meeting*	$G_{A,k} \geq$ noise exposure – 30 dB with a minimum of 23 dB
Meeting rooms	$G_{A,k} \geq$ noise exposure – 35 dB with a minimum of 23 dB
Sport	$G_{A,k} \geq$ noise exposure – 40 dB with a minimum of 23 dB
Laboratory	$G_{A,k} \geq$ noise exposure – 35 dB with a minimum of 23 dB
Extra: Healthcare (care homes)	$G_{A,k} \geq$ noise exposure – 30 dB with a minimum of 23 dB
Extra: Health care bed area (care homes)*	$G_{A,k} \geq$ noise exposure – 30 dB with a minimum of 23 dB

* The pursuit of these values is only useful if the other acoustic performance requirements from the various components of this credit are also achieved.

Table HEA 06.5 Maximum permissible installation noise level limit values

FUNCTION	SPACE TYPE	INSTALLATION NOISE LEVEL ($LI,A/$ LI,A,MAX ,)
Office	Private workplace	≤ 35 dB
	Open workspace (office landscape/call centre)	≤ 40 dB
Meeting	Meeting room	≤ 35 dB
	Nursery sleeping area	≤ 32 dB
Education	Group room and classroom	≤ 35 dB
	Lecture hall	≤ 30 dB
	Music room	≤ 30 dB
	Practical room	≤ 35 dB
	Workshop	≤ 40 dB
	Aula (as a multifunctional room)	≤ 35 dB or ≤ 30 dB if also used as a theatre/theatre hall
	Quiet places	≤ 30 dB
Hotels	Sitting/Bedroom	≤ 28 dB
Sport	Sports hall/gym	≤ 40 dB
	Swimming pool, water installations (measuring conditions: stagnant water without people or playground equipment)	≤ 50 dB
Laboratory	Open workspace	≤ 40 dB
Healthcare	Sitting/sleeping area	≤ 28 dB

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Office	The starting point of the acoustic criteria is to meet at least class B according to the Program of Requirements (PoR) Healthy Offices 2021.
CN1.2	Education	The starting point of the acoustic criteria is to meet at least class B according to the Program of Requirements (PoR) Fresh Schools 2021.
CN1.3	Sports	The starting point of the acoustic criteria is to at least comply with the NOC*NSF Handbook of Sports Accommodations (2005) or the KVLO Standards for gymnastics halls and sports halls/parts of sports halls with school use (2005).
<i>General</i>		
CN2	Qualified acoustic consultant	A person who meets all of the following requirements can be considered a Suitably Qualified Acoustician (SQA): <ul style="list-style-type: none"> a. Has completed a college or university education, or an equivalent education in acoustics or sound testing with a diploma; b. Has at least three years of relevant work experience in the last five years. This experience should show a practical understanding of the factors that influence acoustics in relation to construction and environment. This includes an advisory role for recommendations on appropriate acoustic performance levels and mitigation measures; c. If a qualified acoustic consultant verifies the acoustic measures or calculations of another consultant who does not meet the SQA requirements, this consultant must have read and checked the report and confirm in writing that it: <ul style="list-style-type: none"> I. Complies with the practice of the sound industry; II. Is adequate for the assessed building and the proposed work; III. Doesn't contain incorrect, biased, or exaggerated recommendations.
CN3	Number of building users unknown	If the number of building users is unknown, a realistic estimate is made of the expected number of users, appropriate to the function of the building. This number corresponds to the number of building users held in the other issues.
<i>Internal sound insulation</i>		
CN4	Elaboration of principles Design stage	The requirements arising from criterion 1 must be translated into floor plans and sections, so that a visual overview is created of the sound insulation requirements between the different rooms. For residential functions and functions with a high impact on structure-borne sound, such as sports halls, the required impact sound insulation must also be indicated in the cross-section.

Acoustic performance

REFERENCE	SUBJECT	DEFINITION
CN5	Elaboration of requirements for the construction of partition constructions	The contractor is responsible for the correct execution of the sound and impact sound insulation, and must work out the construction of the various partition constructions at specification level and demonstrate that the various structures meet the set sound insulation requirements. This can be done in the form of (detailed) calculations for the defined representative partition constructions.
CN6	Representative partition constructions for noise measurement	In preparation for the final, the design stage indicates which sound insulation measurements must be carried out in the post-construction stage so that a good representative sample is carried out. It should be taken into account that different room partitions between rooms with different sound insulation requirements and/or different structures are selected. As a guideline for determining representative spaces, at least three types of partition constructions are assumed to be measured upon completion.
<i>EP credit</i>		
CN7	Structural Solutions – DL2,S	The DL2, S-value requirement mentioned in the criteria (equal to the Healthy Offices 2021 – class B) is usually only achievable if 100% of the ceiling is sound-absorbing. In addition, sound-absorbing screens between workstations and/or workgroups are often required.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Spaces with a possible increased desire for privacy

This means a space that, according to the design team or the client, is noise-sensitive with regard to privacy. This can concern, for example, the following types of rooms:

- Single offices;
- Meeting, interrogation, speaking and treatment rooms;
- Educational buildings or spaces, such as classrooms and lecture halls;
- Rooms for speeches or conferences;
- Any other space that the design team or client believes is noise-sensitive for privacy.

Weighted structure-borne sound level (LnT,A)

Quantity that represents the sound level, standardized for the reference reverberation time and the corresponding spectrum, in a single number.

Acoustic performance

Characteristic installation noise level (LI,A,k)

Quantity that represents the noise level in the reception area, caused by an installation in operation, and reduced to standardized dimensions of the reception area, in a single number.

Characteristic airborne noise level difference (DnT,A,k)

Quantity that represents the difference between two sound levels, standardized for the reference reverberation time, the relevant spectrum and reduced to standardized dimensions of the reception space, in a single number.

Characteristic sound insulation of an external partition construction (GA,k)

Quantity that represents the difference between the sound level of the incident noise on the outside of an external partition construction and the noise level in a room behind this partition construction, reduced to standardized dimensions of the reception area.

Residential area

The part of a use that contains at least one living space. This consists of one or more adjacent rooms on the same floor, with the exception of toilet rooms, bathroom rooms, technical rooms, storage rooms and traffic areas.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Safe and accessible design

Encouraging measures for safe access to the building and an accessible use of the building.

Credits available	: 2
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of two parts:

- Secure access (one credit);
- Inclusive and accessible design (one credit).

Demonstrate that the following criteria are met:

One credit – Secure access

1. If a building does not have its own grounds, bicycle shed or parking facilities and the main entrance opens directly onto the public road, one does not have to meet the criteria for safe access (2 to 13).

OR

If the main entrance to the building does not open directly onto the public road, the following criteria must be met:

One credit – Secure access

2. A cycle path has been built on the site and meets at least the following dimensions:
 - a. If bicycle and pedestrian paths are shared, the path must be at least three meters wide in total.
 - b. If bicycle and pedestrian paths are separated, the bicycle path must be at least two meters wide and the footpath at least one and a half meters wide.
 - c. If cycle paths are part of the roadway, they must be at least one and a half metres wide in each direction of travel, in addition to the minimum width of the road.
3. A cycle path runs directly from the entrance of the site on the public road to the bicycle shed and is connected to a public cycle path, where this is present at the location.
4. A footpath runs directly from the entrance of the site on the public road to the main entrance of the building and provides a good connection to public transport points and other facilities in the vicinity of the location.
5. If there is a bicycle parking facility, a footpath must also be constructed from the entrance of the bicycle parking facility to the main entrance of the building. This also applies to a bicycle shed in a parking garage.
6. If there are person drop-off points on the property, they must be adjacent to or close to the access road and must have a footpath so that pedestrians can safely walk to the main entrance of the building without crossing the road.
7. A footpath preferably does not cross a road or cycle path. If a footpath on the site does cross a road, the pedestrian crossing must be safe. In addition, measures must be taken to slow down traffic, both motorised and bicycle traffic (see CN6).

Secure access and accessibility

8. For projects where the building is publicly accessible and/or where many visitors are expected, the footpaths on the site must be signposted to public transport points and other facilities near the location.
9. The access roads, cycle paths and footpaths on the site must be equipped with outdoor lighting that meets the requirements for outdoor lighting in accordance with NEN-EN 12464-2:2024 and the requirements for road lighting in accordance with NPR 13201 + A1:2018.

Supplying (freight) traffic

If a project has facilities for supplying truck traffic, such as a loading and unloading area, the following criteria additionally apply:

10. Final areas are not accessible via parking spaces and do not cross or overlap with pedestrian and bicycle routes and other public access zones for building users and visitors.
11. There is a separate parking area for loading and unloading, separate from the manoeuvring area and the parking spaces for employees and visitors.
12. Parking and turning areas are designed for easy manoeuvring of different types of final vehicles, so that the site can be easily entered and exited without repeated insertion.
13. There is a separate area for storage, containers, waste and pallets, separate from the manoeuvring area and the parking spaces for employees and visitors (depending on building type and function).

One credit – Inclusive and accessible design

14. The building is designed to be adequate, appropriate and accessible to all possible users.
15. An access strategy has been developed that complies with checklist A3. This strategy describes at least equal and independently usable access to and within the entire building for all users, with an emphasis on:
 - a. People with disabilities: recognising and prescribing design solutions to avoid obstacles that occur with different disabilities.
 - b. People of different age groups, gender, ethnic and cultural backgrounds, and physical conditions.
 - c. Parents with children (depending on building type and function).
16. Facilities for future building users are included in the design and can, where relevant, be shared and publicly accessible, without uncontrolled access to other parts of the building, unless this is prevented by safety reasons.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Car park	If cycle paths and/or footpaths run through or to a car park, they must also meet the criteria.
CN1.2	Teaching function	For schools, the connection of bicycle and pedestrian paths to the public road must be safe. This is achieved by implementing traffic slowing measures (CN6).
CN1.3	Final via the parking lot by small vehicles	For smaller sites and building types where deliveries are made only with small vehicles instead of trucks, criterion 9 does not apply. The other criteria will continue to apply.
CN1.4	No final and manoeuvring area	If the final and manoeuvring part is not part of the project plot, but there is a place for dropping off building users, then the criteria for <i>supplying (freight) traffic</i> do not apply to this area.
<i>General</i>		
CN2	Shared facilities	<p>Facilities that can be shared are, for example:</p> <ul style="list-style-type: none"> • Sports facilities; • Meeting and conference rooms; • Leisure areas for staff or visitors (internal or external). <p>In the case of shared facilities, it is important that the accessible facilities, such as lifts and MIVA toilets, remain available in any time and space format.</p>
CN3	Existing facilities	If existing facilities on the site meet the criteria for shared facilities, including the involvement of users during the consultation stage, the credit may be awarded. These facilities may be located in an existing building that is not part of the project, but is easily accessible to all potential users.
CN4	Potential users of shared facilities	<p>Potential users of shared facilities have been identified, where possible, and may fall into one or more of the following categories, depending on the type and function of the building:</p> <ul style="list-style-type: none"> • Local municipality or community service providers; • Locals; • Adult education; • Voluntary work; • Local businesses; • Neighborhood organizations or members.
<i>Secure access</i>		
CN5	No cycle path(s) on the site	If the bicycle parking facilities are closed directly on the public road (without a bicycle path on the site), no bicycle paths need to be built. The locations of the bicycle sheds and the public road must be indicated.
CN6	Traffic slowing measures	<p>Draft measures that comply with this include:</p> <p>a. Crossings with a speed bump (elevation over the entire length) and the marking 'zebra crossing'.</p> <p>OR</p>

Secure access and accessibility

REFERENCE	SUBJECT	DEFINITION
		<p>b. Shark teeth in combination with warning signs 'crossing'.</p> <p>In addition, the crossing must be well lit in accordance with the applicable standards NEN-EN 12464-2:2024 and NPR 13201 + A1:2018.</p>
<i>Inclusive and accessible design</i>		
CN7	Non-residential buildings – Integral Accessibility Standard (ITS)	If the project has received a (provisional) ITS label, the credit can be awarded for criteria 14 to 16 without it being demonstrated that the individual criteria have been met.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Inclusive and accessible design

Accessibility of the built environment (outdoor spaces, products, buildings) means that everyone – regardless of age, background or disability – must have access to it and, according to the purpose or function of the space, must be able to use it.

Accessibility

Accessibility of the built environment (outdoor spaces, products, buildings) means that everyone – regardless of age, background or disability – must have access to it and, according to the purpose or function of the space, must be able to use it in an independent and responsible manner. This means that people are not at risk, remain healthy and can continue to use the built environment even under changing circumstances (see also: Accessibility principle).

External terrain

External terrain refers to all open space that is part of the project, such as access roads and paths for cars, bicycles and pedestrians to the building, parking facilities and loading and unloading areas for goods and people.

Additional information

None.

References

Secure access and accessibility

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Biophilic design

Incorporating natural elements into the building and its immediate surroundings to accentuate the connection of humans with nature and to achieve a positive effect on our well-being.

Credits available	: 2
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of two parts:

- Basic biophilic design (two credits);
- Additional biophilic design (EP credit).

Demonstrate that the following criteria are met:

Two credits – Basic biophilic design

1. In the building, measures have been applied for at least seven of the fourteen components of biophilic design (see CN3 to CN6).
2. At least one component is present from all three categories of biophilic design.
3. The measures apply to the entire building, and in 80% of the occupied spaces, at least two parts of biophilic design can be experienced directly. The other five parts can also be seen on the same floors.
4. The biophilic design measures applied do not have a significant negative impact on the main health aspects (see CN8).
5. The Assessor uses his or her professional judgment to determine that:
 - a. The measures have been applied in line with the purpose of the issue.
 - b. At least three measures are not typical of the building and use function in which they are applied.

EP Credit – Additional biophilic design

6. Criteria 1 to 5 are met.
7. In the building, measures have been applied for at least ten of the fourteen components of biophilic design (see CN3 to CN6).
8. At least two components from all three categories of biophilic design are present.
9. The measures apply to the entire building, and in 80% of the occupied spaces, at least four components of biophilic design can be experienced directly. The other six parts can also be seen on the same floors.
10. The biophilic design measures applied do not have a significant negative impact on the main health aspects (see CN8).
11. The Assessor uses his or her professional judgment to determine that:
 - a. The measures have been applied in line with the purpose of the issue.
 - b. At least five measures are not typical of the building and user function in which they are applied.

Biophilic design

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Applying biophilic design	In the design stage, consideration must be given to how all fourteen components of Biophilic Design can be integrated into the building and its immediate surroundings. To meet the purpose of the issue, it is important to create an integral biophilic design. The use of one or a few components alone does not make it a Biophilic Design. All building users must be able to experience the components used. For each part of Biophilic Design, multiple measures are possible within the same building.
CN3	Biophilic Design: Three categories and fourteen parts	<p>The fourteen components of biophilic design can be divided into three categories:</p> <ol style="list-style-type: none"> Direct contact with nature or natural elements. Indirect contact with nature through representations of nature. Experiencing place and space, with natural spatial conditions. <p>Practical examples per characteristic can be found in the "Help" tab of the online guideline.</p>
CN4	Category A components: Direct contact with nature or natural elements	<ol style="list-style-type: none"> Direct visual connection: View of natural, living ecosystems and natural elements, materials and processes. Non-visual connection to nature: Connection to nature through other senses, such as auditory, tactile, smell or taste stimuli that refer to nature, living ecosystems or natural elements, materials and processes. Non-rhythmic sensory stimuli: Stimuli from nature that can be statistically analyzed, but cannot be predicted precisely. Heat and air variability: Subtle changes in air temperature, relative humidity, and airflow across the skin that mimic natural environments. Presence of water: Seeing, hearing or touching (moving) water. Dynamic and diffuse light: Varying intensity of light and shadow that create and/or mimic natural conditions. Natural systems: Awareness of natural processes and seasonal and temporary changes in an ecosystem.

Biophilic design

REFERENCE	SUBJECT	DEFINITION
CN5	Category B components: Indirect contact with nature, representations of nature	<p>k. Biomorphic shapes and patterns: Symbolic reference to the contours, patterns, textures, or numerical arrangement that occur in nature.</p> <p>l. Materials: Use of natural materials that reflect the local ecology and geology.</p> <p>m. Complexity and order: Sensory information that is comparable to the spatial hierarchy in nature.</p>
CN6	Components of category C: Experiencing place and space, natural spatial conditions	<p>n. Refuge: A place where you can retreat and find protection.</p> <p>o. View: An unobstructed view over a distance, which offers a sense of overview and safety.</p> <p>p. Unfamiliarity: The promise of new discoveries and information, making you want to explore deeper into the environment.</p> <p>q. Risk and danger: An identifiable threat, combined with reliable security.</p>
CN7	Experiencing Parts of Biophilic Design	<p>Experiencing parts of Biophilic Design means that the user can observe the applied measure without having to actively act. For 80% of the occupied spaces, at least two parts (for EP 4) must be directly accessible from anywhere in the living space.</p> <p>It is not necessary for the experienced parts to be the same in every place; They can differ as long as the minimum number is achieved.</p> <p>In some cases, a measure can contribute to the experience of several components, but in that case the measure only counts for one component.</p>

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Biophilia

Biophilia means "love of life or living systems" and refers to man's inherent connection to nature. Biophilic Design recognizes the importance of this connection to nature for human well-being.

Saloons

A space intended for the stay of people for at least a continuous period of 30 minutes per day.

Biophilic design

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Safety

To encourage measures that increase social safety in the vicinity of the project, by providing protection against common crime and vandalism, such as vandalism, occasional burglaries and theft.

Credits available	: 1
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of one part:

- Safety advice (one credit).

Demonstrate that the following criteria are met:

One credit – Safety advice

1. A demonstrably qualified safety advisor has drawn up a safety advice during the design process.
2. The design team consulted with the safety advisor during the design process and the recommendations were incorporated into the design.
3. It has been demonstrated that the building meets the recommendations made:
 - a. An inspection report by the safety advisor confirms that the building meets the recommendations made in the design. OR
 - b. The building has obtained a BREEAM-NL approved security certificate as stated in table HEA11.1.

Tables

Table HEA 11.1 Security Certificates by Building Type

BUILDING TYPE	CERTIFICATION TYPE
Office, industrial, retail, hotels, meeting, healthcare	A BORG certificate has been issued, which shows that safety measures have been taken based on the risk classes of the VRKI 2.0. In addition, a VEB security certificate has been issued, which shows that security measures have also been taken here according to the same risk classes of the VRKI 2.0.
Industrial	A certificate has been issued showing that safety measures have been taken that comply with Level C of the Transported Asset Protection Association (TAPA).
Education	Security measures have been taken that meet the requirements of the 2019 Directive on Burglary Protection for Educational Institutions.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Extension of existing buildings	If the facilities are located in the existing building, these facilities must meet the criteria.
<i>General</i>		
CN2	User unknown	If the end user is not yet known, the safety measures apply at least the VRKI 2.0 risk class 2, with advice for future situations.
CN3	Deviating from the recommendations	If the project team takes measures other than those recommended by the safety advisor, the project team must substantiate these measures. The safety advisor must agree to the measures taken, which must guarantee at least the same level of safety.
CN4	Qualified Safety Advisor	The security advisor is independent and does not work for the company involved in the provision of security measures. He or she has at least one of the following ratings: <ol style="list-style-type: none"> Diploma in Crime Prevention Through Environmental Design (CPTED). Post-graduate diploma in Security Management from the DHM Security Institute (formerly of The Hague University of Applied Sciences). Diploma CPO (Certified Protection Officer). Diploma Security Installation Technician (TBV).
CN5	Risks	The safety advice concerns the immediately noticeable risks, which must be listed in the advice. These are risks of common crime, such as burglary, theft and vandalism. The measures described in the advice should initially focus on these risks.
CN6	Report of the safety advisor	In his or her report, the consultant indicates how the assessment of the measures implemented was carried out. The conclusion must be well-founded and verifiable, for example by means of a check of product certificates, functional tests, test reports and final reports.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

BREEAM-NL approved security certificate

A BREEAM-NL approved scheme for building security. Trustmark managers who believe that their trustmark should also be included on the list can contact DGBC. They must demonstrate that the security of certified buildings complies with best practices.

VRKI

The VRKI 2.0 is an instrument for determining the burglary risk of homes and business premises. Based on the burglary risk, it is determined which security measures must be taken. The VRKI 2.0 is used by insurers, security installers and end users (homeowners and entrepreneurs). The VRKI 2.0 is managed by the CCV on behalf of the Dutch Association of Insurers.

SECURITY

BORG is a security certificate for all types of buildings, managed by the Centre for Crime Prevention and Security (CCV). This certificate confirms that the security measures meet the requirements of the BORG standards.

VEB

VEB is a security certificate for all types of buildings, managed by the Association of Recognized Security Companies. This certificate guarantees that the security systems meet certain quality standards.

TAPA

TAPA is a security certificate for buildings in the logistics sector, managed by the Transported Asset Protection Association. It focuses on protecting the transport and storage of goods.

Guideline for burglar resistance in educational institutions

This is a guideline for security in educational buildings, managed by the Centre for Crime Prevention and Security (CCV). It provides recommendations for improving the burglar resistance and overall security of educational institutions.

Additional information

None.

References

None.

Energy



SUMMARY

This category encourages the design and implementation of energy-efficient solutions for buildings, energy systems and equipment that support the sustainable use and management of energy by the occupants. The topics in this section look at measures that improve the energy efficiency of the building, reduce CO2 emissions and ensure efficient management to avoid unnecessary energy use.

CONTEXT

Climate change is one of the biggest challenges facing the world. It is already causing higher temperatures, more risk of flooding and extreme weather. One of the causes is the high amount of carbon dioxide and other greenhouse gases, such as methane, that warm the earth. Emissions of these gases have increased by about 45% since the Industrial Revolution, and almost all of this is due to human activities. The main causes are the burning of fossil fuels, agriculture, deforestation and industrial processes. The construction and real estate sector is responsible for 39% of CO2 emissions related to energy worldwide, most of which comes from energy use during the use of buildings.

The impact of climate change on the population must be recognised. Poor communities are often hit harder by the negative effects of climate change. This leads to poorer health, higher mortality rates and greater damage from extreme weather.

The Paris Agreement shows that the world must work together to combat climate change. It has been agreed to limit global warming to a maximum of 2°C this century, preferably to 1.5°C. In October 2018, the urgency of this situation was emphasized in a report by the IPCC. The report states that it is necessary to limit warming to 1.5°C to avoid serious consequences. To achieve this, CO2 emissions must be reduced by 45% by 2030 compared to 2010, and by 2050 they must be virtually zero. The United Nations has included affordable and clean energy as one of the Sustainable Development Goals, with the aim, among other things, of doubling energy efficiency improvements and increasing the share of renewable energy worldwide by 2030. These goals require rapid and far-reaching change in all energy systems, including in the built environment.

It is important to significantly reduce energy consumption in buildings and, where possible, to generate more renewable energy. Tackling climate change and changing how we produce and use energy can also help to solve problems such as energy poverty. It can also help create a healthier living environment for everyone, especially for less privileged or disadvantaged communities

Value of the issues

ENE 01	Energy efficiency	Fifteen credits and one EP credit
Value:	<ul style="list-style-type: none"> • Elaboration of the energy concept • Energy demand and primary fossil energy use • No primary fossil energy use • Determining and self-generating the user-related energy consumption 	
ENE 02	Energy monitoring	Two credits
Value:	<ul style="list-style-type: none"> • Submetering of end-use energy groups • Sub-metering of (use) spaces 	
ENE 03	Energy-efficient outdoor lighting	One credit
Value:	<ul style="list-style-type: none"> • No outdoor lighting • Energy-efficient outdoor lighting 	
ENE 04	Passive design and environmental impact of energy use	Three credits
Value:	<ul style="list-style-type: none"> • Passive design • Application of free cooling • Environmental impact of energy consumption 	
ENE 05	Energy-efficient cold storage	Two credits
Value:	<ul style="list-style-type: none"> • Energy-efficient cooling equipment • Energy-efficient cold storage and heat recovery 	
ENE 06	Energy-efficient elevators, escalators and moving walks	Three credits
Value:	<ul style="list-style-type: none"> • Energy • Energy efficient characteristics 	
ENE 07	Energy-efficient laboratories	Five credits
Value:	<ul style="list-style-type: none"> • Specification of the design • Energy efficiency measures 	
ENE 08	Energy-efficient equipment	Two credits
Value:	<ul style="list-style-type: none"> • Energy-efficient equipment 	
ENE 10	Matching supply and demand and storage of electricity	Three credits
Value:	<ul style="list-style-type: none"> • Temporary storage of electricity • Matching supply and demand 	

Reduction of energy use and carbon emissions

To encourage buildings to be designed and built with the lowest possible CO₂ emissions as a result of the building-related primary energy use.

Credits available	: 15
Pre requisite	: ✓
Minimum standard	: ✓
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of four parts:

- Elaboration of energy concept (Pre requisite);
- Energy demand and primary fossil energy use (ten credits);
- No primary fossil energy use (five credits);
- Determining and self-generating the user-related energy consumption (EP credit).

Demonstrate that the following criteria are met:

Pre requisite – Elaboration of energy concept

1. A detailed explanation of the building's energy concept must demonstrate that all low-carbon energy technologies have been considered. If these techniques have been applied in the building, it must be clearly indicated where they have been applied in the building.

Ten credits – Energy requirements and primary fossil energy use (Minimum standard starting from Very Good rating)

2. An energy performance calculation for the building has been made in accordance with the current version of NTA 8800 at the time of the planning application. The energy requirement (NZEB 1) of the building has been determined according to NTA 8800 and is at least 10% lower than the reference value based on the usable area, as described in Guidance Note 41 (GN41).
3. On the basis of Table ENE 01.1, credits can be awarded for the improvement of the primary fossil energy use (NZEB 2) compared to the reference value based on the usable area, as described in Guidance Note 41.
4. The calculation was made by an organization that is certified according to BRL9500. The software used must be attested according to BRL9501.
5. In the design stage, the commissioning manager checked whether the starting points of the energy performance calculation meet the schedule of requirements. Upon completion, after the completion of the commissioning work (except for the seasonal adjustment), the commissioning manager checked whether the energy performance calculation is sufficient.

Five credits – No primary fossil energy use

6. Criteria 2 to 5 have been met.
7. On the basis of Table ENE 01.2, credits can be awarded if the primary fossil energy use (BENG 2, determined according to NTA 8800) is lower than the set limit values.

Reduction of energy use and carbon

EP Credit – Determining and self-generating user-related energy consumption

8. Criteria 2 to 5 have been met.
9. The primary fossil energy use (BENG 2) is at least 0 kWh/m²/year.
10. The expected user-related energy consumption has been estimated according to the methodology.
11. Renewable energy techniques are available that, in addition to the primary fossil energy use of 0 kWh/m²/year, generate the user-related energy use itself, so that the theoretical actual energy use is 0 kWh/m²/year.

Tables

ENE 01.1 Reduction of primary fossil energy use (NZEB 2)

NUMBER OF CREDITS	REDUCTION OF BENG 2 (NEW CONSTRUCTION)	REDUCTION OF BENG 2 (RENOVATION)
One credit	10%	8%
Two credits	20%	16%
Three credits	30% (Minimum standard starting from Very Good)	24% (Minimum standard starting from Very Good)
Four credits	40%	32%
Five credits	50%	40%
Six credits	60% (Minimum standard starting from Excellent)	48% (Minimum standard starting from Excellent)
Seven credits	70%	56%
Eight credits	80% (Minimum standard starting from Outstanding)	64% (Minimum standard starting from Outstanding)
Nine credits	90%	72%
Ten credits	100%	80%

ENE 01.2 Primary fossil energy use (BENG 2)

NUMBER OF CREDITS	REDUCTION OF BENG 2 (NEW CONSTRUCTION)	REDUCTION OF BENG 2 (RENOVATION)
One credit	-10 kWh/m ² /yr	88%
Two credits	-20 kWh/m ² /yr	96%
Three credits	-30 kWh/m ² /yr	-5 kWh/m ² /yr
Four credits	-40 kWh/m ² /yr	-10 kWh/m ² /yr
Five credits	-50 kWh/m ² /yr	-15 kWh/m ² /yr

Reduction of energy use and carbon

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Scope	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Application in projects with the project type shell and cores	<p>Criteria 2 to 7 apply. The starting points of the NZEB calculation that were used for the building application must be applied consistently in the assessment. If no building application is required or if certain principles are not known, the following principles apply:</p> <ol style="list-style-type: none"> If the specific lighting power per m² of the interior lighting in the building is known at the time of design and installed upon completion, this lighting power may be used for the project type of shell and central installations. If the lighting power is not known, the installed power from Table 14.2 of ISSO 75.1 for the relevant building use is used for the building part or room(s). If the method of heating or cooling is not known, the BENG calculation should assume that 'air heating/cooling' is used. If it is not known whether suspended ceilings will be installed in the building, it must be entered in the NZEB calculation that they are present. If an end-user is responsible for the realisation of domestic hot water facilities, an 'electric boiler' must be entered in the BENG calculation as a flat-rate heating appliance for domestic hot water.
CN1.2	Extension of existing buildings	When an existing building is extended (and only the extension is assessed under BREEAM-NL) and the extension uses the existing installations, the energy performance calculation must be based on the building envelope of the extension, plus the installations used by the extension. This applies to both the existing general building installations (if applicable) and the new installations.
CN1.3	Large-scale renovation	The same criteria apply to a large-scale renovation. The reduction percentages (see Table ENE 01.1 and ENE 01.2) are different from those in the case of new construction.
CN1.4	Industrial	<p>There is no method yet to determine the NZEB requirements for industrial buildings, because the NTA 8800 does not have an "industry" use function. There are two options for calculating the energy performance of a building with an industrial function:</p> <ol style="list-style-type: none"> Industrial buildings can receive a maximum of 10 out of 15 credits based on an assessment according to the A5 technical checklist. Industrial buildings can receive a maximum of 15 out of 15 credits through an energy performance calculation according to NTA 8800, in which the use function "industrial function" is replaced by the use function "sports function". See the methodology for the calculation method and preconditions.
CN1.5	Cold stores and freezers	For projects with a refrigerator/freezer room larger than 250 m ² , "Technical checklist A9" applies instead of criteria 2 to 7.

Reduction of energy use and carbon

REFERENCE	SUBJECT	DEFINITION
CN1.6	EP credit	The EP credit can only be claimed for projects for which a NZEB calculation is required according to BBL.
<i>General</i>		
CN2	Energy technologies with low CO ₂ emissions	Eligible technologies are defined as described in the "Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009, on the promotion of energy from renewable sources, etc." See the definition of 'energy from renewable sources' in the Directive. All other additional requirements from the EU Directive also apply, supplemented by Directives 2001/77/EC and 2003/30/EC. <ol style="list-style-type: none"> The energy generation must be part of the building. The contribution of the techniques is determined according to the NTA 8800 and, if necessary, BCRG statements are available for the application in question.
CN3	Geometry Ratio (As/Ag)	To determine the geometry ratio (Als/Ag), the Als/Ag of the entire building included in the energy performance calculation must be considered, and not the Als/Ag of the individual functions. The usable area (Ag) must be determined in accordance with paragraph 6.6, and the loss area (Als) in accordance with paragraph 6.7 of the NTA 8800.

Methodology

Substantiate researched techniques with low CO₂ emissions

In order to meet the Pre requisite, it must be demonstrated that low CO₂ emission techniques have been considered. It must be proven that at least the following points have been taken into account:

- The recital examines the feasibility of adopting renewable energy sources, as specified under 'CN 2'. This also includes the possibility of delivering renewable energy to the public grid.
- Within the consideration, an analysis was carried out of the system costs (such as investment costs, maintenance costs and energy costs) and of the energy savings or CO₂ emission reduction during the technical lifespan.
- The return on investment (ROI), payback period or other common business economic measures are calculated, which also includes the possibility of obtaining subsidies.
- The consideration takes into account the environmental and spatial effects in the overall assessment and cost calculation, such as land use, integration into the local zoning plan and noise nuisance.
- It argues why certain renewable energy technologies have been chosen and why other renewable energy generation techniques have not been chosen.

The reference situation for CO₂ emissions of the building can be based on previously performed calculations according to NTA 8800. It is not necessary to prepare a full report or study of the consideration. However, it is important that the consideration process has taken place specifically for this project again. This can be demonstrated with minutes and calculations.

Energy performance calculations for industrial buildings

The NTA 8800 does not offer the possibility to calculate the energy performance of the industrial function of industrial buildings. The energy performance calculation according to NTA 8800 is carried out with a building with a sports function as the reference building. This reference building has characteristics that often correspond to the actual function. This energy performance calculation is called an "alternative NZEB calculation". An alternative

Reduction of energy use and carbon

calculation is always tested by DGBC. An approval of the alternative NZEB calculation must be added to the assessment centre as evidence.

Submission requirements for approval of an alternative NZEB calculation:

The following documents are required for an application for approval of an alternative energy performance calculation for industrial buildings:

- a. Energy performance calculation
- b. Short note with substantiation of the input parameters (insulation, infiltration, energy supply, etc.)
- c. The percentage improvement
- d. Map of the building
- e. Calculation .xml file
- f. If applicable: equivalence statements (if used, these must be added)
- g. If applicable: substantiation of the share of reuse of residual heat (see below)

Hot tap water:

For the industrial function, the energy consumption for domestic hot water for the entire usable area must be included in the design calculation. This applies based on the presence of a conventional standard domestic hot water system (input: gas-fired water heater HRww, CW class 4, pipe lengths > 3 m). This must also be taken into account, even if there is no hot water installation available. The reference building "building with sports function" includes a high demand for hot tap water. When determining the primary fossil energy use, the energy required for this fictitious heat demand for hot tap water may be deducted from the result of the energy performance calculation. The energy consumption of realized systems for hot tap water does not have to be included in the determination.

The alternative NZEB calculation is sent to Helpdesk@dgbc.nl for verification. The project receives approval via the Helpdesk. Any comments will be processed in the e-mail from the Helpdesk to the project and the Assessor.

Reuse of residual heat from cold stores or other industrial processes:

By means of a substantiated and documented calculation over an annual cycle, it must be demonstrated how much residual heat is produced during the year. It must also be demonstrated how much of the residual heat can be effectively used for space heating for the industrial function.

If the use of the industrial function deviates in this way, another reference building can be chosen in consultation with DGBC. Please contact Helpdesk@dgbc.nl for this.

Determining user-related energy consumption

Making a realistic estimate of the user-related energy consumption of a building is complex. There is no software or method that can be used for all different project types or uses. This means that the estimate must be made unique for each project. In order to make a realistic estimate, reference projects must be used that meet the following conditions:

- The use or process in the reference building corresponds to the future use or process of the building to be assessed.
- The surface area of the reference building and the ratio between the various uses may deviate from the building to be assessed by a maximum of 25%.
- The actual energy consumption of the reference buildings was measured for at least two calendar years, whereby a distinction is made between building-related energy use and user-related energy use.

To determine the user-related energy consumption of the building to be assessed, an average of the user-related energy consumption in kWh per m² per year of the reference projects is taken. This value is then increased by

Reduction of energy use and carbon

2%. If this user-related energy consumption is demonstrably compensated with renewable energy at its own location, the EP credit can be awarded.

Example calculation:

Reference building 1: 42 kWh/m²/year

Reference building 2: 35 kWh/m²/year

Reference building 3: 43 kWh/m²/year

Average: $(42 + 35 + 43) / 3 = 40$ kWh/m²/year

Compensation of 2%: $40 * 1.02 = 40.8$ kWh/m²/year

To claim the EP credit and achieve a user-related energy consumption of 0, at least 40.8 kWh/m²/year must be generated with on-site renewable energy.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Energy performance calculation

The energy performance calculation is drawn up in accordance with the NTA 8800 and determines the building-related energy consumption. The results of this calculation are the energy demand (BENG 1) and the primary fossil energy use (BENG 2).

Energy requirement (BENG 1)

The energy demand indicator (EweH+C_{nd}; ventsys=C1) is determined in accordance with NTA 8800. It concerns the annual energy requirement for heating and cooling, expressed with a fixed neutral ventilation system

Primary fossil energy use (NZEB 2)

The primary fossil energy indicator (EwePTot) is determined in accordance with the NTA 8800. This is the sum of the annual primary energy consumption for heating, cooling, hot water preparation, fans, lighting and humidification. Energy generated, for example by solar panels or other renewable energy sources, is deducted from this.

Fully developed energy concept

A fully developed energy concept includes a description of the operation of the climate installations, supplemented with drawings and installation diagrams that provide an overview of the chosen principles and the way in which energy is used in the building.

Additional information

Quality declarations and equivalence declarations

Quality declarations and equivalence declarations issued by the BCRG may be used to determine energy performance. These statements must be valid on the date of issue of the environmental permit.

Reduction of energy use and carbon

Electricity generation outside the premises

Electricity generation outside the own site is permitted, provided that, as described in the NTA 8800, it is connected to the (main) meters of the building.

Improving primary fossil energy use and energy demand (GN41 BREEAM-NL)

The reduction of the energy demand and the primary fossil energy use is determined in relation to the reference value from Table GN41 for the use function in the building. This table shows a reference value for the energy demand and the primary fossil energy use for each use. The reference value for energy demand and primary fossil energy use for a building with multiple uses is determined on the basis of the weighted reference values per usable area, as described in the NTA 8800 and Guidance Note 41 (GN41).

References

- NTA 8800: Calculation method for the energy performance of buildings – Determination method.
- Technical checklist A5: Concerns the energy use of industrial functions and is an appendix to the scheme.
- Technical checklist A9: Concerns cold storage and freezer storage areas and is an appendix to the scheme.
- Guidance Note 41 (BREEAM-NL): Contains the table with reference values for the building-related energy requirement.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Energy monitoring

Stimulating 'sub-metering' with energy meters for monitoring energy consumption.

Credits available	: 2
Pre requisite	: ✗
Minimum standard	: ✓
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of two parts:

- Submetering of end-use energy groups (one credit);
- Sub-metering of (usable) spaces (one credit).

Demonstrate that the following criteria are met:

One credit – Submetering of end-use energy groups (minimum standard starting from Good rating)

1. Accessible sub-meters are used so that at least 90% of the building's energy use (gas, heat, cold, electricity) can be allocated to specific end-use energy groups.
2. For a building with a gross floor area (GFA) of more than 1,000 m², a measurement strategy and verification plan (or metering plan) have been drawn up. This strategy, together with the plan, must provide insight into the intended meters, their mutual relationship, the locations, specifications, calibration and the design (presentation) of the dashboard for the obtained measurement data.
3. The energy meters are continuously readable (CN6) and connected to an energy monitoring or building management system. Each meter is labeled according to the specific end-use group. The read data is available for analysis and must be able to be exported to a universal format (preferably CSV).

One credit – Sub-metering of (usable) spaces (minimum standard from the rating Outstanding)

4. Accessible submeters are used to allocate the building's energy use (gas, heat, cold, electricity) to relevant area zones. To determine the relevant area zones, see the methodology.
5. The energy meters are continuously readable (CN6) and connected to an energy monitoring or building management system. Each meter is labeled according to the specific end-use group. The read data is available for analysis and must be able to be exported to a universal format (preferably CSV).
6. A building automation and control system has been installed for climate installations with a rated output of 290 kW or more.

Tables

None.

Compliance note

Energy monitoring

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Extension of existing buildings	If the project is an extension of an existing building and the same installations and systems are used in both the extension and the existing building, the criteria only apply to the extension. In that case, at least the central installations for the production of hot water, gas and electricity must be measured at the supply points of the expansion. However, it is best to provide the entire building with energy meters.
<i>General</i>		
CN2	Energy end-use groups	<p>The energy consumption of a building is understood to mean the energy that the building needs annually to function properly. The energy consumption of the processes that take place within the building is not included as standard. The energy end-use groups I to VII are the usual groups that together determine the total energy requirement of the building per year.</p> <p>From a certain installed capacity, it is mandatory to install a submeter for criteria 1 to 3.</p> <ol style="list-style-type: none"> Space heating: Always sub-metering Hot tap water: With an installed capacity of more than 50 kWth Humidification: With an installed capacity of more than 10 kWe Space cooling: With an installed capacity of more than 20 kWth Fans (of the main system): With an installed capacity of more than 10 kWe Lighting including operating devices: When a final distribution box transmits a power of more than 50 kWe Renewable energy generation: Always submetering Other significant energy use systems: If applicable to a specific building type or process, where the energy use of the relevant end-use group, based on the energy performance calculation, exceeds 5% of the total energy use of the building. <p>Examples of other significant energy end-use groups are but not limited to:</p> <ul style="list-style-type: none"> Cooling/freezing function within the building Server rooms <p>It is allowed to combine modular systems and monitor them together as one energy end-use group. An example of this is several (small) electric boilers responsible for the production of hot tap water. Another example is multiple fans in an air handling unit.</p>
CN3	Small rental units <250 m ² NVO	In the case of small rental units, at least the following sub-meters must be installed for each rented unit:

Energy monitoring

REFERENCE	SUBJECT	DEFINITION
		a. Electricity b. Warmth c. Cold d. Gas
CN4	Heating and hot water	Space heating and domestic hot water (for domestic purposes) may be combined with one sub-meter (e.g. for heat or gas) per relevant area zone.
CN5	Significant amount in relevant area zones	A significant amount of the annual energy consumption of relevant area zones should be monitored. Together, a maximum of 10% of the building's energy consumption may be disregarded. This concerns both the annual energy consumption of the building and, if applicable, the energy consumption of users or tenants.
CN6	Continuously readable	"Continuous readout" means that the measurement data is recorded 24/7 at regular intervals, with a measurement value recorded at least every 15 minutes. The goal is to produce data that can be used to identify usage patterns or anomalies.
CN7	Building automation and control systems	If there are no climate installations with a nominal capacity of 290 kW or more, criterion 6 does not have to be met. In this case, a building automation and control system is not mandatory.

Methodology

Determining relevant area zones

The first step is to determine what relevant area zones are. A relevant area zone can be a floor or a specific functional building section. A rented unit can also be considered an area zone, provided that it does not exceed one floor. A functional building component is a part of the building that is designed to accommodate a specific function. Examples are: catering (restaurant, canteen), office spaces, industrial spaces, laboratories, etc.

Additional preconditions for relevant area zones

- A distinction must be made between floors and use. If a single function is spread over several floors, the energy consumption must be measured per floor. When a building has several shafts, cores or floor sections, sub-metering must take place per floor section.
- The following additional conditions apply to specific building types:
 - In buildings with a relatively large floor area and few floors, submetering may be carried out per shaft, but only if a small number of rooms on a floor are connected to the same shaft.
 - In high-rise buildings, where a shaft serves several spaces, each shaft on each floor must be measured separately.

Measurement strategy

A measurement strategy is a written document that includes at least the following matters:

- *List of energy end users to be metered:* This is a list of all relevant energy users that need to be measured in the building, such as heating, cooling, lighting, equipment, and so on.
- *Type of energy and expected amount of energy use:* For each energy user, the type of energy (e.g. electricity, gas, heat, cooling) and the expected amount of energy use (preferably calculated) are determined.

Energy monitoring

- *Location of energy meters:* Building drawings and diagrams indicate where the energy meters are installed and which energy users are measured. The energy meters must be clearly labelled, so that it is clear which energy user is being measured per meter.
- *Verifiability of criteria:* The measurement strategy must ensure that it is possible to verify whether the criteria have been met. This means that the measurement strategy must provide insight into the design choices of the energy metering system and its functionalities.

Based on the measurement strategy, the building owner or manager can find out how the building's submetering system is designed and what functionalities it has.

For a detailed guide on how to draw up a measurement strategy for energy monitoring in a building, please refer to the following documents:

- General Information Leaflet 65: Metering energy use in new non-domestic buildings.
- CIBSE TM 39: Building Energy Metering.

Please note: Unfortunately, there are currently no Dutch translations of these documents available, nor is there an equivalent Dutch variant that offers the same level of detail.

Estimation of the energy use of each end-use group

Where the annual energy consumption of one specific user, tenant or a combination of end-use groups is less than 10% of the total annual energy consumption for a given type of fuel (such as gas, electricity, heat, or cold), submetering of that energy use is not mandatory. However, the design team must demonstrate that energy consumption actually remains below this threshold.

Requirements for the estimate:

When the energy consumption of a particular tenant or end user accounts for less than 10% of the total energy consumption, the design team may conclude that submetering is not necessary. This applies to both building-related and user-related energy use. To demonstrate that a tenant's or user's energy consumption is less than 10%, the design team can perform a simple calculation or use benchmarks. Benchmarks can consist of reference values for energy use that apply to specific building types or uses. The design team must be able to demonstrate that the annual energy consumption remains below the 10% threshold. This can be done, for example, by using data from comparable reference buildings or by using an accepted method for estimating energy use (such as the NTA 8800 or other recognised guidelines).

If the total estimated annual energy consumption of the tenant(s) or end user(s) is less than 10% of the annual energy consumption for a particular type of energy, submeters are not required. This applies to gas, electricity, heat, cooling and other energy flows that may be relevant to the building.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Energy monitoring

Definitions

Accessible submeters

These are energy meters that are installed in a room of the building, so that they are easily accessible for regular checking and reading by the building user or maintenance engineer. Usually these are located in a meter cupboard or technical room.

Energy monitoring and management system

Examples include automatic meter reading systems (AMR) and building energy management systems (BMS). These systems ensure that measurement data is reliably read and stored, and that faults with meters are reported. Larger systems also allow for automatic monitoring and reporting. For example, by connecting to a dashboard that shows performance indicators and alarms, or by sending periodic overviews via e-mail that are tailored to the wishes of the building manager or owner.

Energy supply

This concerns all types of energy supplied to an area zone within the boundaries of the building, such as electricity, gas, heat/cold, or other forms of energy or fuel used within the relevant spaces.

Energy meters

Energy meters measure the amount of energy used in an energy supply chain. Primary meters measure the energy supply by fuel type, so that the energy supplier can bill for the energy used. Examples include smart meters and advanced meters that measure the electricity and gas supply to a location, or the supply of district heating.

Submeters measure the energy consumption in specific parts of an installation or equipment. Examples include meters for heat, cold, steam or electricity. Submeters can also be used to measure consumption in individual parts of a building, such as in separate buildings, on different floors in an apartment or office building, or in rented spaces.

Building Management System

A building management system (central computer) regulates, registers, monitors and controls various systems and installations in the building, such as air treatment, heating, cooling, lighting and security.

Additional information

None.

References

None.

External lighting

To encourage energy-efficient lighting design for the exterior lighting of buildings.

Credits available	: 1
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of two parts:

- No exterior lighting (one credit);
- Energy-efficient outdoor lighting (one credit).

Demonstrate that the following criteria are met:

One credit – No outdoor lighting

1. No outdoor lighting is installed (CN3)

OR

If outdoor lighting is installed, the following criteria must be met:

One credit – Energy-efficient outdoor lighting

2. The combined surface area of the illuminated facades must not exceed the average power density of 0.5 W/m².
3. The illuminated part of the site has a medium-specific power density of up to 0.1 W/lux/m².
4. All outdoor lighting is equipped with automatic on and off switching (CN4).

Tables

None.

Energy-efficient outdoor lighting

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Social safety	The outdoor lighting must not have a light level that detracts from social safety in the areas around the building. If the criteria of HEA 02 for outdoor lighting are met, it is automatically ensured that the light level does not affect social safety.
CN3	No outdoor lighting	If no outdoor lighting is used, the outdoor areas and the interior lighting of the building must be designed in such a way that social safety is ensured by the interior lighting, without the need for additional outdoor lighting. In addition, no outdoor lighting may be used for façade lighting (illuminating the façade) or additional lighting at the entrance.
CN4	Automatic on and off	The outdoor lighting is switched on via a twilight switch, so that the lighting is automatically adjusted to the length of the days. Switching off is done by means of a timer. Switching off also means dimming the lighting to the minimum required and standardized level. Exceptions to automatic switching on and off are allowed, for example in emergency situations. Using a hand switch to manually turn the lights on or off does not result in rejection of the credit. This also applies to presence detection in connection with burglary protection and social safety, provided that it is limited to the lighting points around the building and/or in places where this is necessary or desirable from the point of view of burglary protection or social safety.
CN5	Light Management System	When a light management system is in place, for example in the form of a building management system (BMS), the lighting may also be switched automatically based on a calculation of sunrise and sunset.

Methodology

Power density

Power density is defined as the total power of all installed luminaires divided by the illuminated area or façade surface. For each fixture, the power of the complete fixture (including light source and driver) must be calculated as stated in the manufacturer's spec sheets.

Note: LED light sources are usually an integral part of the fixture (LED fixtures). The manufacturer's spec sheets therefore indicate the combined power of both the light source and the driver.

$$\text{Average power density} = P \text{ [W]} / A \text{ [m}^2\text{]}$$

Energy-efficient outdoor lighting

Table ENE 03.1 Average power density

TERM	DEFINITION
P	Total power of applied luminaires within A including drivers and ballasts
A	Representative to lighting surface

Specific power density

The specific power density is defined as the total power of all installed luminaires divided by the illuminated area or façade surface, and divided by the illumination level.

For each fixture, the power of the complete fixture (light source and driver) must be calculated, as stated in the manufacturer's specification sheets.

The formula is: Average specific power density = $\Sigma (P [W] / E_{h,target} [lux]) / A [m^2]$

Table ENE 03.2 Average Specific Power Density

TERM	DEFINITION
P	Total power of the applied luminaires within A including drivers and ballasts
E_{h, purpose}	The average horizontal standard illuminance for the area
A	Representative area to be illuminated

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Additional information

None.

References

None.

Low carbon design

Reducing the energy requirement of the building through passive design techniques and encouraging the use of energy with a low environmental impact.

Credits available	: 3
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of three parts:

- Passive design (one credit);
- Application free cooling (one credit);
- Environmental impact of energy use (one credit).

Demonstrate that the following criteria are met:

One credit – Passive design

1. The first credit of HEA 05 Thermal Comfort has been achieved, demonstrating that the building meets the requirements for good thermal comfort.
2. In the early design stage, an analysis was carried out to investigate ways in which passive design techniques can be integrated into the design, with the aim of reducing energy requirements.
3. Passive design techniques are applied that significantly reduce the energy requirements of the building. The building-related energy requirement (BENG 1 - in accordance with NTA 8800) is at least 25% lower than the reference value weighted by usable area from Guidance Note 41.

One credit – Application of free cooling

4. Criteria 1 to 3 have been met.
5. In the analysis of passive design techniques from criterion 2, it was also investigated whether free cooling can be applied and how this can be integrated into the design.
6. Free cooling strategies have been applied in the building, as described in CN3.

One credit – Environmental impact of energy use

7. The environmental impact of the building-related energy demand was determined using the ENE 04 tool (see methodology), whereby the shadow price is a maximum of 0.90 €/m²/year.

Tables

None.

Passive design and low environmental impact of energy-use

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Renewable electricity generation outside our own premises	Generation of renewable electricity outside the own site is not valued in this issue. Only the generation of renewable electricity on one's own site may be included in the determination of the environmental impact of energy demand. The purchase of green electricity is also not valued in this issue.
<i>General</i>		
CN2	Analysis of passive design techniques	The following factors are minimally included in the analysis of the passive design techniques: <ul style="list-style-type: none"> a. Location b. Back on location c. Microclimate d. Layout of the building e. Building orientation f. Building shape g. Building mass h. Thermal mass or other thermal storage in materials i. Type of use of the building (e.g. 24/7, office hours) j. Daylight strategy k. Ventilation strategy l. Adaptation to climate change.
CN3	Free Cooling Analysis	The following appropriate technologies should be considered in the free cooling analysis: <ul style="list-style-type: none"> a. (Summer) night cooling (requires a high thermal mass) b. Cold storage (ATES system) c. Balanced ventilation (not linked to an active cooling system) d. Cooling with groundwater e. Surface water cooling f. Adiabatic cooling ('evaporative cooling') g. Dehumidification using a desiccant and adiabatic cooling based on waste heat
CN4	Application of free cooling	Applications of free cooling relate to all occupied spaces in the building.
CN5	Energy demand related to ENE 01	To determine the building-related energy demand (criterion 3) and the environmental impact of the energy demand (criterion 7), the same energy performance calculation as in ENE 01 is used. The determination of the environmental impact of energy demand (criterion 7) is described in the Methodology. This only includes the generation of renewable energy on site, which is necessary for primary fossil energy use (BENG 2), up to a maximum of 0 kWh/m ² /year.
CN6	Commissioning Manager	Upon completion, the commissioning manager (see issue MAN 04/05) checks whether the energy performance calculation corresponds to the situation achieved.

Passive design and environmental impact of energy use

Methodology

Determining the environmental impact of energy demand

The ENE 04 tool is used to calculate the environmental impact of the building-related energy demand. In this tool, the following information must be entered:

- Surface area in GFA (gross floor area) and GO (usable area);
- Lifetime of the building (set at 50 years for non-residential construction);
- Data from the energy performance calculation:
 - Decreased primary energy consumption per type of energy (gas, heat, electricity);
 - Renewable energy generation systems on one's own plot (e.g. solar panels, solar collectors, wind turbines).

After completing the tool, the annual environmental impact per m² is calculated in the form of shadow costs. The method is based on the "Assessment Method for Environmental Performance of Buildings and Civil Engineering Works". This method contains various environmental indicators and the associated shadow costs.

The environmental impact of most common energy supplies is included in the database of the ENE 04 tool and can be selected by default. It is also possible to include specific product data in the calculation. In this case, it must be demonstrated that the energy savings of the generation systems are guaranteed. A life cycle analysis (LCA) must be drawn up for the entire system, which meets the requirements of the current version of the "Environmental Performance Assessment Method for Buildings and Civil Engineering Works".

LCA for electricity generation

Only systems that are placed on the plot of the building are eligible for sustainable electricity generation. When electricity is taken from the electricity grid, even if renewable electricity is purchased, the standard mix on the electricity grid is used.

LCA for heat and/or cold networks

This has been drawn up for the entire heating and/or cooling network to which the connection is made. This means that, when several generation installations are connected, the efficiency of all installations is taken into account. It is therefore not possible to assign only one installation to this project. In addition, this LCA also includes the distribution system, up to the supply of energy to the building.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Energy specialist

A person with relevant training who can make energy calculations, installations, advice, drawings and solutions with a low CO₂ impact. This person is not affiliated with a supplier of a specific product or energy technology. The energy specialist works for an organization that is certified according to BRL 9500.

Passive design and low environmental impact of energy-use

Free cooling

Occupied spaces can be cooled for a large part of the year with outside air instead of energy-intensive mechanical cooling. Free cooling is a passive design technique, the effectiveness of which must be demonstrated by engineering design and modelling. Other similar methods include improved passive ventilation, improved solar shading, and increased daylighting.

Microclimate

The local climate can differ from the regional or rural climate due to geographical characteristics, but also due to human influences such as buildings. Within a microclimate zone, for example, the amount of precipitation, the number of hours of sunshine, the wind strength and the temperature can be different than in the regional climate.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Energy-efficient cold storage

Stimulating energy savings and CO₂ reduction through the application of energy-efficient storage facilities in which products are stored refrigerated or frozen.

Credits available	: 2
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: ✓
Exemplary performance	: X

Criteria

The issue consists of two parts:

- Energy-efficient refrigeration equipment (one credit);
- Application of cold storage and heat recovery (one credit).

Demonstrate that the following criteria are met:

One credit – Energy-efficient refrigeration equipment

1. The cold storage equipment used is energy efficient and meets the specifications as shown in Table ENE05.1.

One credit – Application of cold storage and heat recovery (only for shop and accommodation function)

2. The application of cold storage and heat recovery:
 - a. The cold storage or freezer storage system has a cooling heat recovery system, for example for heating floors and/or air heating.
 - b. The cold storage system has a cold storage system, so that energy can be stored during periods of low cold or freezing demand and used during peak periods of high cold or freezing demand.
 - c. If it is not technically feasible to apply cooling heat recovery or cold storage, for example due to the lack of a residual heat demand or peak periods for cooling or freezing, this criterion can be met if the design team has demonstrated this in a study.

Energy-efficient cold storage

Tables

Table ENE 05.1 Ready-to-plug refrigerator or freezer and refrigerated workbenches

TYPE OF COLD STORAGE	ENERGY-EFFICIENT SPECIFICATIONS
<p>Plug-in refrigerator or freezer or refrigerated workbench</p>	<p><i>Without management sales position:</i></p> <ol style="list-style-type: none"> A refrigerator or refrigerated workbench should maintain a temperature between -1°C and +5°C and have an Energy Efficiency Index (EEI) of less than 25. These requirements are laid down in Regulation (EU) 2015/1095. This applies to climate class 4 (30 °C, 55% humidity) and climate class 5 (40 °C, 40% humidity). A freezer where the temperature of the products remains below -15 °C must also be energy-efficient. The freezer should have an Energy Efficiency Index (EEI) of less than 50. These requirements are laid down in Regulation (EU) 2015/1095 and apply to climate class 4 (30 °C with 55% humidity) and climate class 5 (40 °C with 40% humidity). <p><i>With a direct sales feature:</i></p> <ol style="list-style-type: none"> Ice cream freezers, a horizontal refrigerated cabinet intended to store and/or display and sell pre-packaged ice cream. Have an Energy Efficiency Index (EEI) less than 45, in accordance with Regulation (EU) 2019/2024 All other refrigeration appliances with a direct sales function must have an Energy Efficiency Index (EEI) of less than 70. This is laid down in Regulation (EU) 2019/2024.

ENE 05.2 Refrigeration and/or freezer installation that is not ready to plug in

TYPE OF COLD STORAGE	ENERGY-EFFICIENT SPECIFICATIONS
<p>Non-plug-in refrigeration and/or freezer installation</p>	<p>The doors are self-closing or are equipped with:</p> <ul style="list-style-type: none"> Strips of curtains or draft bibs that keep the outside heat out as much as possible when opening. <p>In the case of refrigerated cabinets, there is a self-closing door or a cover for when the refrigeration or freezer cabinet is not in use (e.g. at night).</p> <p>Must use a refrigeration system that complies with reporting code EIA 220223-2024 or EIA 220212-2024, or an energy-efficient cooling or freezing unit that complies with reporting code EIA 220225-2024 of the energy list.</p> <p>The refrigeration and/or freezer system that is not ready to plug in has been tested and put into operation in accordance with the cold storage criteria as described in the issue MAN 04. Meeting the criteria of MAN 04 does not mean that this aspect is automatically met.</p> <p>Cells must be equipped with insulating material, where the sum of the thermal resistance of the layers ($R = \sum (R_m) = d/\lambda$) meets the following requirements:</p> <ol style="list-style-type: none"> For cooling or light freezing at a temperature between +16 °C and -10 °C: <ul style="list-style-type: none"> At least 6.30 m² K/W for facades and roofs. At least 3.7 m² K/W for floors. For freezing at a room temperature below -10 °C: <ul style="list-style-type: none"> At least 10.50 m² K/W for facades and roofs. At least 5.0 m² K/W for floors. <p>The refrigerator and freezer room is equipped with a lighting system that meets the following requirements:</p> <ol style="list-style-type: none"> Specific luminous flux: Minimum 130 lm/W, measured by an accredited institution. The electrical and photometric measurements must be specifically included in the accreditation scope of the institution in question.

Energy-efficient cold storage

TYPE OF COLD STORAGE	ENERGY-EFFICIENT SPECIFICATIONS
	<p>b. Light relapse: According to the LM80-08 measurement protocol or equivalent protocols, the light relapse should be a maximum of L85/B10 after 44,000 hours.</p> <p>c. Power Factor: The Power Factor of the lighting systems must be at least 0.90.</p> <p>The above requirements must be demonstrated with specifications of the manufacturer/supplier.</p> <p>At least three of the following devices must be fitted:</p> <ol style="list-style-type: none"> When several cold stores and freezers are used next to each other, they are grouped by temperature. The cold or frozen storage is located in a non-heated or naturally cool location. The size of the door openings has been minimized in relation to functionality (e.g. for forklifts or not). Smaller, built-in wicket doors are fitted if the cold storage or freezer has a large entrance door. Where possible and useful, air curtains or air locks are used. Freezer cells are equipped with a refrigerated anteroom. Cold storage or freezer storage is equipped with automatic defrosting. Cold storage or freezer storage is equipped with a compressed gas instead of an electric defrosting system. Evaporators are not installed within two meters of the edge of access doors or are equipped with automatic shut-off when these doors are open.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.2	Extension of existing buildings	If the facilities are located in the existing building, they must be assessed according to the criteria in this issue.
CN1.3	Fridge/freezer function > 250 m ²	Cold storage larger than 250 m ² is assessed at the issue ENE 01 on the basis of the Checklist A9.
CN1.4	Shop and lodging function	Only criterion 2 applies.
CN1.5	Cooling/function < 250 m ²	If the installed cold storage is smaller than 250 m ² , the criteria of this issue apply.
<i>General</i>		
CN3	Cooling heat recovery not feasible	When thermal storage or heat recovery is not technically possible, because there are no periods of low and high load and/or there is no demand for recovered heat, the credit can be awarded. A condition is that the first criterion (part I) is met. The design team must substantiate why there are no viable options for heat recovery, free cooling or thermal storage.

Energy-efficient cold storage

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

COP

The Coefficient of Performance (COP) represents the ratio between energy consumption and the useful amount of energy (heat or cold) that is supplied. The higher the COP, the more efficient the installation.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Energy efficient transport systems

Valuing and encouraging energy-efficient transport systems.

Credits available	: 3
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✓
Exemplary performance	: ✗

Criteria

The issue consists of two parts:

- Energy use (one credit);
- Energy efficiency characteristics (two credits).

Demonstrate that the following criteria are met:

One credit – Energy use

1. When lifts, escalators or moving walkways (means of transport) are used:
 - a. An analysis of the building's transport needs and usage patterns has been carried out to determine how many elevators, escalators and moving walks are optimal and what dimensions they should have.
 - b. Has the energy use been estimated according to ISO 25745, 'Energy performance of lifts, escalators and moving walks – Part 2 and/or Part 3', for at least two variants of the conveyor system.
 - c. The application of regenerative drives has been considered, according to the requirements in CN3.
 - d. The combined transport system of elevators, escalators and moving walks with the lowest energy consumption is specified.

Two credits – Energy efficient characteristics

2. Criterion 1 is met.

Lifts

3. The lifts used comply with energy label B, in accordance with ISO 25745-2, and are measured according to ISO 25745-1 by an independent party.
4. Regenerative drive is installed for each newly applied lift, when criterion 1.c shows that this leads to energy savings.

Escalators and moving walks

5. Each escalator or moving walk used complies with energy label A+, in accordance with ISO 25745-3, and has been measured according to ISO 25745-1 by an independent party.
6. Each escalator or moving walk used is provided with at least one of the following characteristics, in accordance with ISO 25745-3, paragraph 5.6b: 'slow speed' OR 'auto start'. These properties are shown on the energy label.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Scope of the issue	The criteria for lifts do not apply to lifting platforms, wheelchair stairlifts, stairlifts or similar facilities for disabled persons. However, lifts with a speed greater than 0.15 m/s must be assessed, including goods lifts, vehicle lifts and passenger lifts.
CN1.2	Building has no elevators, escalators, or moving walkways	This issue is not evaluated (filtered) when there are no elevators, escalators or moving walks in the building. If only one of the conveyor systems is present, e.g. only lifts without escalators or moving walkways, two credits may be awarded in part two, provided that the conveyor systems used meet the criteria of part two.
<i>General</i>		
CN2	Analysis of transport needs and usage patterns	In the following situations, it is permissible to use a written statement, in which the choice of elevator is substantiated, as a substitute for the transport analysis according to criterion 1: <ol style="list-style-type: none"> A single lift in a low-rise building for the disabled. A single freight elevator, chosen based on the size of the goods to be transported.
CN3	Regenerative drives (criteria 1c and 4)	A regenerative drive should only be considered if the energy savings exceed the additional standby energy required for the drive. Regenerative drives are particularly suitable for elevators in high-rise buildings that are used intensively.
CN4	Energy label in accordance with ISO 25745 part 2/3	Part 1 of ISO 25745 describes the measurement method. Parts 2 and 3 indicate the procedure for determining the energy label based on the measurement data. The measurements were carried out by an independent party, separate from the supplier and installer.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Energy efficient transport systems

Definitions

Slow speed or auto start

According to ISO 25745-3, the energy label can be equipped with an operational mode indicator. These indicators are usually displayed at the bottom of the energy label as logos, with the accompanying text 'slow speed' or 'auto start'.

Additional information

ISO 25745 - Energy performance of elevators, escalators and moving walks

ISO 25745 consists of three parts under the general title Energy performance of lifts, escalators and moving walkways:

- Part 1: Energy measurement and verification
- Part 2: Energy calculation and classification for elevators
- Part 3: Energy calculation and classification for escalators and moving walks

Part 1 estimates that around 5% of a building's total energy use comes from the operation of lifts, with much of this attributable to standby mode. Parts 2 and 3 provide solutions for the rapidly increasing need for energy conservation and targeted energy use, including:

- A method to estimate the daily and annual energy consumption of elevators, escalators and moving walkways.
 - An energy classification method (energy label) of new, existing or upgraded elevators, escalators and moving walks
-

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Energy efficient laboratory systems

Promoting building designs for laboratories with the lowest possible CO₂ emissions and the lowest possible energy consumption.

Credits available	: 5
Pre requisite	: X
Minimum standard	: X
Project	: X
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of two parts:

- Specification of the design (one credit);
- Energy efficiency measures (four credits).

Demonstrate that the following criteria are met:

One credit – Specification of the Design

1. The submitted evidence shows that a thorough Programme of Requirements (PoR) was drawn up for the use of the laboratory in the design stage. For each requirement that leads to a higher energy consumption, it is explained why this is necessary from a use point of view. The aim is to take a critical look at the established requirements, energy-saving standards and preconditions. These must match the needs of the user as closely as possible, so that there is no 'overdimensioning'. The PoR must in any case deal with the following points:
 - a. The required number (and variety of) laboratory equipment, such as fume hoods, sterilizers, vacuum pumps and microscopes. This includes the (research) activities, usage times, active/passive use and flexibility.
 - b. The type of laboratory equipment required and the associated requirements for energy consumption, power, ventilation, size, functionality and flexibility.
 - c. The required bandwidth for air quality per cluster, such as temperature, humidity, particulate matter, pollution, ventilation and air velocity requirements, and the degree of flexibility.
 - d. The required installed power (bandwidth) for building installations such as ventilation, air conditioning and electricity. This includes the diversity factor, clustering, usage times, flexibility and possible future developments.
2. There must be evidence from the design team that the energy requirements of the laboratory facilities have been minimized by realizing the established design performance criteria.

For laboratories with fume hoods or other containment areas

3. If fume hoods are used, the following conditions apply:
 - a. The average air flow rate in the fume cupboard is specified at ≤ 0.16 m³/s per metre (internal width) of the fume cupboard workspace, provided that the minimum flow rate for the fume cupboard is equal to or greater than the minimum flow rate for the room in question.
 - b. The measurement of the air volume flow in the exhaust pipe (at the laboratory boundary) takes into account leaks from the fume hood.
 - c. A reduction in air flow must not endanger the health and safety of building users.

Energy efficient transport systems

Two credits – Energy efficiency measures (<25% NVO is laboratory)

4. The first credit has been achieved
5. Measures applied from Table ENE 07.1 that achieve energy savings for the entire laboratory areas have been designed, specified and installed.
 - a. Table ENE 07.1 indicates how many points can be obtained for a measure, only whole points can be achieved.
6. Measures applied must lead to significant energy savings for the entire laboratory areas. Calculations are available that show that:
 - a. For buildings with a laboratory surface area of less than 25% of the total floor area (NVO), the energy consumption reduction is at least 4%.
7. The measures applied must not endanger the health and safety of building users.

Four credits – Energy efficiency measures (>25% NVO is laboratory)

4. The first credit has been achieved
5. Measures applied from Table ENE 07.1 that achieve energy savings for the entire laboratory areas have been designed, specified and installed.
 - a. Table ENE 07.1 indicates how many points can be obtained for a measure, only whole points can be achieved.
6. Measures applied must lead to significant energy savings for the entire laboratory areas. Calculations are available that show that:
 - a. For buildings with a laboratory surface area of more than 25% of the total floor area (NVO), the energy consumption reduction is at least 12%.
7. The measures applied must not endanger the health and safety of building users.

Tables

Table ENE 07.1 Energy efficiency measures for laboratories

ITEM	CATEGORY	DEFINITION	POINTS*
A	Fan power	The evidence provided demonstrates that the fan output for all AHUs, laboratory extractors, local exhaust and fume cupboard extractors (if applicable) is in accordance with best practice (see Table ENE 07.2) The evidence provided also shows that airtight ducts and fittings are used in all laboratory installations, in accordance with the Luka Class C standard, measured in accordance with NEN-EN 1751:2014.	1
B	Fume hood air flow rate (further reduction)	An average air flow rate of ≤ 0.12 m ³ /s per linear metre (internal width) of the fume cupboard workspace is specified.	0,5
C	Grouping or isolating activities with high filtration or ventilation requirements	The ventilation rate of the rooms and the entire facility is reduced by grouping or isolating activities with high filtration or ventilation requirements.	0,5

Energy efficient transport systems

ITEM	CATEGORY	DEFINITION	POINTS*
D	Energy recovery of heat	The laboratory ventilation system is centralized and heat recovery (HRV) with an efficiency of $\geq 50\%$ is applied to the ventilation system. If there is no risk of contamination, a heat wheeler can be used. In the event of a risk of contamination or deterioration, a twin coil can be used (the recovery must be manageable to prevent unwanted heat from being recovered).	0,5
E	Energy recovery from cold	The laboratory ventilation system is centralized and cold recovery via the heat exchanger(s) (KTW) is applied, with an efficiency of $\geq 50\%$. If there is no risk of contamination, a heat wheeler can be used. In the event of a risk of contamination or deterioration, a twin coil can be used (the recovery must be manageable to prevent unwanted cold from being recovered).	0,5
F	Combining cold needs	Aggregation of cold needs for greater efficiency and better thermal transfer.	0,5
G	Free cooling	Specification of free cooling for flushing in coolers or dry air coolers for laboratory-specific activities.	0,5
H	Effective supply and demand matching	Effective matching of the supply to demand through a modular design, variable ventilation flows, pumps and other mechanisms.	0,5
I	Cleanrooms	Specification of particulate emission monitoring systems, coupled with airflow controls.	0,5
J	Diversity	A wide variety in the size of systems and ducts is used, where safety considerations allow. Especially when many fume hoods are used, the design can take into account a certain occupancy rate or 'diversity factor'.	0,5
K	Air Refresh Rate	The ventilation rate of rooms is reduced by matching the air movement to the air exchange requirements in the laboratories and the requirements of containment areas.	0,5

***Remark:**

Only whole points can be awarded in this issue. In order to award a point for items B to K (above), the laboratory must meet at least two of the items. In a situation where, for example, three and a half points have been achieved, this must be rounded down to three points.

Table ENE 07.2 Fan Power Item A

LABORATORY INSTALLATION SYSTEM	FAN POWER IN W/(L/SEC)
General laboratory supply air handling units with heating and cooling.	1,5
General laboratory exhaust air systems	1,2
Laboratory local drain ventilation (with ducts)	1,0
Containment area drainage, without HEPA filtering	1,5
Containment area drainage, with HEPA filtering	2,5
Fume hood drain	1,5

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Scope laboratories	<p>For this issue, only the areas that fall under the following definition of laboratory area will be assessed:</p> <p>Laboratory areas are defined as highly conditioned spaces (temperature, ventilation, humidity, and containment management) where physical, biological, or chemical processes and tests are performed. These spaces almost always have a high energy consumption. To maintain controlled conditions for experiments, as well as to follow health and safety requirements, laboratories are usually:</p> <ol style="list-style-type: none"> Equipped with various drainage and containment facilities (such as fume hoods and biohazard cabinets). Equipped with various installations for ventilation, heating, cooling, humidification and filtration of air. Equipped with 24-hour access, backup systems and emergency power supplies. <p>Therefore, the following laboratory support functions are outside the definition of laboratory areas for the purposes of assessing this issue:</p> <ol style="list-style-type: none"> Administrative work/offices; Meeting rooms; Storage; Supportive spaces with lower conditioning requirements. <p>Teaching areas and other laboratory areas with a limited number of fume hoods or other containment equipment and/or no energy-intensive process equipment are excluded, unless it can be demonstrated that the energy consumption of these areas is at least 50% higher than a comparable office building, due to the laboratory-related activities. Benchmarks for energy use in offices can be found in SenterNovem "Figures and Tables", 2007. In buildings where 40% of the floor area is laboratory-related, usually only 10% can actually be designated as a laboratory area according to the above definition.</p>
<i>General</i>		
CN2	Average flow rate in the fume cupboard	If criterion 4 is not feasible for safety reasons and the nature of the work in the laboratory area, a justification must be provided. In addition, the lowest possible average airflow velocity for that specific case must be specified. Item B from Table ENE07.1 cannot then be achieved.
CN3	Commissioning Manager	Upon final, the commissioning manager (MAN04/05) checks whether the requirements have been met and whether the installations have been installed correctly.

Energy efficient transport systems

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Additional information

Type of laboratories

Different types of laboratories have different needs for heating, ventilation and air conditioning (HVAC), low-voltage equipment, and access. This can lead to large differences in energy and water consumption. The main types of laboratories are:

- *Wetlabs* – Laboratories where, for example, chemicals, medicines and biological substances are tested and analyzed. They need water, direct ventilation and special installations with ducts. One example is chemical science laboratories, for which special facilities must be designed.
- *Dry labs* – Laboratories where dry substances, electronics or large equipment are examined and where little use is made of pipes. Examples include materials science or analytical laboratories, where precise temperature and humidity control, dust management, and clean energy are important.
- *Microbiology and clinical laboratories* – Laboratories that often work with infectious pathogens. Here, containment systems must meet strict requirements. Multiple barriers are required, such as ventilation systems for controlled airflow, air treatment systems for cleaning exhaust air, controlled access zones, airlocks or separated buildings to isolate the laboratory.
- *In vivo laboratories* – Laboratories that require a strictly controlled environment for the care of flora and fauna. The facilities are expensive and complex, requiring strict control to prevent contaminants, pathogens, infections, and odor transmission.
- *Science and Teaching Laboratories* – Dedicated to academic institutions, with space for study equipment, storage space for student materials, and fewer instruments than research labs.
- *Clean rooms* – A controlled environment (air quality, temperature, and humidity) that prevents contamination. Here, environmental conditions are regulated for accurate research and production. In universities, they are often used for nanotechnology, medical and pharmaceutical research, and microelectronic applications.

Correct sizing

Designing laboratories in the right dimensions ensures that supporting installations can be better estimated. It is important to determine this early on, as it can lead to lower construction and lifecycle costs.

Synergy with BREEAM-NL issue ENE 01

This BREEAM issue has been developed to recognise improvements within laboratory areas as part of the design and execution of the building. These improvements are not currently covered by the NTA 8800, which is used to earn credits for ENE 01 'energy efficiency'.

Energy efficient transport systems

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Energy efficient equipment

Stimulating energy savings by using energy-efficient equipment, which guarantees an optimal user-related energy performance of the building.

Credits available	: 2
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of one part:

- Energy-efficient equipment (two credits).

Demonstrate that the following criteria are met:

Two credits – Energy-efficient equipment

1. Make an inventory of which systems or processes in the building contribute to the user-related energy consumption.
2. See which equipment makes up a large part of the user-related energy consumption (see Methodology).
3. Energy-efficient equipment is used by meeting the criteria in Table ENE08.1 and estimating the annual energy use.

Tables

Table ENE 08.1 Guidelines for energy-efficient equipment by building type

REFERENCE	FUNCTION/EQUIPMENT	CRITERIA
A	Plug-in office equipment	Office equipment (such as computers, screens and printers) meets Energy Label A (or better), or if there is no energy label for the equipment in question, it meets the Energy Star specifications.
B	Swimming pool	For swimming pools, ventilation, evaporation and heat loss must be prevented. At least two of the following requirements must be met: <ol style="list-style-type: none"> a. Automatic or semi-automatic pool covers that are custom-made for all pools in the building, including whirlpools and jacuzzies (if applicable). The pool cover should cover the entire pool surface when unfolded. b. The relative humidity is automatically increased at night, and the water circulation over the overflow channel is stopped to limit vapor loss from the pool. The bath water continues to circulate over the filters, and the chlorine dosage continues. c. In the air treatment, an AHU (air handling unit) is used that complies with EU Regulation 1253 and has at least a Eurovent A energy label. For motors, pumps and filter capacity, flow control must be applied. At least three of the following requirements must be met:

Energy efficient equipment

REFERENCE	FUNCTION/EQUIPMENT	CRITERIA
		<ol style="list-style-type: none"> Motors that comply with the international EI2 standard must be used to drive fans and pumps (see references). DC motors are rated as satisfactory according to the EI2 standard. Flow control is applied to motors of bath water circulation pumps by means of frequency converters. On motors of ventilation systems where the ventilation requirement varies, frequency-controlled flow control is applied. This applies at least to the swimming halls, changing rooms and meeting rooms. Flow control is applied to the filter capacity of the pool installations.
C	Communal laundry facilities	<p>For operating equipment, at least one of the following criteria shall be demonstrated:</p> <ol style="list-style-type: none"> Specification of heat recovery from wastewater. The use of gray water for part of the washing process. The water from the last rinse can be reused for the next pre-wash.
D	Server rooms and data centers	<p>For server rooms and data centers, the following conditions are met:</p> <ol style="list-style-type: none"> The recognised measures for server rooms and data centres, as included in the recognised list of measures (EML) (Annex VII and Annex XIV of the Environmental Regulations), apply as a national minimum standard. The design is in line with the EU Code of Conduct for Data Centers. The minimum level that must be met is 'expected minimum practice'. The set temperature is not lower than 24°C. The temperature should be measured at the inlet of the equipment in the server rack.
E	IT-intensive spaces	<ol style="list-style-type: none"> A natural ventilation and cooling strategy is applied as standard. Forced ventilation is only allowed if the room temperature exceeds 20°C, and active cooling is only allowed if the room temperature exceeds 22°C. There is a system to automatically switch off equipment when it is not in use, even at night.
F	Kitchen and catering facilities	<p>In the project, within each relevant category (I to IV), at least 2/3 of the devices must meet the criteria in Table ENE 08.2. If there are only one or two devices in a category, all devices must meet the criteria.</p> <ul style="list-style-type: none"> Kitchen and catering equipment; Hot water preparation; Professional dishwasher or dishwasher or tumble dryer; Utilization of (waste) heat for processes. <p>Refrigeration for kitchen and catering facilities are rated in ENE 05.</p>
G	Display lighting	<p>Illuminated lighting should have a minimum luminous efficacy of ≥ 60 lumens per Watt. Display lighting must be equipped with a timer and switched off at night, unless the room is open to the public.</p>
H	Air curtains	<p>Air curtains are equipped with a heat pump and sensor-controlled automatic control, intended to reduce heat loss through open doors. It consists of an air curtain that is heated only with a heat pump and is connected to an indoor and outdoor sensor. These sensors provide the automatic control with information about the inside and outside temperature and the position of the door.</p>

Energy efficient equipment

REFERENCE	FUNCTION/EQUIPMENT	CRITERIA
I	Household white goods equipment	All (household) white goods must at least meet the following energy labels: <ul style="list-style-type: none"> • Refrigerators, fridge-freezers: A; • Freezers: C; • Washing machines: A; • Dishwashers: A; • Tumble dryers: A+++.

Table ENE 08.2 Kitchen and catering facilities

CATEGORY	INTENDED FOR	COMPOSITION	EXCEPTION
<i>Energy-efficient kitchen and catering equipment</i>			
Electric baking carousel	Preparing meals in the catering industry or industrial kitchens.	Rotating baking carousel with multiple electric baking trays, equipped with an overhead infrared burner.	None.
Multifunctional cooking and baking appliance	Preparing meals in the catering industry and industrial kitchens.	Electric appliance suitable for cooking, baking, roasting and frying, with an integrated energy management system.	Built-in units or accessories in a frying wall unit are not eligible. Electric ovens are excluded.
Electric fryer	Replacing gas-fired frying appliances.	Frying appliance built into a frying wall, equipped with induction coils or electrical elements in the frying oil, including (possibly) corresponding flow control.	Freestanding frying appliances or table models are not eligible.
Energy-efficient beverage cooler	Cooling and selling packaged beverages in K4 (+9 °C / -1 °C).	Beverage cooler as described in Article 2 of Regulation (EU) 2019/2024, operating on a halogen-free refrigerant. Examples of halogen-free refrigerants: CO ₂ , NH ₃ , ethane, propene, isobutane or propane.	Beverage coolers with energy label A, B, C or D meet the Energy Efficiency Index. Supermarket refrigerated cabinets are not considered beverage coolers.
<i>Energy-efficient domestic hot water preparation</i>			
Heat pump boiler	Useful use of heat for heating tap water in commercial buildings	<ul style="list-style-type: none"> • Electrically driven heat pump boiler with a COP ≥ 3.0, measured in accordance with NEN-EN 16147:2023, including storage vessel, (possibly) soil heat exchanger or groundwater source, and (possibly) an integrated heat exchanger connected to a solar collector or a 	None.

Energy efficient equipment

CATEGORY	INTENDED FOR	COMPOSITION	EXCEPTION
		system for extracting heat from a process. <ul style="list-style-type: none"> Electrically driven heat pump boiler with a halogen-free refrigerant and a COP ≥ 2.8, including storage tank and (possibly) soil heat exchanger or groundwater source. 	
<i>Energy-efficient professional dishwashers or dishwashers or dryers</i>			
Energy-efficient dishwasher and dishwasher	Rinse or wash	Dishwasher and dishwasher with integrated heat recovery. If energy labels apply, the energy label must be at least A.	No
Energy-efficient tumble dryer	Drying laundry	Heat pump drum dryer: If energy labels apply, the energy label must be at least A.	No
<i>Utilization of (waste) heat for processes</i>			
System for utilization of waste heat	Disconnecting at the source and transporting waste heat for local heating of buildings.	Heat exchanger at the waste heat source, waste heat transport pipe, and (possibly) a heat exchanger between the waste heat transport pipe and the final network.	The system must use waste heat for at least 70% of the energy content, or waste heat combined with sustainable heat for at least 70% of the energy content. In the case of kitchen and catering facilities, this can refer to heat recovery from the waste heat from the mechanical kitchen extraction (ventilation), rinse water, or waste heat from cooling systems.

Energy efficient equipment

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Refrigeration equipment	This issue does not apply to refrigeration equipment that is rated in ENE 05.
CN1.2	Elevators, escalators and moving walks	This issue does not apply to elevators, escalators, and moving walkways. These systems are assessed in ENE 06 - Energy-efficient transport systems.
CN1.3	Laboratory systems	This issue does not apply to fume hoods with a fixed building-related extraction connection in laboratories. These systems are assessed in ENE 07 Low Efficiency Laboratories.
<i>General</i>		
CN2	Reuse of equipment	Reusing equipment does not mean that criteria are met by default because it is not always the most energy-efficient option. However, the credit can be awarded when reusing old equipment, taken over its lifetime, is a more energy-efficient option than deploying new equipment.
CN3	Version of energy labels or EU codes of conduct	During the term of the scheme, the conditions for a specific energy label may change. The version in effect at the time of registration may be used for the assessment. Newer versions released after the registration date may also be used, but older versions may not be used.

Methodology

Estimation of energy use by equipment

For criterion 2, an estimate is made of which equipment has a large share in the energy consumption of the building. No detailed calculations are needed to determine the share. The approach must be aimed at finding the largest energy users. Measures must be taken to save energy for these large energy users. Smaller consumers can be disregarded. As a guideline, the equipment that produces at least 90% of the total annual energy consumption must be on the list for which saving measures are taken.

Estimation of annual equipment energy use

For this issue, the energy consumption of the equipment must be estimated. This is done based on the power of the devices and the number of hours they are in use. Energy consumption can be estimated by making a calculation, for example based on standard values or benchmark data.

Estimation of equipment energy use

The annual energy consumption of equipment can be estimated using the following formula for each type of device:

$$E_{ja} = \#ap * \{ (P_{use} * T_{use}) + (P_{sb} * (8760 - T_{use})) \}$$

Energy efficient equipment

Table ENE 08.3 Estimation of the energy use of equipment

TERM	DEFINITION
Eja	Annual energy consumption
#ap	Number of devices
Puse	Average power consumption in kW during operation
PSB	Standby power in kW
Tuse	Annual number of hours of use

Estimation of energy use for kitchen and catering facilities

If no calculation of the energy consumption for the kitchen and catering facilities is available, industry key figures can be used. These show the energy consumption per meal served, or the measured consumption of a representative kitchen or catering facility. If no representative data are available, the energy consumption indicators from CIBSE TM502 can be used.

Estimation of the energy consumption of server rooms

The annual energy consumption for server rooms can be estimated using the following formula:

$$E_{ja} = \#ser * P_{nom} * R * T_{use}$$

TERM	DEFINITION
Eja	Annual energy consumption server rooms (kWh)
#ser	Number of server rooms
Pnom	Rated power consumption of server equipment in kW per server room
R	Operating Rated Energy Usage Ratio in %, is the average power input of the server equipment relative to the maximum rated power input according to factory specification
Tuse	Annual number of hours of use

Estimation of the energy consumption of the cooling of server rooms and data centers

Server rooms often have a high cooling demand. The energy consumption for cooling can be estimated as follows:

- Chilled water systems: The energy used for cooling is equal to 70% of the energy used for the server equipment.
- Direct expansion systems (DX): The energy used for cooling is equal to 100% of the energy used for the server equipment.

Note: More accurate estimates can be obtained by means of (dynamic) simulation calculations.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Energy efficient equipment

Definitions

Server rooms and data centers

This includes all buildings, facilities and areas with company servers, server communication equipment, cooling equipment and power supply equipment that support data services. This can range from large-scale mission-critical installations to small server rooms in office buildings.

IT-intensive spaces

These are computer rooms with more than one computer per 5 m². Examples include computer labs, open-plan offices, design studios, library IT departments, and other high-density computing spaces.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Aligning Supply and Demand and Electricity Storage (DSM)

Using the generated energy more efficiently on site and reducing CO2 emissions from the electricity grid, by better matching the demand of electricity with the supply of renewable electricity.

Credits available	: 3
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of two parts:

- Temporary storage of electricity (two credits);
- Matching supply and demand (one credit).

Demonstrate that the following criteria are met:

Two credits – Temporary storage of electricity

1. At least six credits have been obtained for the issue ENE 01.
2. Facilities for the storage of electricity are available.
3. The storage facility is able to (temporarily) store at least 0,03% of the electricity generated.

One credit – Matching supply and demand

4. Existing installations are connected to a system that matches the supply and demand of electricity (DSM).
5. The system adjusts the customer's electricity demand based on the amount of electricity generated.

Tables

None.

Matching supply and demand and storage of electricity (DSM)

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Generated renewable energy	The minimum capacity of the storage facility is based on the amount of energy generated on an annual basis. The main function of the storage facility is aimed at using self-generated energy on, in or around the building.
CN3	Existing installations	Installations that are in any case eligible for grid balancing or an energy balance system are: <ul style="list-style-type: none"> • Installations responsible for the production of hot tap water; • Installations responsible for the production of cold and/or heat; • Installations responsible for the generation of heat/cold equipped with a timetable for switching on and off; • Other significant energy users such as a production process.
CN4	Grid balancing	The storage facility is designed to use the self-generated energy as much as possible and thus relieve the electricity grid. Therefore, it is necessary that the grid balancing systems are connected to the building's renewable energy technologies. Storage facilities that are only intended for economic return are excluded from the assessment of this issue.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Transport



SUMMARY

This category promotes the presence of easily accessible local facilities and the availability of sustainable means of transport, such as public transport and other alternative transport options for building users. This will encourage modes of transport that reduce car use and reduce associated emissions and congestion, while encouraging physical activities for the well-being of building users.

CONTEXT

Cities around the world are looking for ways to improve the quality of life, air quality, crowds, and ease of movement for people in urban areas. The eleventh goal of the United Nations Sustainable Development Goals (SDGs) focuses on sustainable cities and communities.

This goal encourages cycling, walking, or using public transportation to keep the air clean in cities. One of the objectives is to provide access to safe, affordable, accessible and sustainable transport systems for all by 2030, and to improve road safety, especially through the expansion of public transport.

Reducing the private use of the car is an important point of attention. Alternative means of transport such as bicycles offer a way to tackle transport-related emissions and reduce traffic jams.

Several scientific studies show that there is a clear link between air quality and heart and brain health. It is estimated that polluted outdoor air causes 4.2 million premature deaths worldwide every year. Air pollution is harmful to plants, animals, biodiversity and crop yields. Reducing air pollution can reduce diseases and conditions such as stroke, heart disease, lung cancer, and respiratory problems.

Value of the issues

TRA 01	Public transport accessibility	Five credits (function dependent)
Value:	<ul style="list-style-type: none">• Public transport accessibility index• Company bus	
TRA 02	Proximity to amenities	One credit
Value:	<ul style="list-style-type: none">• Facilities available	
TRA 03	Alternative modes of transport	Two credits and EP credit
Value:	<ul style="list-style-type: none">• Basic measures for alternative transport• Additional measures for alternative transport	
TRA 04	Maximum parking capacity	Two credits
Value:	<ul style="list-style-type: none">• Parking capacity	
TRA 05	Transport plan	Two credits
Value:	<ul style="list-style-type: none">• Transport plan• Alternative modalities	

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Public transport accessibility

Stimulating construction projects in the vicinity of a good public transport network, reducing traffic jams and transport-related emissions.

Credits available	: 5
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of two parts:

- Accessibility index (maximum five credits, depending on the building type);
- Dedicated bus service (one credit).

Demonstrate that the following criteria are met:

Five credits – Accessibility index

1. For each function, the points mentioned in Table TRA 01.1 are awarded on the basis of the public transport accessibility index.
2. The public transport accessibility index is determined by entering the following data into the BREEAM TRA 01 calculator (see Methodology):
 - a. The walking distance (in meters) from the main entrance of the building to each relevant public transport boarding point via a safe walking route.
 - b. The type of public transport (e.g. bus, train, metro or tram) that is available at the relevant public transport pick-up point.
 - c. The average number of public transport services per hour at the relevant pick-up points, during the opening and use times of the building on a normal day.

One credit – Dedicated bus service

3. No credits are earned for the criteria of the public transport accessibility index.
4. For buildings with fixed working hours or shifts, where building users mainly arrive or depart at set times, a credit can be awarded if a company bus is used to and from the building at the beginning or end of each shift.

Public and company transport offer

Tables

Table TRA 01.1 Number of credits awarded per building type depending on the score on the public transport accessibility index.

PUBLIC TRANSPORT ACCESSIBILITY INDEX	≥0.5	≥1	≥2	≥4	≥8	≥10	≥12	≥18
Office function, Industrial	-	-	1	2	3	-	-	-
Education (primary and secondary education)	-	-	1	2	3	-	-	-
Retail, hotels, Meeting function, sports, healthcare, Higher education	-	-	1	2	3	3	4	5

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Staged development	In the event of a large, staged development of a construction site where new transport facilities will be built, which are not yet ready at the time of assessment, these can be included in the assessment. Provided that it can be demonstrated that the transport facilities will be ready for use within two years of the building being put into use.
<i>Company bus</i>		
CN3	Dedicated bus service	The credit to be achieved for the use of a company bus applies to any building and function with fixed working hours and/or shift work, where the users arrive or depart at fixed times, such as factories, offices, shops or schools. The company bus is used to take employees and visitors to city centers, public transport hubs, or as a door-to-door service. It is up to the end user to determine how often and with what capacity the service is offered. The company bus is a good alternative for situations in which the building's public transport accessibility index is too low to meet criteria 1 and 2.

Methodology

Calculation of the public transport accessibility index

To calculate the public transport accessibility index, the TRA 01 calculator (see definitions) is used to calculate the number of public transport services, the walking distance to nearby stops and stations, and the frequency of the services from these pick-up points. The calculation is based on the PTAL method (Public Transport Accessibility Level), which is also used in the Netherlands.

Public transport accessibility

The frequency of public transport is calculated by determining the average number of services during the building's operating hours on a normal day and dividing it by the number of hours within that period. For example, if a building is open from 08:00 to 19:00 (total 11 hours) and it is near a bus stop with 35 services during this time, the frequency is 3.2. This corresponds to an average frequency of about 20 minutes.

Two-way and multiple shifts

Public transport routes go in two directions, but only the direction with the highest frequency is included in the calculation of the accessibility index.

Services that run from more than one pick-up point near the building (e.g. two separate bus stops where the same bus stops) only count once, measured from the nearest pick-up point. Different shifts at the same pick-up point are counted separately in the calculation.

Different routes of a bus, train, tram or metro may be counted, but if there are several trains running on one route (for example a sprinter and an intercity), you may only count the train with the highest frequency. Also, for example, you can only count a train that runs from Dordrecht to The Hague and from The Hague to Dordrecht once (i.e. once per route, even if the train goes in both directions). However, if there is also a train from The Hague to Utrecht, you can count it (once) as a separate timetable. The same applies to a bus or metro: if there are several routes passing the stop, you can count them separately, as long as they have a different destination and are not the opposite direction.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Public transport accessibility index

The public transport accessibility index is an indicator of the accessibility and density of the public transport network at the location of the building. The index depends on the proximity of pick-up points, the variety of transport modes and the frequency of public transport services.

BREEAM TRA 01 calculator

A calculation tool in the form of a spreadsheet, which can be used to calculate the building's public transport accessibility index. In addition, it is determined for each position how many BREEAM points can be achieved with this.

Distance from building to pick-up points

The distance between the main entrance of the building and the nearest 'relevant' public transport pick-up point, measured via the shortest walking route on safe pedestrian paths. This is not measured in a straight line, but over a practical walking route.

Relevant public transport pick-up point

A pick-up point for multiple modes of public transport (such as bus, tram, metro or train), which is connected to both the local and regional public transport network. A relevant public transport pick-up point is, for example, any

Public and company transport offer

bus stop within 650 metres and any tram, metro or train station (rail) within 1000 metres of the main entrance of the building, measured via the shortest walking route on safe pedestrian paths.

Main entrance building

The main entrance to the assessed building is the one that is directly connected to the reception area of the main building, the walkways, the lifts and/or stairs, and is easily accessible to most employees and visitors. The main entrance is not the entrance to the site, unless it is also the entrance to the building (for example, if the building is directly adjacent to the public road).

Usage times and normal days

The opening hours of the building on a normal working day, when most users (employees and visitors) are present. A 'normal day' is a day when most users travel to the building, usually a weekday. When determining a normal day, the Assessor must verify whether the public transport timetable for that day is representative of the usage times during the entire working week.

Additional information

None.

References

- PTAL method: <http://content.tfl.gov.uk/transport-assessment-guidance-2006.pdf>.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Proximity to amenities

Stimulating construction projects in the vicinity of local amenities , reducing traffic jams and transport-related emissions.

Credits available	: 1
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of one part:

- amenities available (one credit).

Demonstrate that the following criteria are met:

One credit – Amenities available

- For each mandatory amenities category, there is at least one amenities within a walking distance of 500 meters from the main entrance of the building (CN2).
- At least one amenities of at least two optional amenities categories is available within a walking distance of 500 meters from the main entrance of the building (CN3).

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Mandatory amenities	At least one amenities from each of the following amenities categories is available and accessible via a safe route: <ol style="list-style-type: none"> Food supply: Food stores, supermarket, market, butcher, bakery, greengrocer, and so on. Healthcare: Pharmacies, GP surgery, hospital, etc. (with the exception of private clinics).
CN3	Additional amenities	At least one amenities from at least two of the following amenities categories is available and accessible via a safe route: <ol style="list-style-type: none"> Education: Nursery, primary school, secondary school, and so on.

Proximity to amenities

REFERENCE	SUBJECT	DEFINITION
		<ul style="list-style-type: none"> b. Services: ATM, bank, postal services, parcel point, laundry, hairdressers, etc. c. Dining options: Restaurants, lunchroom, etc. d. Commercial: Clothing stores, cinemas, shopping malls, and so on. e. Cultural: Social services, leisure centers, community centers, social centers, and so on. f. Sports and exercise: Gym, swimming pool, etc.
CN4	Number of amenities	A type of amenities may also be part of or present in other types of amenities, for example, an ATM or postal service in a supermarket. It is not required that every amenities is 'self-contained'.
CN5	amenities in the assessed building or location	A amenities in the building or at the same location as the new-build, renovation or (re)development project meets the assessment criteria.
CN6	Staged development	In the case of a large, staged development of a construction site where new transport amenities will be built, which are not yet ready at the time of the assessment, these can be included in the assessment provided that it can be demonstrated that the transport amenities will be ready for use within two years after the building has been put into use.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Accessible amenities

Amenities that are within the required distance of the building and are accessible via safe walking routes, such as sidewalks, footpaths and safe crossings (e.g. zebra crossings). The distance is not measured in a straight line (as the crow flies), unless the pedestrian route runs directly in that direction.

Public space (park, square, courtyard)

An outdoor space where users can take a pleasant break in the vicinity of the building. This can be, for example, an outdoor space at an office building, where people can sit and have lunch. The space must be large enough so that a significant proportion of the building users can use it during breaks and lunch times.

Leisure or sports amenities

amenities in the vicinity of the building that can help users with exercise and relaxation. Examples are a sports hall, gymnasium, swimming pool, gym, play area at schools, yoga room or meditation room.

Proximity to amenities

Food point of sale

A suitable point of sale for (daily) food that is accessible and affordable for the majority of building users. These can be local shops, supermarkets, restaurants, snack bars, cafes, lunchrooms or canteens.

Childcare or crèche

A professional amenities for the day care of young children, both at building level and in the vicinity.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Alternative modes of transport

Encouraging alternative modes of transport, allowing building users to choose a means of transport other than the car with a combustion engine and/or reducing the number of individual car journeys.

Credits available	: 2
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: ✓

Criteria

The issue consists of two parts:

- Basic measures for alternative transport (two credits);
- Additional measures for alternative transport (EP credit).

Demonstrate that the following criteria are met:

Two credits – Alternative transport measures

1. One or more of the options from Table TRA 03.1 has been implemented, the corresponding credits can be obtained.

EP credit – Alternative transport measures

2. The maximum score of two credits has been achieved plus an additional third credit from Table TRA 03.1.

Tables

Table TRA 03.1 Options and credits allocation for the measures to be implemented

OPTIONS	REQUIREMENTS	NUMBER OF BREEAM-NL CREDITS
1	a. Sufficient bicycle parking facilities will be installed in accordance with the use function of the building, as referred to in Table TRA 03.2). b. There is a possibility to attach both the wheel and the frame of the bicycle to a secured object with a lock (for example, a paving stone with a slot will not suffice). c. If at least two of the following facilities for cyclists are offered to all users of the building (including students, if applicable): <ul style="list-style-type: none"> • Showers (10% of the number of parking spaces, but at least two) • Changing rooms (10% of the number of parking spaces, but at least two) • Lockers (20% of the number of parking spaces, but at least two) • Room with facilities for drying clothes. 	1
2	d. In collaboration with the local government, the optimal situation with regard to accessibility by public transport was examined in the design stage. e. The optimal plan for accessibility by public transport is being implemented and has a significant impact on public transport	1

Alternative modes of transport

OPTIONS	REQUIREMENTS	NUMBER OF BREEAM-NL CREDITS
	accessibility. This leads to an increase of at least 1.00 on the score of the public transport accessibility index of TRA01.	
3	<p>f. There are charging stations for electric cars, usable for all common connections, for at least 10% of the total parking capacity, with a minimum of 4 charging stations and where at least 25% of the charging stations are reserved for visitors.</p> <p>g. The electricity for the charging points for electric transport comes from 100% renewable energy: electric power from demonstrably sustainable sources or from 'own' generation (wind, PV) insofar as this has not already been factored into the energy performance calculation (ENE 01).</p>	1
4	<p>h. In the development, carpooling will be stimulated and facilitated by a carpool information point (this may be a website) with information about carpooling and the possibility of bringing together employees with carpooling options.</p> <p>i. For carpoolers, priority parking spaces are designated at locations near the (main) entrance of the building.</p> <p>j. The number of carpool spaces is at least 5% of the total number of parking spaces, with a minimum of 2 spaces.</p>	1

Table TRA 03.2 Minimum standards for bicycle parking facilities

OPTIONS	REQUIREMENTS
Offices and industrial	<ul style="list-style-type: none"> Covered and illuminated bicycle parking for at least: <ul style="list-style-type: none"> 10% of the total number of building users up to 500 users 7% of the total number of building users from 501 to 1000 users 5% of the total number of building users of 1000 users or more <i>Example: With 700 users 10% over 500 and 7% over 200.</i> Lighting complies with NEN-EN- 12464-1, whereby the bicycle parking facility must meet the limit values of a parking garage such as HEA01.
Education function	<ul style="list-style-type: none"> Covered and lighted bicycle parking facilities for at least 20% of the equivalent of full-time employees. The minimum number of covered bicycle parking spaces per pupil/student belonging to the school type must be present: <ul style="list-style-type: none"> Primary school: at least 4 parking spaces per 10 pupils Secondary education: at least 7 parking spaces per 10 pupils Scientific and vocational education: at least 7 parking spaces per 10 students Nursery: at least 1 parking space per 10 children Lighting complies with NEN-EN- 12464-1, whereby the bicycle parking facility must meet the limit values of a parking garage such as HEA01.
Retail, hotels, sports, healthcare and meeting	<ul style="list-style-type: none"> Covered and illuminated bicycle sheds for: <ul style="list-style-type: none"> At least 10% of the equivalent of full-time employees. 5% of the total number of car parking spaces for visitors (excluding disabled parking spaces), with a minimum of 10 parking spaces. Any development that provides for at least 50 <i>bicycle parking spaces for visitors (regardless of the number of parking spaces) meets the requirements.</i> The parking spaces for employees and visitors may be realized jointly, but may not be added together to arrive at the requirement. Lighting complies with NEN-EN- 12464-1, whereby the bicycle parking facility must meet the limit values of a parking garage such as HEA01.

Alternative modes of transport

Table TRA 03.3 Minimum standards for facilities for cyclists

ON-SITE AMENITIES	MINIMUM STANDARDS
Bicycle storage	Covered and well-lit bicycle parking facilities are part of the shell facilities and are connected to a fixed structure or a part of the building that is clearly visible. The distance between the racks or parking spaces is large enough so that a bicycle can be placed and locked in a comfortable way (without lifting). The lighting complies with NEN-EN-12464-1, whereby the bicycle parking facility must comply with the requirements that apply to a parking garage, as indicated in HEA01.
Showers and changing rooms	Showers and changing rooms are part of the shell facilities. The shower facilities must be large enough for the number of people, with the number of users being determined by the 10% requirement. There is a minimum of two changing rooms and a minimum of one square meter of changing room per person. The facilities do not have to be specific to cyclists, but can also be available to other users. If there are changing rooms for several people (rather than individual rooms), they should be separate for men and women. Any development that offers eight or more showers meets the criteria, regardless of the number of parking spaces.
Safes	For lockers, a space must be included in the shell. The lockers themselves do not need to be installed yet; The statement must state that the tenant will install the lockers. There must be enough lockers for the number of cyclists. These should be close to the changing rooms and large enough to store the cyclists' belongings.
Drying rooms	A drying room is a heated and well-ventilated room for drying wet clothes. A boiler house is not a suitable drying room.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Hotels	Visitors to an accommodation function do not only refer to visitors who stay overnight, but also to visitors who use the other facilities in the building.
CN1.2	Meeting function	The meeting function is only valued separately when assessing this issue if it concerns a public function, such as a restaurant or event location. In an office, industrial or school building, if only the canteen, lecture halls and meeting rooms have a meeting function, they are valued on the basis of the primary function of the building.
<i>General</i>		
CN2	Existing facilities and multiple buildings	Already existing facilities, such as bicycle parking facilities and charging points for electric cars, can be used to achieve the required number, but must meet the criteria to be included in the assessment. The assessed facilities must also be sufficient for the new buildings and/or extensions at the existing location.
CN3	Staged development	In the case of a large staged development of a location, where new transport facilities will be built that are not yet ready at the time of the assessment, these can still be counted. This is only

Alternative modes of transport

REFERENCE	SUBJECT	DEFINITION
		possible if sufficient transport facilities are ready when 25% of the construction stages are completed and ready for use.
CN4	Increased demands by local authorities	If the transport facilities are not ready for use within two years of the building being put into use, they may not be included in the assessment. If local authorities set stricter criteria than those in this issue, for example more charging points, the credits can only be obtained if these stricter criteria are met.
CN5	Number of users unknown	<p>The standard occupancy of the building is determined on the basis of a realistic assumption by the design team and checked by the Assessor.</p> <p>If it is not possible to determine the number of future users during the development stage, the standard of one user per 10 m² GFA will be assumed.</p> <p>If the future user provides parking spaces for bicycles himself, a written statement can indicate that the user will meet all the requirements of the issue (possibly in addition to the rental contract).</p>
CN6	Renewable energy	<p>Sustainable electricity for charging points for electric transport is preferably generated on site. If this is not possible, renewable electricity for the charging points may also be purchased, provided that it comes from a demonstrably renewable energy source that complies with the following rules:</p> <ol style="list-style-type: none"> Electricity generated in the Netherlands from a renewable energy source. The composition of the electricity generated is demonstrated by the 'guarantee of origin' certification system (electricity labelling). <p>In addition, the building user, owner or manager must have concluded a supply contract for at least three years, or demonstrate that the length of the contract is reasonably sufficient to supply the charging points with sustainable energy during that period.</p>

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Alternative modes of transport

Additional information

None.

References

No

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Maximum car parking capacity

Reducing parking capacity by linking it to accessibility by public transport, with the aim of reducing car travel and traffic jams and transport-related emissions.

Credits available	: 2
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of one part:

- Parking capacity (two credits).

Demonstrate that the following criteria are met:

Two credits – Parking capacity

1. The parking capacity is determined according to the target figures in Table TRA04.1. The maximum parking capacity depends on the use function and the score achieved on the public transport accessibility index from TRA 01. This table shows, based on the BREEAM-NL key figures for the maximum parking capacity, the number of credits to be achieved per use.

Tables

PUBLIC TRANSPORT ACCESSIBILITY INDEX BUILDING SEE TRA 01	CRITERIA			AVAILABLE BREEAM-NL CREDITS
	< 4	≥ 4 - < 8	≥ 8	
FUNCTION	MAXIMUM PARKING CAPACITY: 1 SPACE PER X BUILDING USERS, WHERE X IS:			
Office, industry	3	4	5	1
	4	5	6	2
Higher education	15	20	25	1
	20	25	30	2
Hotels, meeting function, sports and healthcare	3	4	5	1
	4	5	6	2
Not in the scope: Retail, primary and secondary education	Na	Na	Na	Na

Maximum parking capacity

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Meeting function	The meeting function is only valued separately when assessing this issue if it has a public function, such as a restaurant or event location. If only the canteen, lecture halls and meeting rooms in an office, industrial or school building have a meeting function, they are valued on the basis of the primary function in question.
CN1.2	Exclusions	Parking spaces reserved for the following users may be excluded, provided that these spaces are specifically designated for that use by means of the appropriate dimensions and markings: <ol style="list-style-type: none"> Disabled people Engines Car-sharing (if car-sharing spaces are excluded, the future owner of the building must confirm that a feasible car-sharing or carpooling policy is in place)
<i>General</i>		
CN2	Parking spaces shared with other buildings	If the assessed building is part of a larger construction site, where the parking spaces are not allocated to individual buildings, the maximum parking capacity of the building can be determined with a pro-rata approach. If the occupancy rate of the assessed building is 20% of the total occupancy rate of the site, 20% of the total number of parking spaces must be allocated to the building. The standard occupancy of the building is determined on the basis of a realistic assumption by the design team and checked by the Assessor. If it is not possible to determine the number of future users during the development stage, the standard of one user per 10 m ² GFA will be assumed.
CN3	Increased demands by local authorities	When local authorities set stricter requirements than the criteria in this issue, for example if more charging points are required, the credits can only be obtained if these higher requirements are met.

Methodology

None.

Maximum parking capacity

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Users of the building

Building users are understood to mean:

- Staff;
- Pupils and students;
- Visitors;
- Clientele;
- Users in the community;
- Couriers and suppliers who deliver or collect goods;
- Service providers who regularly visit the building;
- Transporters and logistics service providers.

Agreement with TRA01

This issue uses the public transport accessibility index as described in TRA01 and calculated with the TRA01 calculator. The maximum parking capacity per function and the credits are based on the benchmarks of the BRE.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Transport plan

Encourage business operations to minimise highly environmentally harmful transport, so that traffic jams and transport-related emissions are reduced and nuisance for the environment is limited.

Credits available	: 2
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of two parts:

- Transport plan (one credit);
- Multiple modalities (one credit).

Demonstrate that the following criteria are met:

One credit – Transport plan

1. Based on a traffic analysis of the construction site, a transport plan is drawn up in the design stage. This plan maps out all current and future transport flows that are relevant to the building type and the users and visitors.
2. The transport plan and the preceding traffic analysis shall in any case include:
 - a. Transport patterns (and environmental impacts) of current building users, if applicable
 - b. Transport patterns (and environmental impacts) of future building users
 - c. Existing infrastructure and facilities for pedestrians and cyclists
 - d. Accessibility for people with disabilities (for different levels of disability and visual impairment)
 - e. Existing public transport facilities
 - f. Existing bicycle facilities
3. The transport plan contains a package of sustainable traffic measures aimed at managing and controlling the traffic flows to and from the building. The aim is to reduce the number of (truck) car kilometres and to improve accessibility and make it more sustainable.

One credit – Alternative modalities (only for industrial function and refrigeration/freezer)

4. The site is accessible via several modes of transport for goods transport, or these transport options are available in the vicinity.
5. The facilities to use these modalities are available.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Industry function	Criteria 4 and 5 only apply to the industry function.
<i>General</i>		
CN2	Existing transport plan	If an up-to-date transport plan is already in place, for example in the case of a building extension or when the building is part of a campus, the first credit can be awarded. The transport plan must apply to the users of the assessed building.
CN3	Measures for the transport plan	<p>Measures from the transport plan focus on the following aspects:</p> <ol style="list-style-type: none"> Preventing transport (teleworking and flexible workplaces). Preventing the use of cars and lorries and improving accessibility by offering alternative forms of transport (public transport, bicycles, carpooling, etc.) and the better handling of courier services and final. Encouraging alternative means of transport (such as charging points for electric cars, scooters, bicycles). <p>Examples of measures that can be included in the transport plan (not limited to this list):</p> <ol style="list-style-type: none"> Parking spaces for carpoolers Special and well-placed bicycle parking and changing facilities Improved lighting, landscaping and shelter to make waiting areas and public transport stops more pleasant Negotiating better bus services, for example, changing bus routes or offering discounts Access restriction for parking cars, or charging fees Financial benefits for walking, cycling, public transport, or carpooling. Information boards for public transport and carpooling in entrance halls Enhanced, safe access for pedestrians and cyclists as far as feasible and within reach of the existing location – i.e. for all types of users, regardless of their level of mobility or visual impairment through improved lighting, road markings and signs for bicycle and pedestrian routes to adjacent traffic routes, public transport hubs and facilities and provision of new or improved pedestrian and cyclist crossings Taxi waiting areas and drop-off points Buildings in a rural setting have well-coordinated access routes to local amenities, such as a city center.

REFERENCE	SUBJECT	DEFINITION
		j. Multi-modal access for goods transport and better handling of transport movements
CN4	Involving end users in transport plan	If the end-user is known, they should be involved in the development of the transport plan and ensure that the transport plan is implemented as described. A transport plan is also required if the end user or owner is not yet known. This may also be an interim transport plan that meets the criteria. The developer must confirm that a copy of the transport plan will be handed over to the future tenants, owner or users of the building, so that it serves as the basis for their own transport plan.
CN5	Mode of transport	The mode of transport is the way in which freight transport can take place. Buildings are connected to the road network as standard and road transport is seen as one modality. For other modalities, such as rail or water, it must be demonstrated that the right facilities, such as transshipment equipment, are available. Air transport is not seen as an alternative mode of transport, because its environmental impact is greater than that of road transport.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Transport plan

A transport plan is a plan for managing and controlling all travel and transport aspects within a company or organisation, in order to improve the accessibility of an area and make it more sustainable. A transport plan contains measures to expand the 'alternative' travel options and to ensure that people travel less often (alone) by car. The measures focus on the following aspects:

- Preventing transport: encouraging flexible workplaces and teleworking;
- Preventing the use of cars and trucks: encouraging the use of bicycles, public transport, and other alternatives;
- Improving the means of transport: fuel-efficient and/or electric (truck) cars and charging points, cruise control, cleaner fuel;

- Improving the use of the means of transport: carpooling, better load factor;
- Improve logistics and freight transport: combination loads, better load factor, smarter handling of transport movements, use of (smaller) trucks with high Euro emission classes, use of rail and water.

Users of the building

Depending on the building type, the term 'building users' refers to:

- Staff;
- Pupils and students;
- Visitors;
- Clientele;
- Users in the community;
- Couriers and suppliers who deliver or collect goods;
- Service providers who regularly visit the building;
- Transporters and logistics service providers.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Water



SUMMARY

This category encourages the sustainable use of drinking water during the use stage of the building and its outdoor spaces. This means that the use of drinking water (both indoors and outdoors) is reduced over the lifetime of the building. Reducing water loss due to leaks is also an important part.

CONTEXT

Water efficiency is a key topic within the United Nations Sustainable Development Goals (SDGs). Goal 6 (clean water and sanitation) says that by 2030, we need to "significantly increase water use efficiency in all sectors and ensure the sustainable extraction and supply of freshwater, to address water scarcity and significantly reduce the number of people affected by water scarcity."

Due to the growth of the world population, climate change and high water consumption, there are shortages of water worldwide. These shortages are only expected to increase in the coming years, as the demand for water is expected to increase by 55% between 2000 and 2050. In addition, the energy required for the extraction, purification, supply, heating, cooling and disposal of water (and wastewater) contributes to climate change and deteriorating air quality. Reducing water consumption through more efficient use of water is therefore crucial to ensure that enough water is available to meet future demand and to combat climate change.

Value of the issues

WAT 01	Water consumption	Five credits and EP credit
Value:	<ul style="list-style-type: none">• Water consumption• Large water consumption reduction	
WAT 02	Monitoring water	One credit
Value:	<ul style="list-style-type: none">• Monitoring water consumption	
WAT 03	Water leak detection and prevention	Two credits
Value:	<ul style="list-style-type: none">• Leak detection system• Flow Regulator	
WAT 04	Water efficient equipment	One credit
Value:	<ul style="list-style-type: none">• Water efficient equipment	

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Water consumption

Minimize the use of drinking water for all sanitary applications in the building by applying water-efficient facilities and by collecting and reusing rainwater and 'grey' water.

Credits available	: 5
Pre requisite	: X
Minimum standard	: ✓
Project	: ✓
Filter issue	: X
Exemplary performance	: ✓

Criteria

The issue consists of two parts:

- Water consumption (five credits);
- Large water consumption reduction (EP credit).

Demonstrate that the following criteria are met:

Five credits – Water consumption (minimum standard starting from Good rating)

1. The efficiency of water consumption in the building is assessed with the WAT 01 calculator (see methodology).
2. The target water consumption (litres/person/day) of the building is compared with a reference level which is then used to calculate a percentage improvement. Based on this percentage improvement, credits are awarded in Table 01.1.
3. The water consumption of the following facilities must be included in the assessment:
 - a. Toilets;
 - b. Urinals;
 - c. Taps for washbasins, in (professional) kitchens and waste processing machines;
 - d. Showers;
 - e. Bathe;
 - f. Dishwashers for domestic or commercial purposes;
 - g. Washing machine for domestic or commercial purposes.

The WAT 01 calculator determines for which building types the above-mentioned facilities must be assessed.

4. If a black, grey or rainwater harvesting system is specified in the building design, the yield (litres/person/day) is included as compensation for sanitary facilities that would otherwise use drinking water.
5. The greywater system must be specified and installed in accordance with the provisions of NEN-EN 16941-2:2021.
6. The rainwater harvesting systems must be specified and installed in accordance with the provisions of NEN-EN 16941-1:2024.

EP-credit – Large water consumption reduction

7. Criteria 1 to 5 have been achieved and the percentage improvement from criterion 2 is more than 85%.

Water consumption

No credits - Supplementary for EU Taxonomy

8. The water appliances installed in the building meet the requirements of Table WAT 01.2. This is confirmed using the calculator.
9. The testing of the facilities is carried out in accordance with the specifications mentioned in CN6.

Tables

Table WHAT 01.1 Credits available for the percentage improvement in water efficiency compared to the reference level

NUMBER OF CREDITS	% IMPROVEMENT
One	15%
Two	30%
Three	45%
Four	60%
Five	75%
EP credit	85%

Table WAT 01.2 Requirements provisions according to EU Taxonomy

SUPPLY	REQUIREMENT
Basin taps and kitchen taps	Maximum water flow: 6 litres/min
Showers	Maximum water flow: 8 litres/min
Toilets including duo blocks, pots and water tanks	Maximum full flush volume: 6 litres
Maximum average flush volume: 3.5 litres	Maximum water consumption: 2 liters/jar/hour

Table WHAT 01.3 minimum assumptions for provisions

SUPPLY	MINIMUM STARTING POINT
Toilet/WC	6 litres effective flush volume
Urinator	8.75 litres/bowl/hour
Washbasin and kitchen taps	10 litres/minute
Shower	12 litres/minute
Bath	200 litres
Dishwasher (household)	17 litres/cycle
Dishwasher (commercial)	8 litres/rack
Washing machine (household)	90 litres/cycle
Washing machine (commercial)	14 litres/kg
Waste disposal unit	17 litres/minute

Water consumption

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Utility – Shell and cores – Tenant facilities	For tenant facilities that are not specified and installed by the developer of the building, the minimum assumptions from Table WAT 01.3 must be adhered to.
CN1.2	Extension of existing buildings	If only the extension of the existing building is assessed, the roof of the extension must be counted as the run-off roof area. If the roof of the existing building can still be used (and has not already been allocated to an existing rainwater harvesting system), this may be counted towards the roof area of the extension.
CN1.3	Hotels	For an accommodation function, the WAT 01 Calculation Tool can be used for 'other buildings', see annex A10
CN1.4	A lot of water needed for irrigation of horticulture	For locations where water is needed for horticultural irrigation, such as botanical gardens, garden centers or golf courses, water collection may also be used for this.
<i>General</i>		
CN2	Black, grey and stormwater system data	<p>For blackwater, greywater and stormwater systems, the following data must be entered.</p> <p>For black water and grey water systems:</p> <p>The percentage volume of wastewater collected (and reused) from the following (if applicable): sinks, showers, kitchen sinks, dishwashers, baths, washing machines, and sources of wastewater from non-household components.</p> <p>For rainwater systems, choose one of the following options:</p> <p>Option 1:</p> <ul style="list-style-type: none"> • Horizontal projection of the assembly area (m²) • Surface yield coefficient (%) • Hydraulic treatment coefficient (%) • Annual local precipitation (mm/year) <p>Option 2:</p> <ul style="list-style-type: none"> • Daily rainwater collection (liters) <p>The daily rainwater collection (litres) should be calculated on the basis of credible and verifiable national or local data, for example from a regional, national or international meteorological organisation, data source or equivalent source.</p>
CN3	Minimum period of rainwater collection	For the assessment of this issue, the period for the collection of rainwater is set at a minimum of 18 days. This is equivalent to about 5% of the total annual rainfall.
CN4	Runoff from paved surfaces	Runoff from paved surfaces and green roofs can also be included in the calculation. If the runoff is collected from both

Water consumption

REFERENCE	SUBJECT	DEFINITION
		roofs and paved surfaces, the total runoff area must be at least equal to the horizontal projection of the roof.
CN5	Post-construction stage	Proof of the type and number of toilets installed in the post-construction stage can be provided by an on-site inspection by the assessor. It is important that the type of plate and/or the settings of the coil consumption are visible. The check can also be carried out by the commissioning manager as part of MAN 04. His statement, together with the purchase receipts and/or photos of the construction, may be sufficient.
<i>Additional EU Taxonomy</i>		
CN6	Specifications for testing facilities	All of the following specifications are met: <ol style="list-style-type: none"> The flow rate is recorded at the standard reference pressure 3-0/+ 0.2 bar or 0.1-0/+ 0.02 bar for low-pressure restricted products. The flow rate at the negative pressure of 1.5-0/+ 0.2 bar is $\geq 60\%$ of the maximum available flow rate. For mixed showers, the reference temperature is $38 \pm 1^\circ\text{C}$. If the flow must be lower than 6l/min, this complies with the rule of point 2. For cranes, the procedure of point 10.2.3 of (NEN)-EN 200 is followed, with the following exceptions; <ol style="list-style-type: none"> for taps that are not limited to low-pressure applications only: apply a pressure of 3-0/+ 0.2 bar to both the hot and cold inlet; For valves limited to low-pressure applications only: Apply a pressure of 0.4-0/+ 0.02 bar to both the hot and cold inlet and fully open the flow control.

Methodology

WAT 01 calculator

The BREEAM WAT 01 calculation tool is a method to assess water efficiency for the most common building types. The calculation tool calculates the water consumption of the entire building (in liters per person per day and m³ per person per year) based on standard data for sanitation and the occupancy rate of the building. The calculation tool and the associated guidelines are available on the website.

The calculation tool is an Assessment tool and not a design tool for water demand and drainage systems. Because water consumption depends on user behavior and occupancy rates, the results of the calculation tool do not reflect actual water consumption. The results may therefore not be used to estimate the actual water consumption of the building.

Completing the WAT 01 calculator

In the WAT 01 calculator, one user function can be entered. The building's main use function must be entered in the calculator. The total GFA (the sum of the GFA per function) of the project must be entered in the calculator. All water-using facilities in the building, as mentioned in criterion 3, must be entered in the calculator. Based on the specifications of these water-using facilities, a percentage improvement is calculated by the calculator.

Filling in the rainwater tool

See the help page for the scheme New Construction and Renovation of non-residential buildings v6.1.1 on www.richtlijn.breeam.nl

Water consumption

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	
Additional EU Taxonomy	Technical data sheets, product certificates or equivalent.	

Definitions

BREEAM WAT 01 calculator

The BREEAM WAT 01 calculation tool is a method for assessing water efficiency in the most common building types. The calculation tool calculates the water consumption of the entire building based on data for sanitation and the occupancy rate of the building. The calculation tool and the accompanying guidelines for its application are available on the website.

Water consumption of sanitary facilities

The water (potable and non-potable) consumed by all sanitary facilities, including kitchen taps, taps of washbasins, baths, showers, toilets, urinals, washing machines, dishwashers and cleaning installations in the building, for example for flushing toilets or other permitted uses of non-potable water.

Drinking water (or tap water)

Water of potable quality, taken from a connection to the main water supply from the drinking water supply network. In the Netherlands defined as tap water.

Household water or grey water

Slightly contaminated waste water from domestic activities (such as shower, kitchen, washing machine) that does not meet the quality requirements of drinking water and that is only intended for toilet flushing, washing machine or watering green areas in collective installations.

Non-potable water

All water other than drinking water.

Rainwater recycling

The proper collection and storage of stormwater runoff from paved surfaces and green roofs to meet the need for non-potable water in the building, for example for flushing toilets or other permissible uses of non-potable water.

Greywater recycling

The proper collection, treatment (purification) and storage of domestic wastewater – the water that comes from kitchens, baths or showers, washrooms and similar areas – to meet the need for non-potable water.

Additional information

Considerations for the design of greywater systems

The use of greywater within a building can cause hygiene problems if the system is not properly designed, installed and/or maintained. Clear design information, maintenance procedures and a good understanding of these points of attention among users can prevent these problems. Greywater systems that have been carefully designed and installed can be used without any public health and safety concerns.

In the interest of public health, the Drinking Water Regulation sets requirements for the production, distribution and use of grey water. No quality requirements have been formulated for grey water, because the costs of enforcement would outweigh the benefits of its use. Instead, the Drinking Water Regulation includes regulations of a technical nature. Together, NEN 1006+A1:2018 (General regulations for tap water installations), NEN- EN 16941-2:2017 (draft) and ISSO 70.1 (2011) provide a set of regulations that enable the safe use of grey water.

Additional EU Taxonomy

The EU Taxonomy refers to European standards to assess the technical specifications of the facilities. For example, the following standard can be used to demonstrate the specifications for taps: (NEN)-EN 200 Sanitary taps – Dispense taps and mixers for tap water installations type 1 and type 2 – General technical specification.

Other European standards for assessing the technical specifications of the facilities are:

- (NEN)-EN 816 Sanitary fittings – Self-closing fittings (PN 10).
- (NEN)-EN 817 Sanitary taps – Mechanically adjustable mixing valves (PN 10) – General technical requirements.
- (NEN)-EN 1111 Sanitary fittings and fittings – Thermostatic mixing valves (PN 10) – General technical requirements.
- (NEN)-EN 1112 Sanitary taps – Shower heads for sanitary taps for tap water installations type 1 and type 2 – General technical requirements.
- (NEN)-EN 1113 Sanitary taps – Shower hoses for sanitary taps for tap water installations type 1 and type 2 – General technical requirements.
- (NEN)-EN 1287 Sanitary Fittings – Thermostatic Mixing Valves for Low Pressure Applications – General Technical Specifications.
- (NEN)-EN 15091 Sanitary taps and fittings - Electronic opening and closing taps and fittings.

References

- NEN-EN 16941-2:2021 (draft) Location-based non-drinking water systems – Part 2: Systems for the use of grey water.
- NEN-EN 16941-1:2024 and Location-based non-drinking water systems – Part 1: Systems for the use of rainwater.

Water monitoring

To monitor water consumption, encourage building users to reduce the use of drinking water.

Credits available	: 1
Pre requisite	: X
Minimum standard	: ✓
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of one part:

- Monitor water consumption (one credit).

Demonstrate that the following criteria are met:

One credit – Monitoring water consumption (minimum standard starting from Good rating)

1. A water meter has been installed on the main connection of water supply to the building. Even in the case of water use from a greywater or rainwater system.
2. All water-using facilities and rooms, each of which uses at least 10% of the building's total water demand, are equipped with sub-meters or have their own integrated water monitoring system (see also CN2 and CN3).
3. Each water meter (main connection and all submeters) must be continuously readable and is connected to a monitoring or building management system where each meter is labeled according to the specific consumption group of the meter.
4. When the building is connected to an existing water monitoring system as an extension, the various water meters must be connected to it.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Utility – shell and central installations - Tenant facilities	All water-using facilities and building spaces developed by the developer, see CN2, must meet criterion 2. Facilities that are additionally installed by the tenant can be disregarded.

Water monitoring

REFERENCE	SUBJECT	DEFINITION
CN1.2	Extension to existing buildings	If no water supply is realized because the facilities are located in the existing building, the criteria apply to the existing building.
<i>General</i>		
CN2	Water-using installation or building zone (Criterion 2)	This includes at least the following (where present): <ol style="list-style-type: none"> Buildings with a swimming pool and the associated changing facilities (toilets, showers, etc.). In multi-unit or building locations, such as shopping malls, industrial units, retail parks, etc., separate water meters are installed for the following areas (if any): <ol style="list-style-type: none"> Every single unit that is supplied with water. Common areas (such as the supply to toilet blocks). Service areas (such as the supply to water outlets in storage, final and waste areas). Outbuildings or buildings other than the main building with water supply. Laboratories: Separate water meters are placed on each water supply of a process or cooling circuit of process equipment that has a water line.
CN3	10% of water demand (Criterion 2)	The requirement for a second meter does not apply if there is no additional benefit for monitoring, for example: <ol style="list-style-type: none"> If a building has only one or two small water-using components (e.g. an office with plumbing and a pantry). If a building has two water-using facilities, one of which is much larger than the other, and the water consumption for the larger demand is likely to hide the smaller demand.
CN4	Existing facilities and meters	Existing water meters can be accepted if they have a pulse, digital or other open protocol communication output to connect to a suitable monitoring and management system.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Meter Outputs

Examples are pulse outputs and other open protocol communication outputs such as Modbus.

Water monitoring

Monitoring and building management system

Examples include automatic meter reading systems (AMR) and building energy management systems (BMS). Automatic Monitoring and Targeting (aM&T) is an example of a management tool that also supports automatic meter reading and data management.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Water leak detection and prevention

Limiting the consequences of water leaks that would otherwise go unnoticed.

Credits available	: 2
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of two parts:

- Leak detection system (one credit);
- Flow regulator (one credit).

Demonstrate that the following criteria are met:

One credit – Leak Detection System

1. A leak detection system is installed, right after the main meter, for detecting large leaks in the water pipe. The system is connected to all water supply lines to each building. The leak detection system is:
 - a. Audible when activated (See CN11)
 - b. Activated when the flow volume by the water meter or data logger exceeds the set maximum flow volume for a specified period of time
 - c. Able to identify different flow rates and leaks, e.g. continuous, high and/or low flow volume, for certain time period(s)
 - d. Programmable to match the water needs of the building user/owner
 - e. If applicable, designed to prevent false alarms caused by normal use of large water consumers such as cooling installations.

One credit – Flow regulator

2. One of the following types of electrical or mechanically operated valves are installed in the water supply to each toilet facility and commercial kitchen (restaurant) to ensure that water supply only takes place when necessary (preventing small water leaks):
 - a. A time-controlled shut-off valve that shuts off the water supply at predetermined intervals.
 - b. A volume-controlled shut-off valve that shuts off the water supply when a preset maximum value is reached.
 - c. An automatically operated shut-off valve that shuts off the water supply when no one is present.
 - d. A centrally controlled system using some or all of the types of controls listed above which are centrally controlled by a computer-controlled water management system.

Tables

None.

Water leak detection and prevention

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Toilet facilities and company kitchen (restaurant)	The water supply to toilet facilities and commercial kitchen (restaurant) must meet the criteria under 2 in all cases (shell/central installations), regardless of whether the sanitary facilities are installed.
CN1.2	Hotels	Criteria 2 does not apply to toilet and shower facilities in hotel rooms, but does apply to the communal toilet blocks.
<i>General</i>		
CN2	Leakage quantities	This issue does not specify what the minimum and maximum leakage currents may be. However, the system must be able to distinguish between different flow volumes in order to be able to match the (to be set) consumption patterns of different building users/owners
CN3	Requirements	It is assumed that this issue is usually achieved by installing a system that detects higher volumes of current at meters and/or sub-meters than normal. It is not required that the system detects leakage in (part of) the water pipes in the building.
CN4	Water meter of water supply company	If a water meter from the water company is present, it may be necessary to install a separate water meter to detect leaks; However, if the water company allows a leak detection system to be connected to its meter, this is permitted.
CN5	Requirements for presence detection	To obtain this issue, disconnection of the water supply by presence detection for each individual sanitary facility is not necessary. The requirement applies to the water supply per toilet block on a floor when it is not in use.
CN6	Location of stop valves and valves	The stop valves and shut-off valves should be located in an accessible location. The valves must be safe to operate and must be located close to the corresponding devices.
CN7	Individual toilets	The requirements for this issue also cover facilities with one toilet (possibly in small buildings or buildings with low occupancy). In this case, the electric valve can also be controlled via the light switch and the toilet area (either via presence detection or via a manual switch).
CN8	Extension of existing buildings	If no new connection pipe is realized in the extension, the connection pipe to the existing building must be assessed on the basis of the criteria under part 1 of this issue.
CN9	Extension of existing buildings	If the toilets are located in the existing building, the existing facilities must be assessed on the basis of criterion 2 of this issue.
CN10	Periodic flushing in connection with legionella	If it is likely that the toilet facilities will not be used for a long time, for example due to holiday periods, measures must be taken to enable the operation of automatic flushing taps for legionella control.

Water leak detection and prevention

REFERENCE	SUBJECT	DEFINITION
CN11	Audible	It can be in the form of a message or by phone; The goal is not to set off an alarm throughout the building, but to be audible to those responsible for troubleshooting in the event of a leak.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Stop valves

A stop valve is a tap that ensures that part of the water network can be closed off for carrying out maintenance work. This can be done at different levels, for a local application or for the entire system.

Presence detection for lighting

Light fixtures in restrooms are often connected to presence detection, IR motion detection, or switch contacts on the entrance door (the latter option may be less accurate because multiple people can enter and leave the space). The detectors used to switch the lighting can also be used to operate the electric shut-off valve in the water supply. They then act as presence detection.

Small leaks

Small water leaks can cause large losses, damage and therefore costs. The risk of leaks going unnoticed is high because washrooms are often not used for long periods of time. A presence detection on the water supply prevents water from flowing away when the toilet is not in use. Valves in water tanks for toilets are extra sensitive to leaks where the water can flow away through an overflow device. Although the leakage volume of each leaking valve is different, an average of 4 liters per day flows away.

Legionella

If the water flow is interrupted, there is an increased risk of legionella. Try to avoid standing water for a long time and, for example, take into account a good flow of the water pipes at an early stage (see also CN5).

Additional information

None.

References

None.

Water leak detection and prevention

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Water efficient equipment

Reducing drinking water consumption through efficient implementation of water-using facilities that are not assessed in WAT 01.

Credits available	: 1
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: ✓
Exemplary performance	: X

Criteria

The issue consists of one part:

- Water-efficient equipment (one credit).

Demonstrate that the following criteria are met:

One credit – Water efficient equipment

1. The design team documented all water-using facilities in the building and on the site with a non-domestic water demand (e.g. swimming pools, vehicle wash and irrigation systems).
2. Systems and/or processes are specified in such a way to reduce the drinking water demand and show that the total drinking water consumption of the building decreases significantly.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	No demand for drinking water outside domestic	If there is no demand for drinking water outside the standard household purposes described in WAT 01, this issue (WAT 04) does not apply. Please note the conditions under CN5.
<i>General</i>		
CN2	Water-saving measures	Not all water-saving measures can be specified in BREEAM-NL. The project team must be able to show that all specific and proven measures and techniques have been implemented for the project. The following measures demonstrate that the criteria are met:

Water efficient equipment

REFERENCE	SUBJECT	DEFINITION
		<ul style="list-style-type: none"> a. Moisture-sensor-controlled drip irrigation below ground level. Irrigation must be divided into zones, so that different groups of plants can be sprayed variably. b. Reuse of rainwater or greywater with adequate storage – in accordance with WAT 01 for vehicle washing services, toilet systems and irrigation. c. External landscaping (planting) that is completely dependent on local precipitation, during all seasons of the year. d. Specified planting consisting only of species that thrive in hot and dry conditions. e. Specified internal planting that does not require additional watering (e.g. moss walls).
CN3	Vehicle washes	The vehicle wash system collects run-off water from the wash area and reuses it. The reuse must be fully automatic.
CN4	Microbial contamination	If a vehicle wash is present, the design team must explain to the Assessor how the risk of legionella contamination has been minimized in the design.
CN5	No irrigation required	When irrigation facilities are not necessary, but internal and external plants are present, approval from a licensed ecologist or gardener is required. The evidence can be combined with that of LE 04.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Non-domestic water demand

For the purposes of this issue, water demand includes: swimming pools, hot tubs and hydrotherapy baths, irrigation systems (internal and external) and vehicle washes. The water demand for domestic sanitary purposes does not belong to this issue, this is assessed in WAT 01.

Car wash for vehicles

A commercial automatic, semi-automatic or manual system for washing vehicles. This includes facilities for washing wheels, chassis, conveyor and window cleaner with brushes, spray bars or manual pressure washers.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Materials



SUMMARY

This category encourages taking steps to reduce the environmental impact of building materials. It also focuses on the responsible and circular use of materials in buildings. By paying attention to the design, the choice of materials and the construction technique, we can make great progress.

CONTEXT

The use of materials in construction has a major impact on the environment. Moreover, this creates waste at the end of a building's lifespan. Many important materials are non-renewable and are becoming scarcer, more expensive and riskier to extract. The extraction and production of raw materials also often leads to social and ecological problems. Therefore, it is important that the real estate sector takes these challenges seriously. This can be done by choosing reused or recycled materials instead of new materials. We can also use raw materials that cause less damage to society and the environment. In addition, it is important to maintain or increase the value of materials and to enable reuse in the future.

This document is for informational purposes only and cannot be used for certification. The Dutch version prevails.

Value of the issues

MAT 01	Environmental impact of building materials	Seven credits and EP credit
Value:	<ul style="list-style-type: none"> • Environmental performance • Specification of architectural materials • Specification of Installation Parts and Materials • New LCA profiles 	
MAT 02	Embodied and whole life carbon	Five credits and up to two EP credits
Value:	<ul style="list-style-type: none"> • Material-related emissions • Whole life carbon • Material-related emissions 	
MAT 03	Responsible sourcing of materials	Two credits
Value:	<ul style="list-style-type: none"> • Sustainable wood and bamboo • Percentage of building materials with a responsible origin 	
MAT 05	Robustness of building materials	One credit
Value:	<ul style="list-style-type: none"> • Robustness of building materials 	
MAT 06	Material efficiency	One credit
Value:	<ul style="list-style-type: none"> • Material efficiency 	
MAT 07	Detachability	Two credits and EP credit
Value:	<ul style="list-style-type: none"> • Detachability of the building materials and products used • Building passport • Detachability of the building materials and products used 	

Environmental impact of building materials

Identifying, encouraging and documenting the use of materials with a low environmental impact throughout the building's entire life cycle.

Credits available	: 7
Pre requisite	: X
Minimum standard	: ✓
Project	: ✓
Filter issue	: X
Exemplary performance	: ✓

Criteria

The issue consists of five parts:

- Environmental impact materials ((five credits);
- Specification of construction materials (one credit);
- Specification of materials in building services (one credit);
- New LCA profiles (EP credit);
- EU Taxonomy, primary raw materials (no credits).

Demonstrate that the following criteria are met:

Five credits – Environmental impact materials (Minimum standard starting from Excellent rating)

1. The environmental impact is quantified by calculating the total shadow price per m² GFA per year of the building. This is done according to the current determination method of the Environmental Performance of Buildings of the National Environmental Database Foundation. The number of credits you can achieve depends on how much the (weighted) shadow price per m² GFA per year has been reduced compared to the reference shadow price in Guidance Note 42 and Table MAT 01.1.
2. The calculations for the environmental impact were carried out by a person with demonstrable experience in making LCA calculations with the Environmental Performance Assessment Method for Construction Works (CN2 and CN3).

One credit - Specification of construction materials

3. At least one credit has been achieved in environmental impact materials (criteria 1 and 2).
4. At least 40% of the shadow costs of the building materials used must be specified with product-specific data (Category 1). These products and materials must also be included in the MPG calculation. See the methodology for more information.

One Credit – Specification of materials in building services

5. At least one credit has been achieved in environmental impact materials (criteria 1 and 2).
6. This section only deals with the materials and products for the building services of the project. A minimum of five products from five different NL/SfB categories included in MAT01.2 must be specified with product-specific data (Category 1). These products and materials must also be included in the MPG calculation (CN7).

Materials specification

EP Credit – New LCA profiles

7. At least three new materials and/or products used in the building for which LCA data in the National Environmental Database (NMD) are not yet available must be included in the NMD as specific product profiles (Category 1) on behalf of the project.
8. The materials and/or products must also be able to be used by other projects. It is therefore not specific data for this project.

No credits - Supplementary to EU Taxonomy

9. The use of primary raw materials shall comply with the percentages set out in Table MAT 01.3 according to CN8.
10. The CO₂ equivalent (GWP) is entered for each life cycle stage (modules A to D) under the Assessment data in the Assessmenttool.

Tables

Table MAT 01.1 Number of credits available

IMPROVEMENT OF THE ENVIRONMENTAL PERFORMANCE OF THE PROJECT BUILDING COMPARED TO THE REFERENCE	AVAILABLE BREEAM-NL CREDITS
≥ 15.00%	One credit (minimum standard from the rating Excellent)
≥ 25.00%	Two credits
≥ 35.00%	Three credits
≥ 45.00%	Four credits
≥ 55.00%	Five credits

Table MAT 01.2 NL/SfB classification for CAT 1 specific input of installation materials and products

NL/SFB CATEGORIES OF INSTALLATIONS	INSTALLATION CATEGORY NAME	EXAMPLES
52.1	Eliminate; rainwater	Rainwater drainage, pump system, separators, water storage
52.2	Eliminate; faeces	Filtration systems, storage tanks, faecal standard system, vacuum system and pump system
52.3	Eliminate; wastewater	Wastewater pumping systems, separators within the building, plant types with domestic wastewater, industrial wastewater
52.4	Eliminate; combined	A combined (integrated) system in which rainwater, faeces and wastewater are discharged together (52.1, 52.2 and 52.3) consisting of, for example, a pump system, separator and settling pits
52.5	Eliminate; Waste water disposal special	Chemical, biological, radioactively contaminated wastewater disposal system, pharmafilter
52.6	Eliminate; Solids	Chutes, vacuum system, compressed air system
53.1	Water; drinking water	Connections

Materials specification

NL/SFB CATEGORIES OF INSTALLATIONS	INSTALLATION CATEGORY NAME	EXAMPLES
53.2	Water; heated tap water	Hot water generators, solar water heaters, pump(s)
53.3	Water; Company water	Softened water system, pressure booster system, storage vessels
53.4	Water; service steam and condensation	Low and high pressure systems
53.5	Water; Water treatment	Filtration systems
54.1	Gases; fuel	(Natural) gas facilities
54.2	Gases; compressed air	Compressed air supplies, compressor, buffer tank
54.3	Gases; medical	Oxygen, carbogene, nitrous oxide supplies
54.4	Gases; technical	Pure and mixed gas facilities
54.5	Gases; special	Pure and mixed gas facilities
54.6	Gases; vacuum	Vacuum supply and pump system
55.1	Refrigeration; Generation Local	Window coolers/split systems and compact systems
55.2	Refrigeration; Revival central	Heat pump systems, free cooling, adsorption systems
55.3	Refrigeration; distribution main distribution (up to distributor/collector)	Control devices and materials required for the distribution system
55.4	Refrigeration; distribution main distribution (from distributor/collector)	Control devices and materials required for the distribution system
55.5	Refrigeration; storage	Storage
55.8	Refrigeration; final	Induction units, climate ceilings, floor and wall cooling systems
56.1	Heating; Generation Local	Direct-fired heated appliances, steam humidifiers
56.2	Heating; Revival central	Heaters, steam boilers, solar collectors
56.3	Heating; distribution main distribution (up to distributor/collector)	Control devices and materials required for the distribution system
56.4	Heating; distribution main distribution (from distributor/collector)	Control devices and materials required for the distribution system
56.5	Heating; storage	Storage
56.8	Heating; final	Radiant panels, climate ceilings, floor and wall heating systems
57.1	Air conditioning; Of course	(Non-)natural adjustable facilities
57.2	Air conditioning; mechanical room	Exhaust fans, filters, integrated electrical controls, silencers, heat recovery
57.3	Air conditioning; Mechanically central	Exhaust fans, filters, integrated electrical controls, silencers, heat recovery
57.4	Air conditioning; distribution	Channels

Materials specification

NL/SFB CATEGORIES OF INSTALLATIONS	INSTALLATION CATEGORY NAME	EXAMPLES
57.5	Air conditioning; final	Fittings and grilles
59.1	Fire safety; Gas extinguishing system	Sprinkler, dry extinguishing pipe
59.2	Fire safety; Water extinguishing system	Sprinkler, water mist, fire hose reels
59.3	Fire safety; Fire ventilation system	Smoke/heat extraction, pressurization system
61.1	Central electrical facilities; Power generation	PV panels, wind turbines, inverters, facilities for storage of renewable energy.
61.2	Central electrical facilities; Grounding and lightning protection	Earthing and lightning protection installations and facilities.
61.3	Central electrical facilities; Channeling	Cable cars
61.4	Central electrical facilities; medium voltage power distribution >1 kV	Distributors, transformer
61.5	Central electrical facilities; low-voltage power distribution ≤ 1 kV	Main distribution boards, isolation transformer
63.1	Lighting; lighting, operation, regulation and signalling	Sockets, regulators
63.2	Lighting; Lighting standard fixtures	(Emergency)Luminaires
63.3	Lighting; Lighting other luminaires	Advertising lighting
63.4	Lighting; Escape route signage	Central signalling, luminaires
66.1	Transport; Elevators	Hitchhike
66.2	Transport; escalators, moving walkways and ramps	Escalators and Moving Tracks
66.3	Transport; goods	Goods lifts, track transport equipment, hoists
66.4	Transport; documents	Pneumatic tube

* The examples mentioned are not exhaustive. It is possible that the NL-SfB code includes products or installation components that are not mentioned as an example.

Table MAT 01.3 Maximum percentage of primary raw materials

PRIMARY RAW MATERIAL	MAXIMUM TOTAL QUANTITY (%) FOR NEW CONSTRUCTION	MAXIMUM TOTAL QUANTITY (%) FOR RENOVATION
Concrete, natural stone or agglomerated stone (combined)	70%	85%
Bricks, tiles, ceramics (combined)	70%	85%
Bio-based materials	80%	90%
Glass, mineral insulation (combined)	70%	85%
Non-bio-based plastics	50%	75%
Metal	30%	65%
Gypsum	65%	83%

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Work instruction MPG	In order to draw up an MPG calculation, the MPG Work Instruction document must be applied as additions to criterion 1. For shell and central installations, undefined installation technical, materials and products must be filled in according to this work instruction to determine the environmental performance.
CN1.2	Extension of existing buildings	For the expansion of existing buildings, all materials required for the expansion must be included in accordance with the Environmental Performance Assessment Method for Buildings. When calculating the shadow price, the gross floor area of the extension must be used
CN1.3	Renovation	The scope of an MPG calculation for a large-scale renovation is the same as for new construction. How recycled materials should be entered into the MPG calculation is described in the methodology.
CN1.4	Scope materials cold stores	All materials required to meet the requirements of Checklist A9 for cold stores must be included in the MPG calculation, except for part M.
CN1.5	Scope materials industry in combination with Checklist A5	All materials required to meet the requirements of Checklist A5 for the industrial function must be included in the MPG calculation, except for the "Renewable Energy Application" section.
CN1.6	Applying life extension (industrial)	The standard lifespan of 50 years always applies to the industrial function. The only exception is when the industrial part is the base floor for the rest of a building with a different main function. In that case, the guideline for building-specific lifespan is used for the entire building.
<i>General</i>		
CN2	MPG calculation	The calculation of the MPG must meet the following requirements: <ol style="list-style-type: none"> The most recent version of the Environmental Performance Assessment Method for Construction Works and the National Environmental Database (NMD) must be used for the registration of the BREEAM-NL assessment. A more recent version of the NMD may be used, as long as it corresponds to the version of the determination method used. An earlier version of the NMD than the registration date of the BREEAM-NL assessment is not permitted. The calculation must be carried out by someone who has experience with MPG calculations and has made an MPG calculation for at least three similar projects in the last three years.

Materials specification

REFERENCE	SUBJECT	DEFINITION
		In the post-construction stage of the BREEAM-NL assessment, a revision of the MPG calculation must take place in order to include any changes from the design stage in the final MPG calculation.
CN3	LCA expert	The person performing the LCA must have demonstrable experience in creating LCAs. The LCA must comply with the most recent versions of the Environmental Performance Assessment Method for Construction Works and the international standards ISO 14040 and ISO 14044. Recognized LCA software must be used. Finally, the LCA must be verified by an independent organization to ensure the reliability of the results.
<i>Specification of structural materials and installation materials and products</i>		
CN4	Potential Cat 1 products and materials in the design stage (criteria 4 to 8)	It may happen that building materials and products and building installations of the project have not yet been registered with product-specific data (category 1) at the design stage. If the design team has a declaration from the manufacturer that the product-specific data (category 1) will be included in the NMD upon final, this may be counted as product-specific data (category 1) in the MPG during the design stage. If the product-specific data (category 1) is not included in the NMD in the post-construction stage, the credit and the possible profit in reduced shadow price are forfeited.
CN5	Product-specific LCA and CAT 1	<p>For criteria 4 to 7, it is necessary to provide specific environmental data of products in the form of an LCA. The National Environmental Database (NMD) includes LCA profiles, which are based on products from specific suppliers. It is also possible to draw up a special LCA for a certain product for one project. We call this a project-specific LCA. If this is the case, such an LCA can also be used as CAT 1 data, as long as the LCA has been approved by an independent recognized LCA expert (CN3). The list of LCA experts can be found on the website of the National Environmental Database.</p> <p>There are various tools available for creating a project-specific LCA, such as the Groenbeton design tool, the Rethink EPD tool and the BRL K11002. The resulting LCA has yet to be assessed by a recognised LCA expert (CN3). In the BRL K11002, the assessment by a recognized and independent LCA expert is guaranteed.</p>
CN6	Building service materials and/or products	Building service materials and/or products must be entered into the MPG tool used in accordance with the NL/SfB categories for buildings services as shown in table MAT01.2.
CN7	Different NL-SfB categories	<p>Table MAT01.2 shows several NL-SfB categories. These categories consist of different installation (components). It is also possible that certain installation (components) fall into several NL-SfB categories. It is important that all variants/types of the installation (component) have CAT 1 product card(s) in order to be counted as one product from one NL-SfB category.</p> <p>For example: If the same type of CAT 1 filter is used in different installation (components) and therefore falls within two or more NL-SfB categories, this filter is counted as one product within</p>

Materials specification

REFERENCE	SUBJECT	DEFINITION
		<p>one NL-SfB category. In the case of two different types of filters, each with its own CAT 1 product card and within two different NL-SfB categories, both filters are counted as one product.</p> <p>For example: If climate ceilings are chosen as an installation (component), all climate ceilings in the building must have a CAT 1 product card. Even if they are different types of climate ceilings. The application of only one climate ceiling with a CAT 1 product card is not considered to be one product from one NL-SfB category.</p>
<i>New LCA profiles</i>		
CN8	New products and materials (EP credit)	For new products and/or materials, the producer must confirm that the LCA data for a specific project has been produced and added to the National Environmental Database (NMD). The same new (innovative) products and/or materials may not be declared for the Exemplary Performance in multiple projects.
<i>Complementary to EU taxonomy</i>		
CN9	Three heaviest material categories	<p>The three heaviest categories of materials used for the new construction or renovation of the building must comply with the maximum quantities of primary raw materials set out in Table MAT 01.3, measured in kilograms. The remaining percentage must consist of secondary raw materials. The aim is to reduce the use of primary raw materials by adding secondary raw materials to the construction product.</p> <p>If no information on the recycling content of a construction product is available, it is assumed that it consists of 100% primary raw materials.</p>

Methodology

MPG calculation in the case of a large-scale renovation

When assessing renovation projects, materials from the old building that remain in place or are reused in another place in the building may be taken into account. The residual environmental impact of the old materials is also included in the calculation of the environmental impact. If, for example, an office building is renovated after 30 years, the residual environmental impact of the past 20 years must be included in the calculation for the materials that remain. This residual environmental impact is then depreciated over the new lifespan of the building.

In practice, this means that the materials are imported as if it were a completely new construction project, but the amount of reused materials is corrected. For a residual life of 20 years in non-residential construction, a correction of 20/50 can be applied to the amount of reused materials in the new building. For practical reasons, the actual lifetime of the product is not taken into account compared to the standard lifetime of the building.

Materials that are removed from the building during demolition are not included in the assessment of the environmental impact of the new building.

Materials specification

Allocation of CAT 1 data in an MPG Calculation

The reference date of the database used for the final MPG calculation in the design stage is also the basis for the post-construction stage. Only the materials and products that have been upgraded to CAT 1 in the post-construction stage may be manually added to the calculation. This can be done via a program such as Excel, in which the environmental performance of the materials and products is added to the outcome of the final MPG calculation, based on the ECI score of the materials or products given by the supplier (and not yet included in the NMD). In the post-construction stage, the project must explain how this has been incorporated into the MPG calculation. All existing materials and products that have changed in the database (both positive and negative) are not included. A more recent reference date of the NMD may also be used. In that case, the shadow price for the entire building must be recalculated. The same MPG calculation must be used for all criteria.

Examples of the credits calculation for Environmental Performance of Buildings (part 1)

Example A:

A combination building with both office space and meeting rooms has a reference value of € 0.94 per square metre per year for the environmental performance of materials. The environmental performance calculated for this project is € 0.67 per square metre per year. The improvement is $1 - (0.67 / 0.94) = 27.95\%$. This means that the building gets two credits for this criterion.

Example B:

A combination building has 200 m² of office space and 800 m² of industrial space. The reference value for the environmental performance of materials is € 0.94 per square metre per year for the office space and € 0.73 per square metre per year for the industrial space.

The average reference value for the whole building is calculated by taking into account the total area: $(200 \times 0.94 + 800 \times 0.73) / (200 + 800) = € 0.77$ per square metre per year.

The environmental performance of the building is then calculated and is 0.35.

$1 - (0.35 / 0.77) = 54.55\%$. This means that the building gets four credits for this criterion.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

MPG calculation

The MPG (environmental performance building) is an important measure of the sustainability of a building. The lower the MPG, the more sustainable the use of materials. The environmental performance of building materials and installations will become an increasingly important factor in the overall environmental impact of a building. The MPG is an objective tool in the design process and can be used in a Schedule of Requirements to record the result of a design process.

The use of recycled floor covering, for example, gives a building a sustainable appearance and is an important means of communication. However, an MPG calculation shows that the durability of the floor under the floor covering has a much greater effect on the environmental impact. This highlights the importance of choosing materials based on their environmental impact.

Materials specification

Life Cycle Analysis (LCA)

Environmentally-oriented LCA is a method for mapping the impact of products and human activities on the environment, using special calculation models. LCA looks at the entire life cycle of a product or activity, from the extraction of raw materials through production and (re)use to waste processing – in other words: from cradle to grave. Because it involves a chain of processes, LCA is considered a form of chain analysis.

Secondary and primary raw materials

'Secondary raw materials' means materials that have been prepared for re-use or recycled in accordance with Article 3 of the Waste Framework Directive, and which cease to be waste in accordance with Article 6 of that Directive. The use of secondary raw materials contributes to reducing the ecological footprint of a building.

The material concrete also includes its components (e.g. aggregates). Reinforcing steel is excluded because it is another material that can be included under metals; this is relevant for the classification of materials in the MPG calculation.

Bio-based materials are made using biological resources (animals, plants, microorganisms, and derived biomass, including organic waste). This includes conventional bio-based materials such as wood, cork, natural rubber, paper and textiles, as well as more recently developed materials such as bio-based chemicals and bio-based plastics, for example PLA (polylactic acid) and PHA (polyhydroxyalkanoates).

Additional information

MPG calculation in the case of a large-scale renovation

At the time of publication of the scheme, the MPG determination method does not yet offer any practically feasible calculation rules for determining the shadow costs of materials in renovation projects. Until DGBC, in agreement with experts and relevant parties, has assessed that practically feasible and clear calculation rules have been published, the calculation rules described in methodology must be followed.

References

None.

Whole life carbon and embodied carbon

Encouraging choices to be made during the development of the building that result in the lowest possible CO₂ emissions over the entire lifespan of the building, taking into account the CO₂ emissions of the materials, the construction stage, the (building-related) operational energy consumption, maintenance and demolition.

Credits available	: 5
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of three parts:

- Material-related emissions (two credits);
- Whole life carbon (up to three credits);
- Material-related emissions (up to two EP credits).

Demonstrate that the following criteria are met:

Two credits – Material-related emissions

1. The material-related emissions, determined as described in the methodology in GN MAT 02, are at least equal to or lower than limit value 1, reference year 2021 from table 1 of the calculation protocol.

Up to three credits – Whole life carbon

2. The lifetime CO₂ equivalent (kg CO₂-eq / m²_BVO*year) determined as described in the CN MAT 02 is less than or equal to the limit value in GN MAT 02. See table MAT 02.1 for the number of credits available.

Up to two EP credits – Material-related emissions

3. The material-related emissions, determined as described in the methodology in GN MAT 02, are at least equal to or lower than limit value 2, reference year 2030 from table 1 of the calculation protocol for one EP credit.
4. The material-related emissions, determined as described in the methodology in GN MAT 02, are at least equal to or lower than limit value 3, reference year 2040 from table 1 of the calculation protocol for two EP credits.

Tables

MAT 02.1 Number of credits available

CO ₂ EQUIVALENT (KG CO ₂ -EQ / M ² _BVO*YEAR)	NUMBER OF CREDITS AVAILABLE
Less than or equal to limit value	1
At least 20% lower than the limit value	3

Whole life carbon and embodied carbon

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Guidance Note MAT 02	In order to obtain credits for this issue, the methodologies and reference values from the Guidance Note MAT 02 must be used. This Guidance Note provides guidance on how to assess materials and their environmental performance. It is important to note that this Guidance Note may be revised independently of the Scheme. This means that changes in the guidelines or methodologies are possible in the future.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Whole life carbon

Whole life carbon is the approach to a_{CO2-neutral} construction column. This looks at low energy requirements, sustainable energy generation and the CO2 emissions of the building materials over the entire lifespan of the building.

Additional information

None.

References

None.

Responsible sourcing of construction products

Encouraging the purchase of building materials with responsible origin when used in the main building components.

Credits available	: 2
Pre requisite	: ✓
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of two parts:

- Sustainable wood and bamboo (Pre requisite);
- Percentage of building materials with a responsible origin (up to two credits).

Demonstrate that the following criteria are met:

Pre requisite – Sustainable wood and bamboo

1. The wood, wood products, bamboo and bamboo products used must be certified according to an approved certification system of the Timber Procurement Assessment Committee (TPAC).
2. The contractor must have the Chain of Custody (CoC) certificate(s) of all certification systems from which they purchase wood. If a CoC certificate is missing, a project certification or STIP certificate from a TPAC-approved certification system is required. With multiple contractors, each contractor must have the CoC certificate(s) or STIP certificate for all certification systems from which they purchase wood.

Up to two credits – Percentage of building materials with a responsible source

3. On the basis of the number of credits to be pursued (see Table MAT 03.1), at least 80% of the volume of the materials used (Table MAT 03.2) of four or six main building components must have a substantiated and responsible origin (CN2).

Tables

MAT 03.1 Number of Credits available

NUMBER OF CREDITS	NUMBER OF MAIN COMPONENTS
One credit	Of at least four main building parts, 80% have a responsible origin.
Two credits	Of at least six main building components, 80% have a responsible origin

Responsible sourcing of construction products

MAT 03.2 Main components

MAIN COMPONENT	(SUB)DISTRIBUTION	NL-SFB
A	Floors on foundation	13.1 - Floors on foundation; Not constructive
		13.2 - Floors on foundation; constructive
	Foundation Structures	16.1 - Foundation structures; Feet and Beams
		16.2 - Foundation structures; retaining walls
	Pile foundation	17.1 - Pile foundations; Not guaranteed
		17.2 - Pile foundations; Bound to
B	Exterior walls	21.1 - outer walls; Not constructive
		21.2 - Outer walls; constructive
C	Interior walls	22.1 - Interior walls; Not constructive
		22.1 - Interior walls; constructive
D	Floor	23.1 - Flooring; non-structural
		23.1 - Floors; constructive
E	Roofs	27.1 - Roofs; Not constructive
		27.1 - Roofs; constructive
F	Main load-bearing structures	28.1 - Main load-bearing structures; Columns and beams
		28.2 - Main load-bearing structures; walls and floors
		28.3 - Main load-bearing structures; Space Units

Note: The volume including any insulation materials applies to all main building parts.

MAT 03.3 Recognized origin certification product level

RECOGNIZED ORIGIN CERTIFICATION	SCHEDULE LABEL(S)/VERSION(S)	ADDITIONAL CRITERIA
Aluminium Stewardship Initiative (ASI)	All materials used must meet the 'ASI Certified Performance' and must also be certified with the 'ASI Certified Chain of Custody'. Provisional certification is not enough.	The aluminium must come from a manufacturer who is a certified ASI member, or from a supplier of this aluminium who is also a certified ASI member. A list of certified members can be found on this website.
BES 6001 Framework Standard for Responsible Sourcing	All	-

Responsible sourcing of building materials

RECOGNIZED ORIGIN CERTIFICATION	SCHEDULE LABEL(S)/VERSION(S)	ADDITIONAL CRITERIA
CARES Sustainable Construction Steel Scheme	All	-
Concrete Sustainability Council (CSC)	Certified concrete (level) bronze, silver, gold and platinum.	-
Eco Reinforced Responsible Sourcing Standard, Steel Products for the Reinforcement of Concrete	All	-
FSC (must be approved by TPAC)	"FSC 100%", "FSC mix" and "FSC Recycled"	-
PFEC (must be approved by TPAC)	"Certified", "Recycled" and "Mix"	-
Other TPAC-approved labels	DOT	-
SFI	"SFI certified chain of custody, promoting sustainable forestry"	Certified forest content = 100% of total
	"SFI certified chain of custody, promoting sustainable forestry"	Recycled timber/fibre content = 0% of total

MAT 03.4 Processes requiring EMS

MATERIAL CATEGORY	PRODUCTION PROCESS END PRODUCT (KEY PROCESS)	KEY SUPPLY CHAIN PROCESS
Concrete and cementitious		
In-situ poured concrete (including ready-mix and cementitious mortars and plasters)	Turnkey Mix Concrete Batching Plant	Cement production; extraction and production of aggregates
Precast concrete and other concrete products (including building blocks, cladding, precast concrete floors or cement-bonded roof tiles)	Concrete fabrication	Cement production; extraction and production of aggregates
Plasterboard and plaster	Manufacture of plaster or plasterboard (as material)	Extraction of gypsum; synthetic plaster from flue gas desulfurization is covered (recycled material)
Cementitious chipboard	Due to its significant cement content, the Key Supply Chain process for cement must be included. This applies in addition to the required certification for the origin of wood. It is important that both processes meet the sustainability criteria to ensure the overall environmental performance of the project.	Cement production, and wood of certified origin
Metal		
Metals (steel, aluminum, etc.)	Manufacture of metal products e.g. Façade cladding, profile steel production	Metal Production: Steel Production Process in Electric Arc Furnace or Oxygen Steel Furnace, Aluminum Ingot Production Process (Crude Precious Metal), Copper Ingot

Responsible sourcing of construction products

MATERIAL CATEGORY	PRODUCTION PROCESS END PRODUCT (KEY PROCESS)	KEY SUPPLY CHAIN PROCESS
		Copper Production Process or Cathodic Production (Crude Precious Metal)
Ceramic (clay) products		
Bricks (including roof tiles and other ceramic building materials)	Product Manufacturing	Clay extraction process
Glass		
Glass	Glass production	Sand extraction. Extraction and/or production of soda ash
Plastics, polymers, resins, paints, chemicals and bituminous building materials		
Plastic and rubbers (including polymer plasters, EPDM, TPO, PVC and VET roof membranes)	Plastic/Rubber Product Manufacturing	Production of finished polymer
Resin-bonded composites and materials (including glass fibre reinforced and polymeric plaster mortars, but excluding wood-based composites)	Composite Product Fabrication	Glass fiber production (or any other matrix reinforcement/reinforcement material), polymer production
Bituminous materials, such as roof membranes and asphalt	Product Manufacturing	Bitumen production. Granulate extraction and production
Insulation		
Foam insulation	Insulation Fabrication	Production of polymers such as polystyrene foam, MDI (PUR, PIR), phenolic resin or equivalent
Rock wool, glass wool and cellular glass with < 50% recycled material	Product Manufacturing	All minerals from quarries or mines with > 20% share in the product
Wool	Product Manufacturing	Extraction of (natural) wool
Products made from more than 50% recycled material. Does not apply to wood as a recycled material	Product Manufacturing	Process that covers the recycled content
Wood-based insulation materials, including products containing recycled wood.	Product Manufacturing	The process must ensure that the recycled content of wood material and/or other wood material is covered by one of the recognised certification schemes included in BREEAM-NL issue MAT 03
Other materials		
Mineral-based materials, including fibre cement and calcium silicate (e.g. sand-lime brick)	Product Manufacturing	Cement production, lime production, extraction and processing of other minerals
Products made from 100% recycled material	Product Manufacturing	The proportion of recycled material is automatically sufficient. For other raw materials, the production chains must comply as described in this table.

Responsible sourcing of building materials

MATERIAL CATEGORY	PRODUCTION PROCESS END PRODUCT (KEY PROCESS)	KEY SUPPLY CHAIN PROCESS
Other (construction) products	The key process is probably the same as the product manufacturing	You need to choose one or two main resources. The process of making or extracting these raw materials has a major impact on the environment.
<p><i>When cement and aggregates, or dry ready-mix concrete mix, are mixed on site (i.e. not as previously certified precast concrete products or wet ready-mix concrete mix), the certification must cover:</i></p> <ul style="list-style-type: none"> <i>I. The manufacture of the cement and the primary production process.</i> <i>II. The supply chain process for the extraction of aggregates and limestone used for the cement.</i> <p><i>These certifications ensure that the materials used meet sustainability and quality standards.</i></p>		

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Responsible sourcing	A building material has a responsible origin if it meets one of the following requirements: <ul style="list-style-type: none"> a. A certificate at product level (see Table MAT 03.3). b. The producer/manufacturer and raw material supplier are both in possession of an EMS (see Table MAT 03.4). c. A fully recycled product automatically meets the requirement of responsible origin.
CN3	Certification of responsible origin in procedure	If a company is in the process of obtaining, for example, an ISO 14001 or product certificate, but does not yet have one, it can get a design certificate. This can be done if the project shows that the procedure is underway. The proof of this is the registration or contract with a certifying body, which shows that the procedure has begun. For the completion certificate, the certificate must be obtained
CN4	FSC and PFEC wood	100% PEFC Origin is rated equivalent to FSC 100%.

Methodology

None.

Evidence

Responsible sourcing of construction products

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Environmental Management System (EMS)

A structured system that helps organizations manage and improve their environmental performance. It provides a framework for identifying, monitoring, and mitigating environmental impacts, complying with laws and regulations, and promoting sustainable practices. An EMS includes elements such as environmental policy, planning, implementation, control, and continuous improvement, and can be certified to standards such as ISO 14001

Additional information

None.

References

- Timber Procurement Assessment Committee (TPAC) - <https://www.tpac.smk.nl/32/home.html>.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Designing for durability and resilience

Optimal use of robust materials, minimizing the replacement frequency, and adequate protection of exposed building parts and parts of the project site.

Credits available	: 1
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of one part:

- Robustness of building materials (one credit).

Demonstrate that the following criteria are met:

One credit – Robustness of building materials

1. The building consists of robust materials and uses protective measures to prevent damage to vulnerable parts of the building, both inside and outside. Stressful factors can have negative effects, such as biological, chemical, physical or mechanical influences. For an overview, see Table MAT 05.1.
2. Appropriate design measures and specifications have been included for all vulnerable parts of the building and the project location. These are intended to limit damage and weathering of building parts due to exposure to the stressing factors from Table MAT 05.1 (see Methodology).

Tables

Table MAT 05.1 Harmful environmental factors with regard to damage, weathering and degradation

HARMFUL ENVIRONMENTAL FACTORS	INFLUENCES AND POSSIBLE DAMAGE	WHERE APPLICABLE: EXTERIOR/INTERIOR
Environmental and weather influences	a. Solar radiation (UV) b. Temperature fluctuations (e.g. frost) c. Water or humidity d. Wind e. Precipitation (rain, hail, snow) f. Extreme weather conditions: <ol style="list-style-type: none"> Floods Torrential rain Drought Whirlwinds 	Exterior
Biological influences	a. Vegetation b. Vermin c. Fungi d. Insects	Exterior: foundation and building envelope all around, including soil and (sewage) water connections
Contaminants	a. Air pollution b. Soil pollution	Exterior: foundation and building envelope all around, including soil and (sewage) water connections

Designing for durability and resilience

HARMFUL ENVIRONMENTAL FACTORS	INFLUENCES AND POSSIBLE DAMAGE	WHERE APPLICABLE: EXTERIOR/INTERIOR
Mechanical damage due to (human) activities	<ul style="list-style-type: none"> a. Heavy pedestrian traffic at main entrances, in publicly accessible areas and passageways (corridors, elevators, stairs, doors, etc.) b. Indoor traffic with cars, trolleys, forklifts, etc.; including mechanical traffic as a result of the (building) function(s) c. Indoor and external traffic at project location with bicycles, cars, trucks, etc. d. Vandalism 	Interior and exterior
Chemical damage caused by (human) activities	<ul style="list-style-type: none"> a. Construction activities (fluid accumulation) b. Moisture from domestic use (water vapour and condensation). c. Frequent use of cleaning and cleaning products. d. Maintenance (e.g. façade cleaning) 	Interior and exterior

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Appropriate protective measures (criterion 1)	<p>Suitable robustness and protection measures for vulnerable parts of the building may include:</p> <ul style="list-style-type: none"> a. Posts or barriers, raised curbs or wheel enforcers for loading and unloading areas. b. Robust exterior wall constructions up to two meters high. c. Protection rails on corridor walls. d. Kick plates or collision protection for doors (e.g. against trolleys). e. Hard-wearing and easily washable floor finishes in high-traffic areas (such as the main entrance, corridors and public areas). f. Identify the risk to protect vulnerable building parts, without additional material specifications.
CN3	Building parts to be considered (criterion 2)	<p>The environmental pressures and the effects on material degradation (damage and weathering) must be considered for the following building parts:</p> <ul style="list-style-type: none"> a. Foundation, main structure, floor and retaining walls. b. Exterior and interior walls. c. Roof and balconies. d. Glazing, windows, skylights, skylights and skylights. e. Doors. f. Balustrades, stair railings and balusters.

Designing for durability and resilience

REFERENCE	SUBJECT	DEFINITION
		<ul style="list-style-type: none"> g. Façade cladding and wall finishing. h. Stairwells and ramps. i. Paving at the project location.
CN4	Effects of material degradation (damage and weathering)	<p>At least the following effects of material depletion should be investigated:</p> <ul style="list-style-type: none"> a. Corrosion. b. Change of dimension, for example, swelling or shrinking. c. Fading or discoloring. d. Rotting and mold formation (dry rot). e. Leaching. f. Peeling off. g. Melt. h. Salt damage (crystallization). i. Wear. j. Frost damage. <p>Where materials have been chosen that have other effects that may affect material impoverishment and are not listed, these effects should also be investigated.</p>
CN5	'Anti-collision' facilities for cars and trucks	<p>All specified protective measures must be placed at a sufficient distance from the building to protect the building parts. It is important that different types of vehicles with an overhang, relative to the wheel track, cannot hit the building. The protective measures apply to all parking zones and manoeuvring areas within one metre of the building façade. A distance of two metres applies to loading and unloading areas. Within the movement areas of vehicles, the specifications of the robust façade construction must meet the criteria. In addition, extra protection is needed to prevent potential damage to the façade due to collision. Examples of protective measures are bollards or protective rails.</p>
CN6	'Anti-collision' devices for internal rolling and moving traffic	<p>All protection against internal traffic of vehicles or trolleys must be installed within one metre of indoor building elements. This applies to corridors, storage areas, final areas and kitchens.</p>
CN7	Preventing excessive Materials	<p>To avoid excessive material use, the need for additional protective design measures and specifications must be weighed against common robust materials and building components without additional measures. This trade-off should take into account minimizing substitutions, preventing excessive material use, and promoting material optimization (see MAT 06 Material Efficiency).</p>
CN8	Public and common areas	<p>The project team must pay extra attention to material specifications in public or communal areas, such as waiting areas, bicycle parking facilities and toilets. This is important to protect against potential wanton damage and misuse, such as vandalism and graffiti.</p>

Designing for durability and resilience

Methodology

Protection of exposed building elements against damage, weathering and degradation

The assessment of criterion 2 for newly specified materials and building elements is explained step by step below:

- Search the list of building elements at CN3 for all suitable elements for the project that needs to be assessed.
- Use Table MAT 05.1 to determine which harmful environmental factors are likely to cause damage and weathering to the building components and elements.
- Indicate on the design drawings and in the specifications what measures have been taken to limit these degradation effects. Include relevant technical product details from the supplier or manufacturer that demonstrate that these measures counteract the damage and weathering.
- The assessor assesses whether the design team has sufficiently demonstrated that it has worked out and specified effective design measures and use of materials to prevent damage and weathering. This also helps to limit or prevent frequent replacements, repairs, and maintenance throughout the building's lifecycle. The same lifespan applies as that in the final MPG calculation for MAT 01.
- If, in the post-construction stage, the measures and specifications deviate from those in the design stage (design certificate), the project team must demonstrate that the construction project meets the objectives of robustness and the assessment by the assessor as described in credit 4 despite these deviations.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Additional information

None.

References

None.

Material efficiency

Material efficiency measures, to minimize the environmental impact of material use and waste.

Credits available	: 1
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of one part:

- Material efficiency (one credit).

Demonstrate that the following criteria are met:

One credit – Material efficiency

1. Appropriate measures are taken to promote efficient use of materials, from the design of the building through to the construction stage. This also takes into account future maintenance, renovation, reuse and the end of the life of the building or building parts (see Table MAT06.1 and MAT06.2).
2. The above measures will be carried out in consultation with the parties involved (see CN2) by the design and construction team in the following project stages:
 - a. Project definition (PoR) and structure design;
 - b. Preliminary draft;
 - c. Final design;
 - d. Technical design;
 - e. Execution.

Tables

Table MAT 06.1 Examples of evidence for improving material efficiency in different project stages

WORK STAGE	INFORMATION AND ACTIONS	RESULT AND EVIDENCE
A. Project definition and structural design Programme of requirements (PoR)	The Programme of Requirements (PoR) contains a chapter on material efficiency, which includes the client's ambitions and objectives, such as: <ol style="list-style-type: none"> a. Objectives for circular construction (such as detachability, reuse and recycling). b. Drawing up a material passport. c. Consideration of different construction techniques and materials in connection with MAT 01 (MPG). d. Forecasting the amount of waste (on the construction site and over the lifetime of the building). 	<ul style="list-style-type: none"> • A copy of this chapter (and the appendices) from the PoR. • Reports of the first meetings between the client and the design team.

Material

WORK STAGE	INFORMATION AND ACTIONS	RESULT AND EVIDENCE
	e. Assessment of the construction site, the scale of the project, the environment and the wishes of the client.	
B. Preliminary draft	a. Strategy for the implementation of material efficiency in the design process, based on the objectives of the PoR. b. Consideration of different options for material use and calculating the influence on material efficiency in the MPG calculation.	<ul style="list-style-type: none"> • A copy of the design strategy for material efficiency and records of the meetings between the client and the design team. • MPG calculation for the design stage, with visible choices and considerations with regard to the use of materials.
C. Final design	a. Argumentation for the material choices made. b. Processing choices in the MPG calculation. c. Implement the choices made in the drawings and specifications.	<ul style="list-style-type: none"> • Reports from the design team showing the evolution of the design. • MPG calculation of the final design, with visible choices and considerations regarding the use of materials.
D. Technical design	a. Consultation with stakeholders in the design and construction process (contractors and suppliers, see CN2) to determine the technical and economic feasibility of design choices. b. Implementation of material efficiency measures. c. Consultation with building code and building code authorities.	<ul style="list-style-type: none"> • Reports of design and construction team meetings. • MPG calculation for the technical design, with visible choices and considerations regarding the use of materials.
E. Execution	a. Supervise the implementation of the measures during the construction process. b. Keeping track of any adjustments to the design. c. The relationship with waste management on the construction site (WST 01).	<ul style="list-style-type: none"> • Reports of construction team meetings. • Reports of the 'supervision' of material efficiency on the construction site. • MPG calculation for the completed building, with visible choices and considerations with regard to the use of materials.

Table MAT 06.2 Examples of actions and measures in the field of material efficiency

BREEAM-NL ASSESSMENT PARTS:	CONSIDERATIONS FOR ENTERING MATERIAL EFFICIENCY
Entire building and all building parts	<ul style="list-style-type: none"> • Can building components and elements be detached and reused in the future, preferably on site or on a construction project in the vicinity? • Have these building components, elements and products been included in a material passport (see MAT 01) and entered into a detachability tool approved by DGBC (see MAT 07)? • Can building components, elements and products with a high recycled content be used, or that are highly recyclable?

Material

BREEAM-NL ASSESSMENT PARTS:	CONSIDERATIONS FOR ENTERING MATERIAL EFFICIENCY
	<ul style="list-style-type: none"> • Can recycling and reuse be taken into account from the design stage according to the R-ladder and hierarchy for waste materials (see WST 01, CN5)? • Are construction and installation techniques used that make smart and efficient use of materials to limit material loss and waste on the construction site as much as possible?
Shell and core	<ul style="list-style-type: none"> • Are materials used in the piping (sanitary and HVAC) that can be easily detached and possibly reused? • Are the pipework (sanitary and HVAC) materials with a high recycled content used, or are they highly recyclable? • Does the design of installations and sustainable energy generation take into account the life cycle of these systems, including future maintenance, replacement and decommissioning? • When designing ventilation systems (and ducts), is the design of ventilation systems (and ducts) considered passive techniques, use of materials and a smart layout? For example, placing air handling units closer to ventilated areas to reduce the length of the ducts, or using textile ducts instead of galvanized steel.
Hull	<ul style="list-style-type: none"> • Can windows, façade and roof parts, and other elements be easily replaced or repaired? • Is the insulation designed in such a way that no additional measures are required during the life of the building (e.g. to comply with stricter regulations)? And can the insulation be reused or recycled? • Can ceilings and partitions be easily detached, moved and reused?

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	Parties involved	All parties involved in the design, specification and/or construction of the project must be consulted. The following is an indicative (non-exhaustive) list of parties involved: <ol style="list-style-type: none"> Customer or developer Cost Advisor Architect Structural or civil engineer Building Installation Engineers (Mechanical, Electrical) Main contractor Demolition or dismantling contractor Environmental Advisor Project Management Consultant Manufacturers or suppliers of materials or components
CN3	Examples, evidence and information	Examples of evidence in the different stages of the design and construction process are given in Table MAT06.1. For each stage, an MPG calculation is required to show the evolution of

Material

REFERENCE	SUBJECT	DEFINITION
		the design process with regard to material efficiency. Examples of measures that can improve material efficiency are given in Table MAT 06.2.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Material efficiency

Material efficiency is about the efficient use and reuse of materials throughout the entire life cycle of a building. Based on circular construction principles and sustainable use of raw materials, the aim is to minimise the use of new materials. The materials and building components used are made "detachable" as much as possible, so that they can be easily dismantled and then reused or recycled (see the R-ladder for efficient use of raw materials – CN5 in WST 01). In addition, recycled material (from urban mining) and recycled material will be used in the building as much as possible. The demolition and waste stages are also taken into account in the design process. This means that construction methods are chosen that lead to less material use and less waste, such as modular and prefab techniques. These techniques make it possible to fabricate many building components off-site, which is usually more efficient and produces less waste.

Additional information

Improving material use

The construction industry is responsible for more than 30% of greenhouse gas emissions worldwide and consumes three billion tons of raw materials annually. The distribution of the total CO₂ emissions on earth shows that 55% of this comes from the production and processing of five commonly used building materials: steel (25%), cement (19%), paper (4%), plastic and aluminium (3%).

Improving the use of materials is one of the most important objectives for efficient use of raw materials. This issue encourages limiting the use of materials in the building design. By using materials efficiently and preventing waste, the depletion of natural resources can be reduced. BRE intends to further develop the assessment criteria for this issue in future updates to BREEAM and appreciates feedback on the application of this issue.

Stand and tool – BS 8895

The British standard BS 8895: Designing for Material Efficiency in Building Projects – Part 1: Code of Practice for Strategic Definition and Preparation and Brief (BSI, 2013) describes the core tasks of team members and their responsibilities for material efficiency at each stage of the project. The standard also provides guidance and tools

Material

that can help the design team develop and execute a material efficiency strategy. This makes the stand a useful tool for the design team.

Moment of choice for materialization

During the design of a building, choices are made for the materials at various times. For example, at an early stage, the material for the supporting structure is chosen, while at a later stage, the choices for the finishes and installations are made.

When making these material choices, it is important to consider sustainability. This issue is intended to track and control that process. The aim is to demonstrate that environmental properties play a role in making material choices.

The issue follows the stages as described in the standard task description of the DNR-STB 2014. However, the project is not obliged to strictly follow this classification. The stages mentioned should be seen as guidelines. It may be that for the architectural design and the technical installation design, for example, the stages take place at different times. It is up to the project team to determine when which stage will be carried out.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Design for re-assembly

Stimulating the 'detachability' of the building materials, building components and components used, so that they can be dismantled more easily at the end of the building's lifespan to be reused in another project.

Credits available	: 2
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of two parts:

- Detachability of the building materials and products used (one credit);
- Material passport (one credit);
- Detachability of the building materials and products used (EP credit).

Demonstrate that the following criteria are met:

One credit – Detachability of the building materials and products used

1. The detachability of the building materials used for the project has been determined with a tool approved by DGBC (see Methodology).
2. The detachability index LI project (Lig) is greater than 40%

One credit – Material passport

3. A material passport is available for 80% of the volume of the materials used in the building (according to the scope of the Environmental Performance Assessment Method for Building Works). All material passports are also integrated into a building passport.

EP credit – Detachability of the building materials and products used

4. The first credit for this issue has been achieved
5. The detachability index LI project (Lig) is greater than 60%.

No credits - Supplementary to EU Taxonomy

6. The building passport is stored in a national, public information management system.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Materials to be assessed	All building materials and products according to the Environmental Performance Assessment Method for Construction Works must be included in this issue. The scope for materials is therefore the same as for MAT 01.
CN1.2	Extension of existing buildings	All materials that are part of the expansion are assessed in this issue.
<i>Detachability of the building materials and products used</i>		
CN2	Reuse of materials from other buildings	The criteria for the detachability of recycled building materials and products are the same as those for new materials and products.
<i>Passport material</i>		
CN3	Material and building passport	<p>In order to be able to reuse building materials and products that are currently used in buildings in the future, it is important to properly record the material data and to store them unambiguously in a material passport. This passport is the best way to store this data. There are different types of material passports, not all of which are interchangeable at the moment. They also often provide more or different information than is requested in this issue. Therefore, this issue only sets general requirements for material passports.</p> <p>The building passport for the entire project contains a complete (digital) overview of all material passports of the parts used. This passport must make it clear where the materials have been used in the design (design certificate) and at final (final certificate, 'as built'). The passport is adaptable and transferable, and the data must be able to be used in an 'open' format, preferably as a CSV file. The passport is stored in a public system, so that other stakeholders and future owners can also consult it.</p> <p>The passport contains at least the following information:</p> <ol style="list-style-type: none"> Producer with contact information (name, address, website, email, phone number, country of residence) Description of the material/product: including product name, type designation, main function(s), and explanation of the construction of the material/product NL/SfB classification up to layer 3 (e.g. 23.03)

REFERENCE	SUBJECT	DEFINITION
		d. Whether the material/product meets the requirements for CAT1 input in the environmental performance calculations
CN4	Transfer of the materials and building passport	Part of the user manual is an explanation of where and how the material and building passport can be viewed. The aim is to ensure that the material and building passport remains accessible and findable, even if the user or owner of the building changes. If the section on the user manual does not apply, this explanation does not need to be included for future users

Methodology

Determining the detachability

A DGBC-approved detachability tool must be used to determine detachability. This tool calculates the detachability index (LI building, Lig) and can be downloaded from the [online guideline](#).

The calculations and substantiation of the detachability must meet the following requirements:

The project team must use the most recent version of the detachability tool, at the time of registration of the BREEAM assessment in the Assessmenttool.

- a. The detachability of the building installations must be taken into account.
- b. The detachability of the building components and objects must be indicated on detailed drawings. If BIM (Building Information Management) is used, the information on detachability must be included with the relevant building components and objects.
- c. All detachable building parts and objects must be included in a clear digital dismantling manual (in an open data format) upon completion of the building. This manual is part of the detachability documentation for the building manager. The manual must contain at least the following information:
 - I. An overview of building elements (with four-digit NL/SfB coding).
 - II. The Lip index of the total project.
 - III. Name and type of each detachable element.
 - IV. Manufacturer/supplier of each detachable element.
 - V. An image with coding (see below).
 - VI. A clear description (instructions for use) of the attachment and disassembly of each object, including type of connection (dry, wet, sealed, glued, etc.).
 - VII. Accessibility of the connections.
 - VIII. Crossings per object.
 - IX. Shape encapsulation per object.
 - X. Necessary tools, expertise, equipment and storage and transport facilities for dismantling.
 - XI. If BIM is used: Inclusion and linking of all detachable objects with their connections and LI element score in the BIM model.
 - XII. Please note: a printout of the 'as-built' completed detachability tool contains much of the above data.
 - XIII. In theory, a fully detachable object in a building has a score of LI element = 1. An object that is not detachable is given a score of LI element = 0.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Object

In this issue, the term 'object' is used for all 'detachable' building materials, building parts, products, components, elements, etc.

Additional information

The detachability of building elements is included in the MPG calculation and valued at MAT 01. This issue, MAT 07 Detachability, concerns the connections between objects in, on and on the building. It focuses on how these connections can be dismantled and how the objects can be reused.

References

- Report: Circular Buildings – a measurement methodology for detachability v2.0

Waste



SUMMARY

This category encourages sustainable waste management and the reuse of materials that would otherwise be destroyed. Attention is also paid to providing insight into the amount of waste produced during construction and separating waste during the use stage of the building. The prevention and reuse of waste is central to this.

CONTEXT

A lot of material is needed for the development of buildings. However, demolition still releases too many materials that are at the end of their life cycle. Many important materials are non-renewable and are becoming scarcer, more expensive and more difficult to extract. In addition, the extraction and production of mainly raw materials leads to social and ecological damage. Goal 12 of the United Nations 'Sustainable Development Goals' focuses on 'responsible consumption and production'. The goal is to achieve sustainable management and efficient use of natural resources. By 2030, waste streams must be significantly reduced through prevention, reduction, recycling and reuse. It is important that the real estate industry is committed to addressing these challenges by:

- a. Use existing buildings for as long as possible.
- b. Maintain or increase the value of materials.
- c. Promote the reuse or recycling of raw materials in existing buildings.
- d. Helping users maximise the reuse or recycling of waste.
- e. Reduce overall material use.
- f. Choosing reused or recycled materials instead of primary materials.
- g. Using raw materials that cause less harm to society and the environment.

Value of the issues

WST 01	Construction waste management	Three credits and EP credit
Value:	<ul style="list-style-type: none"> • Certificates main contractor, waste collector and waste processor • Waste management plan • Reuse and recycling of materials • Reuse and recycling of materials 	
WST 03	Storage space for recyclable waste material	One credit
Value:	<ul style="list-style-type: none"> • Storage space for recyclable waste 	
WST 04	Furnishing and finishing	One credit
Value:	<ul style="list-style-type: none"> • Furnishing and finishing 	
WST 05	Climate adaptation	One credit and EP credit
Value:	<ul style="list-style-type: none"> • Flood risk assessment • Adaptations to climate change • Responding to climate change 	
WST 06	Adaptive capacity	Three credits
Value:	<ul style="list-style-type: none"> • Method adaptive capacity buildings 	

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Construction waste management

Promote resource efficiency by promoting effective waste management and reuse on the construction site.

Credits available	: 3
Pre requisite	: ✓
Minimum standard	: ✓
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of four parts:

- Certificates main contractor, waste collector and waste processor (Pre requisite);
- Waste management plan (one credit);
- Reuse and recycling of materials (two credits);
- Reuse and recycling of materials (EP credit).

Demonstrate that the following criteria are met:

Pre requisite – General contractor, waste collector and waste handler certificates

1. The main contractor, waste collector and waste processor have ISO 9001 certification and ISO 14001 certification. Instead of ISO 14001, the CSR performance ladder level 3 is also sufficient, in which construction waste is part of the scope.

One credit – Waste management plan (Minimum standard starting from Very Good rating)

2. A project-specific waste management plan must be drawn up before the start of the demolition/construction stage.
3. The project-specific waste management plan makes an inventory of the expected amount of hazardous and non-hazardous waste material released (indicated in tonnes and/or m³) in the design stage. For the completion certificate, this is compared with the actual amount of material released in the construction stage.
4. Measures are taken to minimise the release of waste material, in line with the objectives set out in the waste management plan (see definitions).
5. Whenever possible, a local waste worker has been chosen to minimize transport distances.
6. Measures are taken to minimize the amount of packaging material for the waste.
7. A person has been appointed by the project team to implement and monitor the objectives and measures.
8. The amount of waste material released is monitored and the objectives are evaluated at least once every two weeks with the (main) contractors and the project team.
9. Upon completion, the extent to which objectives have been achieved must be reported.

Two credits – Reuse and recycling of materials (minimum standard from the rating Outstanding)

10. Criteria 1 to 9 have been met.

Construction waste management

11. At least 80% of the non-hazardous waste and demolition material released is separated on the construction site and is:
 - a. Reused in the construction project. OR
 - b. Reused in another construction project. OR
 - c. Reused in a different way through responsible collection and recycling by the supplier or a certified recycling company.

EP Credit – Reuse and recycling of materials

12. Criteria 1 to 11 have been met.
13. At least 90% of the non-hazardous waste and demolition material released is separated on the construction site and is:
 - a. Reused in the construction project. OR
 - b. Reused in another construction project. OR
 - c. Reused in a different way through responsible collection and recycling by the supplier or a certified recycling company.

No credits – Additional EU Taxonomy

14. New construction projects meet criteria 12 and 13. The share of 'backfill' according to CN13 is not part of the minimum 90% requirement.
15. Renovation projects meet criteria 10 and 11. The percentage, according to criterion 11, is at least 70% instead of 80%. The share of 'backfill' according to CN13 is not part of this 70%.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN 1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Extension of existing buildings	If only the extension of existing buildings is assessed, only the extension must meet the criteria.
<i>Pre requisite</i>		
CN2	ISO 14001 certificate design stage	If an organisation is still in the process of obtaining an ISO 14001 certificate and can demonstrate this, the criteria for a design certificate can be met. The evidence is the registration or contract with an ISO 14001 certified institution, which shows that the procedure has been initiated. To obtain the completion certificate, the ISO 14001 certificate must be obtained.
<i>General</i>		

Construction waste management

REFERENCE	SUBJECT	DEFINITION
CN3	Excluded waste streams	The categories "Construction and demolition waste" according to the Building Decree Regulation 2012, Article 4.1 paragraph 1, are separated on the construction site, but do not count towards the share of recycling and/or reusability within this issue. Commercial waste also does not count towards the share of credits for "Reuse and recycling of materials".
CN4	Reuse	"Reuse" is understood to mean (according to the Waste Framework Directive): Any operation whereby products or components that are not waste are reused for the same purpose for which they were designed.
CN5	Minimum standard	The waste treatment and recycling shall at least meet the minimum standard for treatment according to the relevant LAP3 sector plan of the material. If the LAP3 has been transferred to the CMP, this counts as the minimum standard. The application date of the building permit determines whether LAP3 or CMP must be followed.
CN6	Waste management hierarchy	The categories D to F from Lansink's Ladder (Incineration for energy generation, Incineration and Landfill) are not valued by BREEAM-NL.
CN7	Waste processor report	In the case of the reuse and recycling of materials by a certified recycling company, a report from the waste processor indicates what percentage of a particular waste stream is reused or recycled.
<i>Waste management plan</i>		
CN8	Content of the waste management plan	The waste management plan shall consist of at least: <ul style="list-style-type: none"> a. Inventory of the expected amount of hazardous and non-hazardous waste material (indicated in tons and/or m³) per waste category. b. Inventory of the expected amount of demolition material released from existing buildings, structures or paved areas. (CN10) c. Targets for the reduction of waste material. d. Objectives for reuse and/or transformation of these facilities and/or waste materials. If this is not possible, targets are set for the recycling of these materials, with priority given to high-value applications. e. Plan of action for the construction stage to secure objectives.
CN9	Scope of the waste management plan	Waste management takes into account: <ul style="list-style-type: none"> a. All the construction, demolition and industrial waste released on the construction site. b. Environmental impact of all the waste generated.
CN10	Demolition activities in waste management plan	For existing buildings, structures or paved areas that are nominated for demolition, the main contractor will carry out an inventory before demolition to determine whether reuse and/or transformation of these facilities is possible. If this is not possible, it is examined whether the materials released can be reused or recycled, with priority given to high-quality applications. The inventory will: <ul style="list-style-type: none"> a. Investigate whether reuse and/or transformation is possible. b. Mapping the most important demolition materials.

Construction waste management

REFERENCE	SUBJECT	DEFINITION
		<ul style="list-style-type: none"> c. Identify the most important (high-value) applications for reuse and recycling. d. Mapping the sale of demolition materials: reusing them on site, to urban mining, to recycling companies. e. Mapping environmental impacts. f. Setting targets for material efficiency and labour intensity in relation to waste reduction and yield of materials.
<i>Reuse and recycling of materials</i>		
CN11	Hierarchy of reuse	If non-hazardous demolition and waste material cannot be reused in the construction project or another construction project, credits can only be earned for responsible collection and recycling. In that case, it must be demonstrated that reuse was not possible. It must also be proven that this is not the result of the demolition or processing/separation on the construction site.
CN12	Post-separation	The non-hazardous waste and demolition material must be separated on the construction site and also disposed of separately. Post-separation by the waste processor is not valued by BREEAM-NL.
<i>Additional EU Taxonomy</i>		
CN13	Excluding padding	Materials that are incinerated to generate energy or used as backfill (such as in civil engineering applications) should not be included in the percentage of reuse and/or recycling.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	
Additional EU Taxonomy	Declaration from the waste operator indicating the percentage of the materials supplied will be reused and/or recycled, and what percentage will be used for backfilling.	

Definitions

LAP3 and CMP1

The policy for safe and high-quality processing of waste in the Netherlands is included in the LAP3 (National Waste Management Plan). But a circular economy does not only require good waste management at the end of the chain. With the CMP1 (Circular Materials Plan), the State Secretary wants to expand the scope of the current LAP, with more control on the higher rungs of the waste hierarchy that are important for a circular economy, such as reuse and prevention.

Construction waste management

Measures to minimize waste release

Activities for the reduction of demolition and construction waste are:

- Setting and reporting on waste reduction targets;
- Design for the standardization of components;
- Returning packaging for reuse;
- Consider the joint reuse of scraps or trimmings;
- Include initiatives and targets on waste minimisation in tenders or contracts, and involve the supply chain;
- The use of a Building Information Modelling (BIM);
- Designs for off-site or modular construction;
- Designing with an eye for flexibility, adaptability and future deconstruction;
- Designing to use fewer materials;
- Use of reusable temporary elements such as formwork and protection.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Storage space for recyclable waste

The designation of facilities for the separation and storage of recyclable waste during the use of the building, so that the efficient separation of recyclable waste is stimulated.

Credits available	: 1
Minimum standards	: X
Minimum standard	: ✓
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of one part:

- Storage space for recyclable waste (one credit).

Demonstrate that the following criteria are met:

One credit – Recyclable waste storage space (Minimum standard starting from Excellent rating)

1. A separate room or place is reserved for the separation and storage of recyclable waste in the user stage. This space or place is:
 - a. Clearly indicated and the containers for the inventoried waste streams are labeled.
 - b. Within an easily accessible distance of the building (max. twenty meters) or present in the building and accessible for collection vehicles (such as trucks).
 - c. The dimensions of the room(s) are sufficient to ensure the separate storage of recyclable materials during the operation of the building.
2. If large amounts of waste are produced regularly (daily), such as packaging or compostable waste, storage and/or composting facilities must be available on site. The aim is to encourage their use on site. To do this, the following criteria must be met:
 - a. Solid waste or balers in a dedicated waste management area.
 - b. Compost bins have been installed for the treatment of organic waste resulting from daily production in the building, or storage facilities are provided to store organic waste before it is collected by a waste processor.
 - c. In the rooms where organic waste is stored and/or composted, there is a water connection and water drainage.

Tables

None.

Storage space for recyclable waste

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Extensions of existing buildings	If there are waste facilities in the existing building, they can be used to assess whether the requirements have been met. The size of this facility must be sufficient to process the expected amount of recyclable waste in the new situation.
CN1.2	End-user not known – criterion 2	If the end user is not known, but the function of the building suggests that large amounts of waste are likely to be generated, an appropriately sized space and the necessary services/infrastructure must be in place. Examples include packaging waste or compostable waste.
CN1.3	Building is part of a collection of buildings – criterion 1c	In the case of certification of a building that is part of a collection of buildings (e.g. a business park or campus), it may be decided in the design stage to make a central storage space available for the collection and separation of waste from all buildings on the site.
CN1.4	Industrial function - Small industrial units - criterion 1	For an industrial building, project or site consisting of a number of smaller units, each with a floor area of $\leq 200 \text{ m}^2$, shared facilities that meet the above criteria are sufficient to achieve this issue.
CN1.5	Retail function - Shopping centres and retail parks – criterion 1	For shopping malls and retail parks, there should be enough space for each tenant to store the expected amount of recyclable waste. For smaller rented spaces, shared facilities that meet the above criteria are sufficient. Tenants occupying much of the center must have their own facilities that meet the criteria. If tenants have to store waste within their own rented spaces, it must also be demonstrated that the criteria of the issue are met.
<i>General</i>		
CN2	Dimensions of the waste area	<p>The design team demonstrates that the waste spaces offered are sufficiently large for the building type, the user, the types of use and the expected waste streams and quantities.</p> <p>If it is not possible to determine a good area, the following quantities can be used as a minimum:</p> <ol style="list-style-type: none"> At least 2 m² per 1000 m² NVO for buildings <5000 m². At least 10 m² LFA for buildings $\geq 5000 \text{ m}^2$. Additional for catering: <ol style="list-style-type: none"> 2 m² per 1000 m² NVO for buildings <5000 m² in which catering is provided. OR At least 10 m² NVO for buildings $\geq 5000 \text{ m}^2$ in which catering is provided. <p>The net floor area must be rounded to the nearest 1000 m².</p>

Storage space for recyclable waste

REFERENCE	SUBJECT	DEFINITION
CN3	Indoor storage units	If the storage facilities are located indoors, the vehicle accesses and cargo space must be large enough for the vehicles that come to collect the reusable and recyclable waste materials.
CN4	Little space for waste compactor(s) - criterion 2	For projects where space is limited, or access is difficult for vehicles, it can be decided to install smaller waste and/or balers.
CN5	Residual waste	The space for the storage of recyclable material should be offered in addition to spaces and facilities for the management of residual waste.
CN6	Organic waste	If only incidental organic waste is produced from a pantry, criterion 2 does not apply to organic waste.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Additional information

None.

References

None.

Speculative finishes

Promoting coordination with the future building user about the finish and furnishing to prevent material waste.

Credits available	: 1
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of one part:

- Furnishing and finishing (one credit).

Demonstrate that the following criteria are met:

One credit – Furnishing and finishing

1. For spaces to be rented out for which the future user is not yet known, the finish and furnishings such as floor coverings, wall finishes and pantries are only shown in show setup.
2. If a building or part of the building is being developed for a specific future user(s), they must have selected the finish and furnishing themselves or agree with the finish and/or furnishing chosen by the landlord.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
<i>General</i>		
CN2	User not engaged	If the user is known, but is not involved in the choice of finishes, this credit cannot be achieved.
CN3	Show setup	A show setup can be an entire floor or a separate room. This space must be smaller than 200 m ² NVO and a maximum of 25% of the net lettable floor area to achieve the credits.

Speculative finishes

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Finishing and furnishing

Finishing and furnishing are understood to mean:

- Floor covering and floor finishing;
 - Wall finishes;
 - Ceiling finishes, including lighting and climate installations;
 - Pantries, including countertops with kitchen cabinets;
 - Reception desks;
 - Toilets, bathrooms and other sanitary facilities.
-

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Adaptation to climate change

Encouraging measures that reduce the effects of extreme weather events due to climate change and make the building more robust and 'adaptive' throughout its lifespan.

Credits available	: 1
Pre requisite	: ✓
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✓

Criteria

The issue consists of three parts:

- Flood risk assessment (Pre requisite);
- Adaptations to climate change (one credit);
- Responding to climate change (EP credit).

Demonstrate that the criteria are met:

Pre requisite – Flood risk assessment

1. A global flood risk assessment has been carried out and the outcome is communicated to the (future) building owner.

One credit – Adapting to climate change

2. A detailed risk assessment of all relevant climate-related risks has been carried out.
3. If the risk assessment has shown that mitigating and/or adaptive measures are necessary, an adaptation plan has been drawn up and the measures have been integrally included in the building design.
4. The risk assessment and the associated adaptation plan were carried out by a competent person.
5. The risk assessment was carried out in the design stage, so that the mitigating and/or adaptive measures are an integral part of the building design.

Exemplary performance – Responding to climate change

6. The first credit has been achieved and the credits for the issues in Table WST05.1 below.

Adaptation to climate change

Tables

Table WST 05.1 credits in other issues related to the EP credit

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
HEA 05 Thermal comfort	Prevent increasing risks of overheating.	All the criteria of HEA 05 have been met.
ENE 01 Energy efficiency	Reduce energy consumption to contribute to lower CO2 emissions	At least eight credits have been obtained for ENE 01.
ENE 04 Passive design	Avoiding unnecessary CO2 emissions	The first credit for ENE 04 has been achieved.
WAT 01 Water consumption	Reducing water demand	At least three credits have been achieved for WAT 01.
MAT 05 Robust design	Limiting the risk of defence and damage	The criteria of MAT 05 have been met.
POL 03 Run-off rainwater	Preventing, reducing and slowing down rainwater run-off to natural and municipal and waterways	Two credits were won at POL 03.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Application in projects with project type shell and cores	Projects that certify with the project type shell and cores only need to achieve the credits from Table WST05.1 that apply to this project type for the Exemplary Performance.
<i>Prerequisite</i>		
CN2	Global flood risk assessment	The global flood risk assessment determines the current probability of flooding. For the flood risk assessment, the maximum water depth is determined, which demonstrates the susceptibility of an area to flooding. If the area is sensitive to flooding, the location-related probability at the various maximum flood depths must be further investigated.
CN3	Communication	In communication to (future) building owners, the outcome of the global flood risk assessment is shared. This must be clearly visible in the sales and/or rental information.
<i>Adapting to climate change</i>		
CN4	Methodology	The climate risk assessment was carried out according to the method in Guidance Note NB-WST 05, Climate Risk Assessment Methodology.
CN5	Competent person	For the proper substantiation of the credit, a competent person must be involved. A competent person is an individual (or individuals) with sufficient knowledge and experience who is (or are) able to:

Adaptation to climate change

REFERENCE	SUBJECT	DEFINITION
		<ul style="list-style-type: none"> a. Determine the potential of floods and other climate risks in the region. b. Recognize and interpret various data sources from, for example, online maps. c. Determine the expected impact on the environment, the plot and the building. d. Identify appropriate measures.
CN6	Adaptation plan	<p>Mitigating and/or adaptive measures aim to manage climate risks and for this purpose at least the following aspects have been addressed and demonstrated in the adaptation plan:</p> <ul style="list-style-type: none"> a. The possible mitigation and adaptation measures were assessed for feasibility in the project context. b. The measures reduce the threats to the extent that is feasible in practice. c. The design (or specifications) have been adapted to include the measures identified in the risk analysis in the final design.
CN7	Validity of data used	The risk assessment is accountable. It indicates which data has been used and that this data is valid and relevant to the project and the location.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Additional information

None.

Adaptation to climate change

References

For this issue, you can use the references below. This list is not exhaustive.

- For example, in the context of the Climate Adaptive Building Covenant of the province of South Holland (2018), a Minimum Programme of Requirements has been developed, which also includes a number of measures at the building level.
- The BRE report³ Potential implications of climate change in the built environment discusses strategies for adaptation to climate change, including a number for the resilience of structures.
- Blue-green networks: <https://nl.urbangreenbluegrids.com/design-tool/>.
- Climate Impact Atlas <https://www.klimaat-effectatlas.nl/nl/kaartverhalen>.
- Delta Plan on Spatial Adaptation: <https://ruimtelijkeadaptatie.nl/overheden/deltaplan-ra/>.
- Toolbox Climate-proof city - <https://kbstoolbox.nl/nl/>.
- Yardstick for green climate-adaptive built environment: <https://klimaatadaptatienederland.nl/hulpmiddelen/overzicht/maatlat-groene-klimaatadaptieve-gebouwde-omgeving/>.
- Measures: Useful links <https://klimaatadaptatienederland.nl/aan-de-slag/overheden/maatregelen-nemen/>.
- <https://klimaatadaptatienederland.nl/@244081/maatregelen-klimaatadaptief-bouwen/>.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Adaptive capacity

Encouraging measures that respond to future changes in use during the life of the building.

Credits available	: 3
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✓
Exemplary performance	: ✗

Criteria

The issue consists of one part:

- Method adaptive capacity of buildings (up to three credits).

Demonstrate that the criteria are met:

Up to three credits – Method adaptive capacity of buildings

1. The percentage of adaptive capacity was determined on the basis of the most recent adaptive capacity building method. The credits are awarded on the basis of Table WST 06.1.

Tables

Table WST 06.1 Scoring

PERCENT OF ADAPTIVE CAPACITY	NUMBER OF CREDITS
≥ 37%	1
≥ 61%	2
≥ 84%	3

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Extensions of existing buildings	The methodology is not suitable for assessing a part of the building. The credit can only be obtained if the entire building is assessed, even if the entire building is not part of the demarcation.
CN1.2	Industry function	Filter: Buildings with an industrial function cannot be assessed using this method. If there is an industry function in the project, the entire issue is filtered out of the assessment.

Adaptive capacity

REFERENCE	SUBJECT	DEFINITION
<i>General</i>		
CN2	Methodology	The score was determined with the calculation tool "method adaptive capacity buildings".
CN3	Version	The calculation tool that is valid at the time of the project registration must be used. All credits obtained in the tool must be shown to have met the requirements.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Additional information

None.

References

None.

Land Use and Ecology



SUMMARY

This category encourages sustainable land and soil use, habitat protection, and the long-term creation and enhancement of biodiversity. This concerns the development of the building, the plot and the environment. Issues in this category relate to the reuse of used land and responsible removal, protection and enhancement of ecological values and the long-term management of biodiversity. This involves looking at professional ecological substantiation and the involvement of the building users.

CONTEXT

One of the Sustainable Development Goals (SDGs) of the United Nations focuses on 'living on land' (Goal 15). An important goal of this is to 'integrate ecosystems and biodiversity values into national and local spatial planning and development processes'. The landscape and ecological facilities that are part of the building, the plot and the boundaries of the building can have a major impact on the wider environment. If you implement and manage your landscape and ecological facilities in the right way, this can have a positive impact on the ecological values of the development. It is therefore important to understand the current values and characteristics of the location and to maximize the ecological values of the development and environment.

This document is for informational purposes only and does not constitute a contract. The official Dutch version prevails.

Value of the issues

LE 01	Site selection and healthy soil	Four credits
Value:	<ul style="list-style-type: none">• Reuse of land• Healthy soil	
LE 02	Ecological value of site and protection of ecological features	Two credits
Value:	<ul style="list-style-type: none">• Drawing up a nature report• Protecting ecological values• The responsible removal of ecological value	
LE 04	Nature-inclusive location	Three credits
Value:	<ul style="list-style-type: none">• Drawing up a nature report• Nature-inclusive construction• Guaranteeing the quality of habits	
LE 05	Long term impact on biodiversity	Two credits
Value:	<ul style="list-style-type: none">• Drawing up a nature report• Ecological management plan	

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Site selection and healthy soil

Encouraging the reuse of land and the remediation of contaminated soil.

Credits available	: 4
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

The issue consists of two parts:

- Reuse of land (two credits);
- Healthy soil (two credits).

Demonstrate that the following criteria are met:

Two credits – Reuse of land

1. The entire construction site, 100% of the footprint, is located on reused land (see methodology).

Two credits – Healthy soil

2. Healthy soil quality is stimulated by applying at least two of the recommendations (based on the Soil Agenda of 'Onder het Maaiveld') to the development site (see CN4).

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria requirements	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Temporary works	Temporary structures and facilities used for the building to be developed, such as parking lots, storage, offices and canteens, should be considered as part of the footprint and should be included in the calculation of the percentage.
CN1.2	Expansion of buildings	In the case of the extension of an existing building, the percentage of the footprint (see CN2) applies to the new (building) part to be realised. The existing building may not be included.
CN1.3	Indirect negative influence	If an existing building or its function is moved to another location that is not reused land, this has an indirect negative

Site selection and healthy soil

REFERENCE	SUBJECT	DEFINITION
		impact. For example, if a new building is planned on the site of a garage and this garage is moved to another location. This is undesirable, because it would still be built on non-reused land. In this case, the project must be assessed on the basis of the footprint of the building being moved to non-reused land.
CN1.4	Development	For the preparation of the nature report, the development area was defined by BREEAM-NL as the entire plot of the construction project to be developed, including (temporary) buildings and storage areas, paved surfaces and unpaved landscape elements, plus a zone of three metres around the plot.
<i>Reused land</i>		
CN2	Reused land	A percentage of the development's footprint is on a piece of land that has been developed over the past 50 years for industrial, commercial, social buildings, housing and/or fixed infrastructure. The following categories of land (land) that have natural values are not included in the definition of re-used land: <ul style="list-style-type: none"> a. Land or 'greenfield' that was previously intended for agriculture, forest or nature and landscape development. b. Land of ecological value according to EU Taxonomy (see definitions). c. Land used for mineral extraction or landfill, with the landscape being restored afterwards. d. Green areas in built-up areas such as: parks, public gardens, wedges, play and recreation areas, sports fields or allotments. e. Land that was previously developed, but of which the remains of permanent (surface) structures (e.g. ruins) have merged into the landscape over time as part of the 'natural' environment.
CN3	Sports fields	A development where a sports field is located falls under land reuse. A condition is that a comparable sports field is realized within one year of obtaining the completion certificate. The sports field may only be built on land with a landscape or ecological value as described in CN2 of the issue LE 02.
<i>Healthy soil</i>		
CN4	Healthy soil	Healthy soil quality is stimulated by applying at least two of the recommendations below (based on the Soil Agenda of 'Onder het Maaiveld') to the development location. <p>Recommendations:</p> <ul style="list-style-type: none"> a. Soil health is an integral part of the tender criteria, assessed by a (soil) ecologist. b. In the design of the spatial development, soil sealing and compaction are minimised. c. Earthmoving and the use of soil that is foreign to the area will be minimised. d. Before completion, compaction of the soil is minimized by milling the soil open again. e. Upon completion, soil improvement was applied in gardens and public green spaces, the soil has a good soil quality (4-6% organic matter, or comparable to the organic matter

Site selection and healthy soil

REFERENCE	SUBJECT	DEFINITION
		content of naturally occurring in the nearest nature reserve). f. If development is carried out at a location with serious soil contamination, the soil will be remediated for the current development. This must be evidenced by a decision in accordance with the Environment and Planning Act.
CN5	Asbestos	The removal of asbestos from existing buildings does not count as a recommendation for criterion 2. If asbestos is present in the soil and it has been removed, this counts as one recommendation in criterion 2.
CN6	Remediation plan or BUS notification	In many cases, an implementation plan or plan of action for soil remediation to enable the development of a construction site on contaminated soil can also be used instead of a remediation plan to provide a BUS notification. In both the BUS procedure and the regular remediation procedure, the competent authority will have to have an evaluation report after the remediation has been completed. The evaluation report is to assess whether the remediation has been carried out properly. A remediation plan or BUS notification counts as a "recommendation" of criterion 2.
CN7	Remediation and current development	If the land was owned by another party and the remediation was carried out for the purpose of the current project development, the remediation counts as one recommendation carried out in criterion 2. If the soil has been remediated in the past without this being part of the current project development, the remediation does not count as a single recommendation for criterion 2.

Methodology

Calculating the footprint

A percentage of the footprint of the development is located on a piece of land that was previously developed for industrial, commercial, social buildings, housing and/or fixed infrastructure. The footprint of the development concerns all square meters on the plot/plot that will be tackled for the project. This means the footprint of all buildings and pavements, and newly landscaped landscaping. Temporary facilities for, for example, a temporary office, construction shed, parking, material or machine storage are also included in the calculation of the footprint of the development.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Site selection and healthy soil

Definitions

Urgent soil contamination

Soil contamination is urgent if it has a negative impact on landscape and ecology and human health in the short term or if there is a risk that the contamination will spread.

Footprint

The footprint of a development is the total area on the plot that is affected by construction, including buildings, pavements, and newly constructed green areas. It is calculated as the area within the plot boundaries, which includes both the building itself and the paved outdoor space, but not the Gross Floor Area (GFA) of the buildings. In addition, temporary facilities such as construction huts, parking spaces and storage space are also included in the calculation. Part of the footprint may relate to land that has previously been used for industrial, commercial or other construction.

Competent authority

The authority or institute that is authorised to adopt decisions on the basis of Article 29 of the Soil Protection Act with regard to contaminated soils and soil remediation plans. Without the approval of the competent authority, a remediation plan may not be carried out and a construction project cannot proceed. In the case of serious pollution, the province is usually the competent authority. In some cases, this is delegated to the environmental service, such as in the Rijnmond region, where the DCMR is the competent authority.

Contaminated soil

Soil that is so contaminated that it cannot be built on without soil remediation. Soil contamination is serious if the volume (m³) and the concentration of the contamination exceed a legal value, depending on the function of the area (Soil Protection Act).

Remediation plan

An implementation plan or plan of action for soil remediation to enable the development of a construction site on contaminated soil. The contamination can be removed or isolated.

EU Taxonomy

For land that was designated as forest, the definition of the Food and Agriculture Organization of the United Nations (FAO) is used: "Areas of more than 0.5 hectares with trees taller than five meters and a canopy cover of more than 10 percent, or trees that can reach these thresholds on site."

Other countries of ecological value according to the EU Taxonomy are:

- Undeveloped land with recognised biodiversity value and land that serves as habitat for endangered species (flora and fauna) listed on the European Red List or the IUCN Red List.
- Arable land and cultivated land with moderate to high soil fertility and underground biodiversity, in accordance with the LUCAS study (code B10-80, C10, C20, C30). However, if the administrative authority has released the development site as building land and has issued a formal permit, the party is free to build there regardless of the degree of soil fertility and underground biodiversity.

Additional information

None.

References

Site selection and healthy soil

- Environment and Planning Act.
- LUCAS research.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Ecological value of site and protection of ecological features

Encouraging building on land of low ecological value and preventing damage to existing ecological values on the construction site.

Credits available	: 2
Pre requisite	: ✓
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of three parts:

- Preparation of a nature report (Pre requisite);
- Protecting ecological values (two credits);
- The responsible removal of ecological value (one credit).

Demonstrate that the following criteria are met:

Pre requisite – Preparation of a nature report

1. Before the start of the construction activities (including the preparation for construction), a recognised ecologist draws up a nature report. This report describes the ecological and landscape value of the construction site, based on desk research, inventory and field research on site. An ecological work protocol is also being drawn up.

Two credits – Protecting ecological value

2. All existing elements of ecological value on the construction site will be protected during the work, according to the ecological work protocol from the nature report.
3. Measures have been taken to prevent new species from establishing themselves on the construction site during the construction stage.
4. During the construction process, a recognised ecologist has determined that work is carried out in accordance with the work protocol and (the specific conditions of) any exemption issued. After completion, the ecologist will draw up a report on this.

One credit – The responsible disposal of ecological value

5. Elements of ecological value are removed and compensated in a responsible manner (CN9).

Tables

None.

Ecological value of site and protection of ecological features

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria requirements	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Renovation projects	If the development is a transformation or redevelopment, the situation prior to the demolition or dismantling work is also part of the report, as are protective measures.
<i>General</i>		
CN2	Landscape and ecological values	The ecologist determines which landscape and ecological elements require protection during the construction work (including the preparation of the site), below the following elements are assessed for their value: <ul style="list-style-type: none"> g. Valuable trees are more than 10 years old and/or thicker than 10 cm in circumference and/or have been designated as valuable by the certified ecologist. h. Hedges, verges, bushes, grasslands, hedgerows and other natural and landscape elements that need protection. i. Watercourses and wetlands (wetlands). j. Protected species present. k. Breeding and nesting sites for birds and bats and the associated essential habitat.
CN3	Certified ecologist	A licensed ecologist is a person who: <ul style="list-style-type: none"> a. Has completed a course at higher professional or university level with a focus on ecology, and/or b. Is working as a practicing ecologist for an ecological consultancy firm that is affiliated with the Green Offices network, and/or c. Demonstrably has a professional commitment in the field of species protection and is affiliated with the existing organizations in the Netherlands (such as: Das en Boom, Zoogdiervereniging, RAVON, Vogelbescherming, Vlinderstichting, Natuurhistorisch Genootschap, KNNV, NJN, IVN, EIS Nederland, FLORON, VOFF, SOVON, and so on).
CN4	Coordination between ecologist and project team	Coordination between ecologist and project team takes place in the Structural Design stage (STB 2014). This can continue throughout the project when important decisions are made that affect ecological possibilities. There is cooperation early on in the project to make optimal use of the potential, opportunities or risks of ecological values in the project development. <p>The ecologist is actively involved in the project team to discuss the optimal possibilities and how they can be realized.</p> <p>Project team members include, but are not limited to:</p> <ul style="list-style-type: none"> a. Client, owner, user(s) b. Developer, design team, contractor c. Landscape architect, ecologist d. Architect and relevant consultants, as hydrologist

Ecological value of site and protection of ecological features

REFERENCE	SUBJECT	DEFINITION
		Where relevant, the project team also consults with other stakeholders such as: <ol style="list-style-type: none"> Local authorities, municipalities, province or water boards (Local) biodiversity or nature conservation authorities
<i>Pre requisite</i>		
CN5	Nature report	The nature report describes the location from coarse to fine, and it includes at least the following: <ol style="list-style-type: none"> An overview of the species (flora and fauna) that are protected by the Environment and Planning Act and that (may) use the plan area during the work. All species have a duty of care at all times, which prevents and reduces adverse consequences. An overview of rare Red List species (endangered to critically endangered) that (could) make use of the site. The current location of the plan area and its surroundings: inside or outside the Natura 2000 areas and parts of the Netherlands Nature Network. A reference to municipal green plans (or building envelopes) for the plan area, which contain specific regulations for the development of green areas on the construction site. Potential of measures for habitats that may be significant, for special or rare natural values on a regional scale. Current qualities and potential of ecological value of the development location and related areas within the sphere of influence. Taking into account (direct and indirect) risks and feasibility for strengthening (local) biodiversity. A description of the current and future layout of the plan area. All elements of ecological value (flora, fauna and habitats) present before the work on the construction site are identified. Subsequently, the effects of the future design on these elements will be investigated. If possible, the layout will be adapted to prevent negative effects. An ecological work protocol aimed at protecting the existing qualities, protecting and dealing with potential risks to the work must be included. If mitigating measures are applied, the substantiation for this must be included in the ecological work protocol, as well as the way in which they must be implemented.
CN6	Nature report after the start of work	If work has already been carried out, such as preparing the land for construction when the land was owned by another party, the accredited ecologist will base his or her research for the nature report on the situation before the start of the work. This can be desk research, in which at least photographic material is used of the landscape layout and surroundings of the construction site from before the work.
<i>Protecting ecological value</i>		
CN7	Loss of ecological value	Ecological values must be prevented from disappearing as a result of the construction work or preparation for construction. The ecologist should always be involved and give advice if there are situations that could cause harm. If it is unavoidable that ecological values disappear, measures must be taken to reduce the damage. Mitigation measures that are carried out due to the presence of protected species and for which a permit has been

Ecological value of site and protection of ecological features

REFERENCE	SUBJECT	DEFINITION
		applied for are not included in this assessment. Ecological values must be moved or restored according to the ecological work protocol (CN5 h). See the methodology for mitigating measures.
CN8	Preserving ecological value	The work protocol is aimed at sparing elements of ecological value during the planning, preparation and execution of the construction project. It may prescribe concrete measures to preserve ecological values. The certified ecologist ensures that these are carried out in a proper manner and draws up a report on this after completion.
<i>The responsible removal of ecological value</i>		
CN9	Removal of elements of ecological value	<p>When elements of ecological value are removed as part of the construction work or the preparation of the site, the two credits for criteria 'protection of ecological value' cannot be achieved.</p> <p>However, one credit can be achieved when the removal of elements of ecological value is done in a responsible manner. Also, all removed elements must be compensated. The elements of ecological value that are not removed must be protected.</p> <p>The removed ecological values must be documented. The accredited ecologist is responsible for ensuring that the removed ecological values are compensated with equivalent ecological values.</p>

Methodology

Mitigating measures in the event of loss of ecological value

The ecological work protocol prescribes how existing values must be protected. But despite taking measures to prevent and protect against negative effects, it may be possible for harm to be applied or unavoidable. In those special cases, it is possible to move ecological values on or from the location. The following levels may be maintained hierarchically for this purpose. The ecologist determines which measures are realistic and feasible for the project.

Move and keep

Mitigation measure so that the original values can be maintained. An ecologist must confirm that the ecological value, including the long term, remains unaffected after the relocation. At a minimum, changing conditions in soil, light and climatic conditions must be taken into account.

Repair

The mitigation level of recovery is applied if relocation and preservation is not possible and there is a loss of value due to the work. An ecologist must confirm and advise on how to restore an equivalent permanent provision for the lost value at the site.

Ecological value of site and protection of ecological features

Compensation

Ecological compensation is the last resort to counteract the negative impact of construction activities. This remedy is only used after what is possible in the mitigation hierarchy has been done, in order to prevent negative impact on ecological qualities. Compensation can consist of permanent improvements to existing habitats. Or a replacement habitat is provided, which is comparable in terms of biological characteristics and ecological functions to the habitats that have been lost or damaged. Compensation can take place both inside and outside the project location, in accordance with the following order of precedence:

1. At the development location;
2. Adjacent location of the development site.
3. Connected to the same type of habitat that is or was connected to the original habitat of the plan area and, if applicable, complies with the relevant knowledge documents about species of BIJ12

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Ecological work protocol

A protocol that is aimed at sparing elements of ecological value during the planning, preparation and execution of the construction project and possibly prescribes concrete measures to preserve ecological values (see also LE04).

Development

When drawing up the nature report, the development area was defined by BREEAM-NL as the entire plot of the construction project to be developed, including (temporary) buildings and warehouses, paved surfaces and unpaved landscape elements, plus a zone of three metres around this plot.

Code of conduct

Approved guidelines published by RVO describing how damage to protected animals and plants can be kept to a minimum when carrying out work. Approved codes of conduct can be found at:

<https://www.rvo.nl/onderwerpen/buiten-werken/overzicht-gedragscodes>

Duty

The Environment and Planning Act stipulates that adverse effects on plants and animals must be prevented. This duty of care applies to all plants and animals, whether or not with protected status. In the case of protected plants or animals, the duty of care also applies if an exemption or exemption has been granted.

Additional information

In many cases, a protection and sometimes even an increase in the biodiversity of the development site is possible through careful design and management of the building and the surrounding grounds. This issue rewards the construction projects that take this into account and contribute to the improvement of the living environment.

Ecological value of site and protection of ecological features

References

- <https://www.bij12.nl/kennisdocumenten/>

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Nature-inclusive site

To encourage measures for the ecological shared use of the construction site and the surrounding area by plant and animal species.

Credits available	: 3
Pre requisite	: ✓
Minimum standard	: ✓
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of three parts:

- Preparation of a nature report (Pre requisite);
- Nature-inclusive construction (up to two credits);
- Ensuring habitat quality (one credit).

Demonstrate that the following criteria are met:

Pre requisite – Preparation of a nature report

1. Before the start of the construction activities (including the preparation for construction), a certified ecologist draws up a nature report in which the potential for plant and animal species of the construction site and the surrounding area is mapped out.

Up to two credits – Nature-inclusive construction (Minimum standard starting from Very Good rating)

2. Measures have been taken for several habitats in and around the construction site (see Table LE 04.1)
3. The measures taken to create these habitats result in the habitats together accounting for at least 10% of the site's footprint.

One credit – Ensuring habitat quality

4. The first credits have been achieved and the Pre requisite has been met.
5. After completion of the construction project, a recognised ecologist confirms (in the nature report) that all measures have been taken necessary to create multiple habitats.

Tables

Table LE 04.1 Credits available according to the number of habitats

MINIMAL NUMBER OF DIFFERENT HABITATS	AVAILABLE BREEAM-NL CREDITS
Three (Minimum standard starting from Very Good rating)	1
Five	2

Nature-inclusive site

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria requirements	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Existing facilities	Existing facilities around the construction site are accepted if they are expanded on and around the construction site and are in line with the intended habitat requirements.
<i>General</i>		
CN2	Certified ecologist	A licensed ecologist is a person who: <ol style="list-style-type: none"> Has completed a course at higher professional or university level with a focus on ecology, and/or Is working as a practicing ecologist for an ecological consultancy firm that is affiliated with the Green Offices network, and/or Demonstrably has a professional commitment in the field of species protection and is affiliated with the existing organizations in the Netherlands (such as: Das en Boom, Zoogdiervereniging, RAVON, Vogelbescherming, Vlinderstichting, Natuurhistorisch Genootschap, KNNV, NJN, IVN, EIS Nederland, FLORON, VOFF, SOVON, and so on).
<i>Pre requisite</i>		
CN3	Nature report	A report drawn up by a recognized ecologist, in which the ecological value of the construction site and the surrounding area is described at an early stage of the design process on the basis of desk research, inventory and field research on site. The nature report also includes the recommendations of the accredited ecologist with regard to the existing and future planting and the method of irrigation, or for the planting that does not require irrigation (see also WAT 04). The report also refers to municipal green plans or building envelopes that include specific regulations for the development of green areas on the construction site.
<i>Nature-inclusive construction and ensuring the quality of habitats</i>		
CN4	Nature-inclusive construction	The provisions that are made for at least three or five habitats are realized on the basis of the ideas of nature-inclusive construction. The facilities must focus on creating a habitat for animal species. Species for which habitats can be created include birds, fish, amphibians, reptiles, invertebrates, bats and other mammals.
CN5	The five Rs	Measures for nature-inclusive construction are recommended in the nature report drawn up by the ecologist. The measures have ecological value by designing the measures integrally on the basis of the Five Rs; Food, reproduction, safety, connection and variety. At the project level, an integral design must be drawn up, showing how the five Rs are part of the development. It must

Nature-inclusive site

REFERENCE	SUBJECT	DEFINITION
		also show that they have been carried out in this way (see methodology).
CN6	Applying facilities for a habitat	<p>The facilities used for a habitat are integrated in, around and near the construction site:</p> <ol style="list-style-type: none"> Nature facilities integrated into the building such as: larger habitats (for bats) or nesting stones in the facades and roofs for building-dependent species. Natural facilities around the building such as: green roofs and/or green facades, plot boundaries and ecological greenery on the plot. Nature facilities in the vicinity of the building such as: green public space, connecting routes for animals in the vicinity of the building.
CN7	Native vegetation	<p>At least 60 percent of the vegetation that is used consists of native plants that have been cultivated in the Netherlands. No invasive plants may be used to prevent overgrowth and eradication of native plants. Non-native vegetation must also consist of plant species that attract insects, birds and/or mammals.</p> <p>The origin of the added plants is shown on Labels, schemes, grower information, etc.</p> <p>An overview of the planting used must be included in an inventory.</p> <p>Systems used in the Netherlands include:</p> <ol style="list-style-type: none"> NL Greenlabel sustainability passport On the way to planet proof Green label Insert Quality Label Green Highwaymen
CN8	Abnormal climate	<p>The climate is changing, both globally and in our own country, at the provincial and local level. Each plant species has its own ideal living conditions. In cities, the local climate is often different from the climate at the provincial or national level. An ecologist may decide to deviate from the rule of 60% native vegetation if the development site is located in an urban area.</p> <p>You can determine whether a location is in an urban area by looking at the number of addresses per square kilometer. If this number is higher than 1900 addresses per km², the location is considered urban. If the location has fewer than 800 addresses per km², but is directly adjacent to an urban area, a buffer zone of 500 metres must be maintained around the location and 60% native and native vegetation must be realised.</p> <p>However, the main goal remains to create healthy natural environments that match the ecological value of the location and that are resistant to climate change. Invasive plant species should not be used so that native plants are not displaced or eradicated.</p>

Nature-inclusive site

Methodology

The five Rs

Based on the ecologist's recommendations, ecological value is added to the project. In the nature report of LE 02, the current values, local species and values in the immediate vicinity, the potential and opportunities of the development location were investigated. The species for which a habitat is created are preferably present in the area. Connecting to existing species increases the chances of the species for successful development (one of the values for nature-positive building).

The ecologist must always take into account with his or her recommendation and its implementation, that created habitats provide the five Rs of reproduction, safety, food, connection and variety. For invertebrates, microclimate conditions such as heat, moisture and temperature changes are taken into account.

The facilities will be integrated in, around and near the project location. If there is already a facility in the vicinity of the project that provides the V of nutrition within the habitat, this can be accepted. If there is no facility in the vicinity of the project that can provide one of the Rs, it must be realized. If this is not possible, it cannot be accepted.

Species for which habitats can be created include birds, fish, amphibians, reptiles, invertebrates, bats and other mammals. See the issue page of LE 04 on richtlijn.breeam.nl for more background information and successful measures to develop habitats for species.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Habitat

A habitat describes the conditions that an area must meet in order for a certain animal species to survive there. The habitat is a description of the resources that a particular species needs. For the LE04 credit, the designation 'the five R's' explains in more detail what these resources are.

Native native plants

Native native plants are plants that occur naturally in the Netherlands. The origin of plantings is important for biodiversity in the Netherlands. It is assumed that the planting occurs naturally in the Netherlands before 1500. These are originally native species (archaeophytes). In the Standard List of Dutch Flora 2020, the individuality and origin of the native species can be checked.

Alien species often have a different flowering time that does not correspond to the period when many insects need food. Or the trees or plants are not recognized by insects as a food source, and are not visited. This is not the case with native plants. These are usually insect-attracting plants.

Footprint

The footprint of a development is the total area on the plot that is affected by construction, including buildings, pavements, and newly constructed green areas. It is calculated as the area within the plot boundaries, which includes both the building itself and the paved outdoor space, but not the Gross Floor Area (GFA) of the buildings.

Nature-inclusive site

In addition, temporary facilities such as construction huts, parking spaces and storage space are also included in the calculation.

Additional information

None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Long term impact on biodiversity

Minimizing the impact on the ecology (flora and fauna) on and in the vicinity of the construction site and improving biodiversity.

Credits available	: 2
Pre requisite	: ✓
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

The issue consists of two parts:

- Preparation of a nature report (Pre requisite);
- Ecological management plan (two credits).

Demonstrate that the following criteria are met:

Pre requisite – Preparation of a Nature Report

1. Before the start of the construction activities (including the preparation for construction), a certified ecologist draws up a nature report, in which the ecological values of the construction site are described on the basis of desk research and field research on the site.

Two credits – Ecological management plan

2. A management plan is drawn up by the accredited ecologist that can be implemented by the owner and the future users of the building.
3. The accredited ecologist takes care of the monitoring of the management plan in the use stage.
4. The implementation of the management plan is guaranteed for at least six years after the building has been put into use.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria requirements	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Project type shell and cores	In the case of project type "shell and central installations", criterion four should be read as: The implementation of the management plan is guaranteed for at least six years after

Long term impact on biodiversity

REFERENCE	SUBJECT	DEFINITION
		completion of the building. Final means the conditions as described in UAV/UAV-gc.
<i>General</i>		
CN2	Certified ecologist	A licensed ecologist is a person who: <ol style="list-style-type: none"> Has completed a course at higher professional or university level with a focus on ecology, and/or Is working as a practicing ecologist for an ecological consultancy firm that is affiliated with the Green Offices network, and/or Demonstrably has a professional commitment in the field of species protection and is affiliated with the existing organizations in the Netherlands (such as: Das en Boom, Zoogdiervereniging, RAVON, Vogelbescherming, Vlinderstichting, Natuurhistorisch Genootschap, KNNV, NJN, IVN, EIS Nederland, FLORON, VOFF, SOVON, and so on).
<i>Pre requisite</i>		
CN3	Nature report	A report drawn up by a recognised ecologist, in which the ecological value of the construction site and its surroundings is described at the earliest possible stage of the design process on the basis of desk research, inventory and field research on site.
<i>Ecological management plan</i>		
CN4	Management plan	The management plan is part of the nature report. This describes how the construction site should be maintained and managed during the use stage, so that biodiversity is promoted in the long term. <p>The management plan supports/promotes:</p> <ol style="list-style-type: none"> The facilities and their desired condition; The ecological value of the facilities in LE 04 and their purpose; Actions and responsibilities for the management of the facilities; Points of attention for maintaining the facilities of LE 04 and green areas and keeping them accessible; An ecological work protocol that describes how the facilities will continue to meet the set sustainability criteria for the next six years; Extra attention for the first two years in terms of striking, actively removing weeds and losing them.
CN5	Securing the management plan	The implementation of the management plan is guaranteed for a minimum of six years. The management plan shall contain at least the following information: <ol style="list-style-type: none"> Who is responsible for which management (owner, tenant, user, third party); What the budget is for the measures proposed by the certified ecologist; What resources are available for the implementation of the measures and maintenance (time, money and manpower).
CN6	Role of the certified ecologist	During the course of the management plan, a certified ecologist regularly monitors the progress of the implementation and

Long term impact on biodiversity

REFERENCE	SUBJECT	DEFINITION
		maintenance and regularly makes proposals to improve biodiversity at the location and in the surrounding area.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Biodiversity

Biodiversity is the variety of life forms on earth. This includes all types of animals, plants, fungi, algae, bacteria and the habitats and biotopes on which they depend.

Additional information

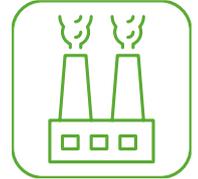
None.

References

None.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Pollution



SUMMARY

This category deals with the prevention and control of pollution related to the location and use of the building. The aim is to reduce the impact of the building on the surrounding communities and surroundings, for example by limiting light pollution, noise, flooding and emissions to air, land and water.

CONTEXT

'Good health and well-being' is Goal 3 of the United Nations Sustainable Development Goals. One of the sub-goals is to "significantly reduce the number of deaths and illnesses from hazardous chemicals and the pollution of air, water, and soil by 2030." BREEAM-NL contributes to this by limiting emissions from buildings during the use stage, which affects air quality. This can provide a healthy environment for all demographic and economic groups, including the less privileged and vulnerable populations.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Value of the issues

POL 01	Environmental impact of refrigerants	Three credits
Value:	<ul style="list-style-type: none">• No use of refrigerants• Requirements• Effect of Refrigerant and Leak Detection	
POL 02	NOx emissions	Two credits
Value:	<ul style="list-style-type: none">• Heating systems with minimal nitrogen emissions	
POL 03	Surface water run-off rainwater	Four credits
Value:	<ul style="list-style-type: none">• Oil separator and drainage plan• Water retention: 50 mm/hour rainproof• Water retention: 60 mm/hour rainproof• Water retention: 70 mm/hour rainproof• Water retention: Dynamically controlling the flow rate	
POL 04	Reduction of light pollution	Two credits
Value:	<ul style="list-style-type: none">• No outdoor lighting• Minimization of light pollution	
POL 05	Reduction of noise pollution	One credit
Value:	<ul style="list-style-type: none">• No noise-sensitive buildings or areas• Preventing or reducing noise pollution	

This document is for informational purposes only and cannot be used for certification. The original Dutch version prevails.

Impact of refrigerants

To reduce the contribution of refrigerants to climate change by using natural and environmentally friendly refrigerants with no or very low contribution to the greenhouse effect, and to prevent leakage.

Credits available	: 3
Pre requisite	: ✓
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

This issue consists of three parts:

- No use of refrigerants (three credits);
- System requirements (Pre requisite);
- Effect of refrigerant and leak detection (three credits).

Demonstrate that the following criteria are met:

Three credits – No refrigerants used

1. All credits can be awarded automatically if no refrigerants are used for the installations or systems installed in the building. This also applies to connections to installations that do not use refrigerants, both outside the building on site and in the case of connections to installations that do not use refrigerants at area level. The condition is that the first part of issue HEA 05 has been obtained.

OR

If refrigerants are used for the building, the three credits can be achieved as follows:

Pre requisite – System Requirements

2. All systems (with electric compressors) must meet the requirements of NEN-EN 378:2016 or ISO 5149:2014. In addition, refrigeration systems containing ammonia must also comply with PGS13:2009, refrigeration systems with flammable refrigerants with NPR 7600:2020, and carbon dioxide with NPR 7601:2020.

Three credits – Effect of the refrigerant and leak detection

3. See methodology for calculating the carbon dioxide emissions equivalent of refrigerants ('direct effect life cycle' (DELCO) CO₂ eq). For systems that both cool and heat, the cooling capacity in kW is used to perform the calculation. With the result of the POL 01 Calculation Tool and the table POL 01.1, the credits are awarded as described in Table POL 01.1 as follows.
4. All systems are hermetically sealed or use refrigerants that are natural and environmentally friendly.

OR (if the criterion cannot be met, when systems are not hermetically sealed, the following requirements must be met):

Impact of refrigerants

5. Systems feature:
- A permanent automatic detection system for the leak of refrigerant(s). The detection system is solid and tested and is able to continuously check for leaks.
- OR
- A built-in automatic diagnostic procedure for leak detection is installed.
6. The system must be able to automatically isolate and contain the remaining refrigerant(s) in response to a detected leak.

Tables

Table POL 01.1 - Impact of refrigerants on climate change (Global Warming Potential)

REFRIGERANT IMPACT	NUMBER OF CREDITS
GWP = 0	3
GWP ≤ 5	2
DELCO ₂ eq / kW cooling capacity ≤ 500 kg CO ₂ /kW and GWP ≤ 750	1

Table POL 01.2 Effects of refrigerants on climate change (Global Warming Potential)

SYSTEM TYPE	STANDARD VALUES FOR THE LIFE OF SYSTEMS (YEARS) - DELCO
Coolers with small and medium capacity	15
Coolers with large capacity	20
Split system	15
Variable Refrigerant Flow (VRF) System	15
All overage systemin	10

Remark

When determining whether the specified system is to be considered small, medium or large, the following should be considered:

Cooler with small capacity

- Scroll, rotary, swing, or suction compressor.

Medium capacity cooler

- Scroll or screw compressor.

Large capacity cooler

- Centrifugal compressor.

Table POL 01.3 - Default values annual leak rate, when manufacturer data is not available

SYSTEM TYPE	STANDARD VALUES FOR THE LIFE OF SYSTEMS (YEARS) - DELCO
<i>Cold storage and display systems</i>	
Complete refrigerated display case	3%

Impact of refrigerants

SYSTEM TYPE	STANDARD VALUES FOR THE LIFE OF SYSTEMS (YEARS) – DELC
Split/condenser units	7%
Central	10%
<i>Air conditioning systems</i>	
Split system	7%
Small coolers	7%
Large/medium coolers	10%
Heat pumps	6%
These figures are based on research reports 310893 and 331069 carried out by KWA in collaboration with NVKL on behalf of RVO.	

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.2	Shell and cores	The three credits can be awarded by default if the building is designed in such a way that it meets criteria 1 to 3 of HEA 05 - Thermal Comfort upon completion, without the use of refrigerants or with a refrigerant whose GWP = 0. This also applies to buildings that are connected at area level outside the building or site.
<i>General</i>		
CN2	Scope and purposes of use	The criteria of this issue apply to the A/C and refrigeration systems installed in the building for the following uses, regardless of the refrigerant charge (kg) in the systems: <ul style="list-style-type: none"> a. Comfort cooling and space heating (including refrigerants in heat pumps). b. If the building is connected to a common ATES system that does not meet the requirements of NEN-EN 378:2016 or ISO 5149:2014 due to its age, it is permitted to demonstrate that the ATES system complied with the version of the NEN 378 or ISO 5149 standard that was applicable at the time. c. Cold storage, including display cabinets for the sale of snacks and drinks, but excluding household white goods. d. Process-related cooling loads, such as servers and IT equipment. e. Generation outside the building or site, such as district heating or area-level cooling systems.
CN3	Hermetically sealed systems: no leak detection system requirements	Except for systems covered by CN2, the obligation for leak detection will be removed for installations of small, multiple, hermetically sealed refrigeration systems. The proven average amount of leakage per system must be less than three grams

Impact of refrigerants

REFERENCE	SUBJECT	DEFINITION
		per year. The average GWP requirement of ≤ 750 must be demonstrated.
CN4	Multi-system specification	If more than one air conditioning or refrigeration system is installed in the building, then the relevant technical data for each system must be known in order to complete the POL 01 calculation tool. The calculation tool then calculates the average and determines the number of credits to be achieved.
CN5	Supplements to automatic insulation and refrigerant containment	<ol style="list-style-type: none"> The refrigeration system switches off automatically and refrigerants are pumped off when elevated concentrations of refrigerants are detected in the installation room. These facilities are usually only sufficient if the installations are installed in an installation room or a mechanically controlled airtight room. Automatic pumping out to a storage vessel is only permitted if automatic shut-off valves are also installed that retain the refrigerant after pumping out the installation. The storage vessel must not be a condenser, as this is part of the compression/expansion system. The alarm value at which the refrigerant pump-off system automatically activates depends on the type of refrigerant (as defined in the F-Gas Regulation). Manual systems are not allowed.

Methodology

POL 01 Calculation Tool

The number of credits obtained for this issue is calculated using the POL 01 Calculation Tool. The calculation tool only needs to be used when refrigerants are applied with a GWP higher than five.

The Direct Effect Life Cycle CO₂ emissions (DELCO) per kW of cooling and heating capacity is calculated based on the following equation:

$$\frac{((\text{Koudemiddelverlies in werking} + \text{koudemiddelverlies systeem buiten werking}) \times \text{GWP})}{\text{Koelvermogen (kW)}}$$

Wherein:

$$1. \text{Koudemiddelverlies in werking} = \frac{(\text{Ref}_{\text{charge}} \times \text{Sys}_{\text{oplife}} \times (L1 + L2 + S1 + S2))}{100}$$

$$2. \text{Koudemiddelverlies systeem buiten werking} = \text{Ref}_{\text{charge}} \times (1 - \text{Ref}_{\text{RecEff}} \div 100)$$

Impact of refrigerants

TERM	DEFINITION
Ref _{charge}	Refrigerant charge (kg). See installer's rating plate (not from supplier).
Sys _{op-life}	System operational life (years).
Ref _{RecEff}	Refrigerant recovery efficiency coefficient (%).
L1	Refrigerant Recovery Efficiency Coefficient (%): Annual Leak Rate (Units: % Refrigerant Charge).
L2	Annual Natural Factor for Non-Condensable Gases (% Refrigerant Charge)
S1	Released during annual maintenance (% refrigerant charge).
S2	Probability factor for catastrophic failures (% refrigerant charge loss/year).
GWP	Global Warming Potential of the Refrigerant. The contribution to the greenhouse effect expressed in CO ₂ equivalents. The addition '100' refers to the viewing period of 100 years (the contribution of the refrigerant over 100 years).
Kw	Cooling and heating capacity.

The following flat rates should be used if no system-specific data is available:

TERM	DEFINITION
Sys _{op-life}	See Table POL01.2
Ref _{RecEff}	95% ¹
L1	See Table POL01.3.
L2	0.5% ²
S1	0.25% ³
S2	1% ⁴
GWP	The current list of common types of refrigerants with a GWP value over 100 years can be found in the most recent IPCC report.

Comments

¹ This percentage is significantly lower for composite refrigerants. The correct % of the manufacturer must therefore be supplied for this, as in the event of leakage, the lightest component disappears from the mixture and in the long run means that the entire mixture has to be replaced.

² If the system does not need to be bled annually, 0% may be used.

³ This applies if the system has to be opened to carry out the annual maintenance. For systems that do not need to be opened, there is no corresponding annual release of refrigerant and 0% may be used as standard.

⁴ Based on a failure rate of 1 in 100 systems. This percentage only applies to new installations. In the case of retrofitting of systems with refrigerant replacement, a higher factor must be taken into account.

The following information should be obtained from the W or E consultant of the design team or from the manufacturer of the system:

- System type;
- Ref_{charge};
- GWP;
- Kw.

When manufacturers provide figures for the DELC calculation, they must be substantiated with independently verified data from refrigeration installers. The DELC calculation is a measure of the risk and severity of potential

Impact of refrigerants

system leaks. The figures used for this purpose should be representative of all installed systems taking into account expected maintenance and use.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Carbon Dioxide Equivalent Direct Effect Life Cycle (DELCO₂)

In the context of this issue, DELCO₂ eq is a measurement of the global warming effect due to the emission of refrigerants into the atmosphere over the lifetime of equipment (units: kgCO₂eq.). The calculation estimates the total amount of refrigerant released during the period of use and the corresponding conversion to an equivalent amount of carbon dioxide. If the system uses different refrigerants, for example a primary and a secondary refrigerant, or a cascade system, individual calculations are made for all refrigerants that contribute to the direct effect.

Total Equivalent Warming Impact (TEWI)

The formula used to calculate the Direct Effect Life CycleCO₂eq emissions in this issue is based on the Total Equivalent Warming Impact (TEWI) method for new idle refrigeration and air conditioning systems. TEWI is a measurement of the total greenhouse effect of equipment that takes into account both direct (as assessed in this issue) and indirect emissions arising from the energy consumed by the use of the equipment (as assessed in ENE 01).

For more information, please refer to NEN-EN 378-1:2016 and the Guideline Methods of Calculating TEWI of the British Refrigeration Association (BRA).

Global Warming Potential (GWP)

The contribution to the greenhouse effect expressed in CO₂ equivalents. The addition '100' refers to the trial period of 100 years. (The contribution of the refrigerant over 100 years). The list of common types of refrigerants with a GWP value over 100 years can be found in the most recent IPCC report.

Synthetic refrigerants

Synthetic refrigerants are substances that do not occur naturally but have been developed by humans for industrial purposes, such as HFCs.

Household white goods

For the purposes of this issue, household white goods can be understood to mean refrigerators in office pantries with or without freezer compartments.

Natural and environmentally friendly refrigerants

Natural refrigerants also occur naturally in the environment, such as water (R718), CO₂ (R744) and ammonia (R717).

Impact of refrigerants

Automatic isolation and containment of refrigerant

Any system that isolates and encloses the refrigerant to minimize leakage into the atmosphere in the event of a system failure.

Additional information

None.

References

- NEN-EN 378:2016 en Refrigeration systems and heat pumps – Safety and environmental requirements.
- ISO 5149-1:2014/A1:2015 and Refrigeration installations and heat pumps – Safety and environmental requirements.
- PGS 13:2009 Ammonia as a refrigerant in refrigeration systems and heat pumps – guideline.
- NPR 7600:2020 en – Application of hydrocarbons as a refrigerant in refrigeration systems and heat pumps.
- NPR 7601:2020 en – Application of carbon dioxide as a refrigerant in refrigeration systems and heat pumps.
- Guideline Methods of Calculating TEWI Issue 2, (2006), BRA specification.
- Sample investigation of HFC and R22 emissions, refrigerant charge and leakage percentage in the Dairy, Meat and Other Food sectors, NL Agency – KWA, report 3108930DR02.
- Sample study of the total refrigerant content and the average leakage rate of HFCs and HCFCs in the Netherlands 2011-2013, RWS and RIVM – KWA, report 3310690DR0.

This document is for informational purposes only and cannot be used for certification or other purposes.

NO_x emissions

Encouraging the use of heating systems (including domestic hot water) with minimal NO_x emissions to reduce air pollution and nitrogen deposition.

Credits available	: 2
Pre requisite	: ✗
Minimum standard	: ✗
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

This issue consists of one part:

- Heating systems with minimal NO_x emissions (two credits).

Demonstrate that the following criteria are met:

Two credits – Heating systems with minimal NO_x emissions

1. The maximum dry NO_x emissions related to space heating and domestic water (at 3% excess O₂) are under normal conditions less than or equal to the values in Table POL 02.1.

Tables

Table POL 02.1 - Maximum dry NO_x emissions per energy supplied for heat

NO _x EMISSIONS FOR HEATING AND DOMESTIC HOT WATER	NUMBER OF CREDITS
≤ 35 mg/kWh	One credit
0 mg/kWh	Two credits

Compliance note

REFERENCE	SUBJECT	DEFINITION
Scope		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.2	Extension of existing buildings	If the facilities for space heating and hot tap water of the extension are located in the existing building, they must be assessed against the above requirements.
CN1.3	Industrial	This issue applies to the space heating (and hot tap water) of office and commercial spaces in industrial buildings. In the case of unheated buildings, the industrial function can be 'filtered out'. Buildings that are kept frost-free are assessed.

NOx emissions

REFERENCE	SUBJECT	DEFINITION
<i>General</i>		
CN2	NOx emissions in different/other units	The NOx emissions must be converted to the correct parameters. The method for this conversion is described in the methodology.
CN3	Heating and tap water with mains electricity	When (parts of) the building are heated with electricity from the national electricity grid, the average NOx emission is determined at the key figure of 223 mg/kWh for unarmarked electricity. If a project uses unarmarked electricity with high NOx emissions per kWh, there is little chance that credits will be earned for this issue.
CN5	Heating and tap water with electricity from renewable energy	When space heating uses electricity from renewable energy sources, it is assumed that there are no NOx emissions. This concerns electricity from PV panels, wind and hydrogen (energy carrier). Purchased green electricity and heat/electricity from biomass are not included.
CN6	Heat recovery from residual heat	No NOx emissions are attributed to heat supplied by a heat recovery system (e.g. industrial residual heat) if it is produced locally on the project plot and used for space heating.
CN7	Open combustion systems	Heating systems (for space heating and domestic hot water) using open combustion systems cannot receive credits for this issue.
CN8	Multiple systems (installations)	Where multiple heating systems meet the heat demand, a weighted average of NOx emissions should be calculated based on the contribution of each system to the building's total heat demand.

Methodology

Calculating NOx emission levels from combined heat and power (CHP) systems

If CHP systems are in place or are prescribed, only the heat-related emissions are included for this issue. The NOx emissions are allocated for heat and electricity according to the respective energy supply. This is done by distributing NOx emissions over electricity and heat generation. The following formula is used to determine these:

$$X = A \times \left(\frac{B}{B + C} \right)$$

TERM	DEFINITION
X	NOx emissions per unit of heat supplied (mg/kWh heat).
A	NOx emissions per unit of fuel input (mg/kWh of fuel).
B	Heat supply (output in kW)
C	Electricity supplied (output in kW)

The above formula determines the net NOx emissions by comparing electricity generated by cogeneration with the centrally generated electricity and allocates this amount to heat production. If X is negative, then the NOx emissions for the installation are equal to zero.

NO_x emissions

Calculate average NO_x emission levels from multiple systems

If several installations are used for room heating and hot water, the average NO_x emission applies to this issue. The NO_x emissions of a system count proportionally based on the share in heat output. This is equal to the ratio in the energy performance calculation in ENE 01. For district heating systems with multiple installations, the average emissions of the last 3 years are used.

The average NO_x emission is calculated using the following formula:

$$NO_{x,avg} = N_1 \times \left(\frac{H_1}{H_T}\right) + N_2 \times \left(\frac{H_2}{H_T}\right) + \dots + N_n \times \left(\frac{H_n}{H_T}\right)$$

TERM	DEFINITION
NO _x avg	Average NO _x
N1	NO _x emissions for installation 1
N2	NO _x emissions for installation 2
Nn	NO _x emissions for installations
HT	Total amount of heat produced
H1	Heat produced by installation 1
H2	Heat produced by installation 2
Hn	Heat produced by installation n

Calculating NO_x emission levels of electrically driven heat pump systems

Heat pumps use electricity to generate heat. Therefore, in the case of electric heat pump systems, the reference value of the NO_x emission of electricity from the national grid must be multiplied by the electricity consumption of the heat pump. The resulting total NO_x emissions must then be attributed to the heat produced.

When calculating the NO_x emissions of a heat pump, the efficiency, or the measured SCOP (Seasonal Coefficient of Performance) in accordance with NEN-EN 14825, must be used.

Calculation example 1:

With a SCOP of 3.8 and a reference NO_x emission for electricity from the grid of 223 mg/kWh, the NO_x emission is:

$$NO_{x,emissie} = 223 \div 3,8 = 58,7 \text{ mg/kWh}$$

No credit can be awarded on the basis of this outcome.

Calculation example 2:

If a heat pump is used for space heating and tap water that is partly electrically powered and partly uses PV panels, the calculation below can be used as an example:

DATA	NUMBER
Total heat pump consumption	15,000 kWh
Generated by PV panels	10,000 kWh
Grid	5,000 kWh
SCOP	4

NO_x emissions

- NO_x emissions = 5,000 x 223 mg/kWh (key figure for electricity from the grid) = 1,115,000 mg
- 1,115,000 mg / 4 (SCOP) = 278,750 mg
- 278,750 mg / 15,000 (total kWh of the heat pump) = 18.58

Based on this outcome, 1 credit is awarded.

Conversion factors

Suppliers must provide the dry NO_x emissions in mg/kWh. If this is not possible, the conversion factors below can be used to convert the emission data from ppm, mg/MJ, mg/m³ or wet NO_x. These are conservative flat-rate conversion factors based on relatively low returns.

- Figures in mg/m³ must be multiplied by 0.859 to obtain emission figures in mg/kWh. An additional conversion may be necessary for emission figures that are not calculated at 3% oxygen excess (see oxygen excess correction).
- Figures in part per million (ppm) must be multiplied by 1.76 to obtain emission figures in mg/kWh. An additional conversion may be necessary for emission figures that are not calculated at 3% oxygen excess (see definition of oxygen excess correction).
- Figures in mg/MJ must be multiplied by 3.6 to obtain emission figures in mg/kWh (1 kWh = 3.6 MJ). An additional conversion may be necessary for emission figures that are not calculated at 3% oxygen excess (see oxygen excess correction).

Wet NO_x emissions correction

These requirements are based on dry NO_x values as used by most manufacturers. If wet NO_x emission figures are provided, they can be converted to dry NO_x emissions by multiplying the wet NO_x emission figures by conversion factor *c*:

$$c = \frac{100}{(100 - y)}$$

Where *Y* is the percentage of water vapor measured in the gas. This percentage can be requested from the supplier.

Oxygen excess correction

If a NO_x emission figure is assessed, it must be determined at which oxygen excess percentage the emission was measured. The greater the oxygen excess in the flue gases, the more the NO_x dilutes. Therefore, all NO_x emission figures must be converted to 3% oxygen excess (O₂).

Oxygen excess conversion factors

O ₂ EXCESS	CONVERSION
0%	x 0.86
6%	x 1,20
15%	x 3.02

The NO_x emission at 3% excess oxygen is calculated as follows:

$$NOx \text{ emissie (bij 3\% O}_2) = NOx \text{ emissie (gemeten bij O}_2\%) \times \text{conversiefactor } c$$

$$\text{Conversiefactor } c = \frac{(20,94 - 3)}{(20,94 - X)}$$

Where *X* is the percentage of excess oxygen (not excess air) and 20.94 is the percentage of oxygen in the air.

NO_x emissions

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

NO_x emissions

Toxic gases that are mainly produced during the combustion of fossil fuels and contribute to nitrogen or deposits.

Additional information

For some heating systems, it is difficult to get credits in this issue. These include, for example, the following systems:

District heating

District heating based on waste incineration usually has higher NO_x emissions than the requirement set in the issue. For cleaner district heating systems (from various energy sources), the average NO_x emissions are determined.

Biomass-fired plants

For heat from biomass installations (pellet stoves and boilers, and biomass plants for district heating), the actual NO_x emissions must be assessed in accordance with NEN-EN 14792. Biomass plants usually have high NO_x emissions. This can lead to no credits to be earned for this issue. Biomass plants do reduce the use of raw materials and high CO₂ emissions from fossil energy sources. It is important that the fuel of a biomass plant has a sustainable origin.

Some of the effects of NO_x emissions

NO_x emissions have all kinds of effects on the environment. A photochemical reaction under the influence of heat and sunlight causes NO_x to react and create ozone, causing serious respiratory problems. It also reacts with water, causing acid rain, which has adverse effects on ecosystems.

References

- NEN-EN 14825:2018 en: Air treatment equipment, cooling units for liquid and heat pumps with electrically driven compressors, for space heating and cooling - Testing and capacity for partial charging conditions and calculation of seasonal properties.
- NEN-EN 14792:2017 en: Emissions from stationary sources – Determination of mass concentration of nitrogen oxides – Reference method – Chemiluminescence.

Surface water run-off

Preventing, reducing and slowing the discharge of precipitation into public sewers and waterways, thereby reducing the risk of local flooding, pollution and other environmental damage.

Credits available	: 4
Pre requisite	: ✓
Minimum standard	: ✓
Project	: ✓
Filter issue	: ✗
Exemplary performance	: ✗

Criteria

This issue consists of five parts:

- Oil separator and drainage plan (Pre requisite);
- Water retention: 50 mm/hour rainproof (one credit);
- Water retention: 60 mm/hour rainproof (two credits);
- Water retention: 70 mm/hour rainproof (three credits);
- Water retention: Dynamically controlling the flow rate (one credit).

Demonstrate that the following criteria are met:

Pre requisite – Oil separators and drainage plan

1. Effective treatment of precipitation on the construction site itself, for sites and sites with a risk of surface water pollution, the following criteria must be met.

Oil separators

- a. Precipitation from an area with a risk of pollution flows off the site via an oil separator.
- b. Specification of oil separators according to NEN-EN 858 at locations where there is a high and medium risk of contamination or spillage of substances such as gasoline and oil.

Drainage plan

- c. An up-to-date drainage plan has been made available to the users of the location for the location and there is a long-term maintenance agreement for the maintenance of the drainage system.
- d. Confirmation that the competent authority agrees with the drainage plan.

One credit – Water retention: 50 mm/hour rainproof

2. For the building and the plot, a water retention capacity for precipitation of 50 mm per hour for one hour has been achieved, with a static flow rate for drainage of up to 3.6 mm per hour (or 10 l/s/ha), calculated in relation to the entire plot area.

Two credits – Water retention: 60 mm/hour rainproof (Minimum standard starting from Excellent rating)

3. For the building and the plot, a water retention capacity for precipitation of 60 mm per hour for one hour has been achieved, with a static flow rate for drainage of up to 3.6 mm per hour (or 10 l/s/ha), calculated in relation to the entire plot area.

Three credits – Water retention: 70 mm/hour rainproof (Minimum standard starting from Outstanding rating)

4. For the building and the plot, a water retention capacity for precipitation of 70 mm per hour for one hour has been achieved, with a static flow rate for drainage of up to 3.6 mm per hour (or 10 l/s/ha), calculated in relation to the entire plot area.

Surface water run-off

One credit – Water retention: dynamic flow control

5. For the building and the plot, a water retention capacity for precipitation of 50 mm, 60 mm or 70 mm per hour for one hour has been realized, with a dynamic control system that allows the rate of the drainage to be acted on interactively on weather forecasts.

Tables

None.

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Large-scale renovation	In the case of large-scale renovation, an identical scoring system applies. The credits can be awarded if 50% of the above requirements are met, i.e. at 25, 30 and 35 mm per hour during one hour of rain. If the building and plot area increase as a result of the large-scale renovation, the requirements for new construction apply to the increased surface area.
CN1.2	Expansion or infill of existing buildings	When an extension or infill is assessed at an existing location, the requirements apply to both the areas within the construction zone that pose a risk of pollution of the waterways and to the drainage of the existing plot that is affected by the new work.
<i>General</i>		
CN2	Minimum flow rate	At all outflow points, the flow rate must be at least 5 l/s to reduce the risk of blockages.
<i>Oil separator and drainage plan</i>		
CN3	Locations and sites where an oil separator is required.	High-risk areas: <ol style="list-style-type: none"> Areas of pavement where trucks maneuver. Areas where trucks load and unload. Areas where trucks load, unload and park, including access roads. Areas for storing waste and hazardous substances (soil-threatening). Refrigeration installations with a risk of leakage of liquid oil-containing refrigerants (such as glycol, on roof or ground), if they pose a risk to surface water or soil. Maintenance and vehicle washing areas. Legal requirements may apply to the storage and transshipment of hazardous substances that go beyond the scope of BREEAM-NL, such as permanent collection capacity. This allows the requirements of the issue to be met.

Surface water run-off

REFERENCE	SUBJECT	DEFINITION
		<p>High-risk locations must be equipped with fully retentive oil separators, dimensioned for a precipitation amount of 54 mm according to NEN 858.</p> <p>Medium-risk areas:</p> <ol style="list-style-type: none"> Car parks and motorbikes (from 50 parking spaces or 800 m²). Smaller parking spaces that drain into a sensitive nature reserve. Outdoor waste collection facilities. Roads for passenger cars and motorcycles that drain into a sensitive nature reserve. <p>In medium-risk areas, the first 5 mm of precipitation must be treated and discharged completely via the oil separator (first flush). In the case of bypass separators, sufficient specimens must be placed to ensure that the contamination of the first 5 mm of precipitation enters the oil separator.</p> <p>Low-risk areas:</p> <ol style="list-style-type: none"> Unpaved terrain and areas with footpaths and cycle paths or parking for small numbers of motor vehicles. Roads for passenger cars and motorcycles. <p>Rainwater can be infiltrated directly into the soil here or discharged into wadis and municipal and natural waterways. Occasionally used pavements, for example for building maintenance, fall under low risk. The final of consumer goods (packages, office supplies, groceries) by final vans and small trucks falls under low risk.</p> <p>Footpaths less than 1.5 m wide with free drainage to unpaved areas on both sides can be excluded.</p>
CN4	Permeable pavement as an oil separator	<p>If it can be demonstrated that permeable pavement has been used that traps sludge and breaks down oil, this can be considered equivalent to oil separators. Example:</p> <ol style="list-style-type: none"> Permeable pavement with a filter cloth that breaks down oil residues, with a minimum oil retention of 500 gr/m². Permeable pavement in combination with an alternative measure that breaks down or collects oil residues, with a minimum oil retention equal to option a.
CN5	Drainage plan	<p>An up-to-date site drainage plan should be drawn up, with all drains accurately marked. This plan must be handed over to the user and forms the basis for the maintenance contract of at least five years, as stated in the Pre requisite.</p>
<i>Water retention</i>		
CN6	Building and plot area	<p>The retention facilities are used to collect precipitation on the entire plot, which includes both the terrain and the horizontal projection of the building. The rainwater must be able to reach the supply. A green roof is a suitable retention facility for rainwater that falls on the roof, but not for rainwater that falls on lower ground on the plot.</p>
CN7	Water Retention Capacity	<p>Retention facilities are in place to ensure that precipitation is collected on the building and plot. The amount of water that can</p>

Surface water run-off

REFERENCE	SUBJECT	DEFINITION
		be absorbed by infiltration into the soil (determined according to ISO 11275) during this shower may be deducted from this.
CN8	Water storage facilities outside the boundaries of the plot	Retention facilities may be located outside the boundaries of the plot. This can be a retention provision that is intended exclusively for the project, or a shared retention provision. If the retention facility is shared, it may be included in proportion to the surface area of the connected plots. If a connection is made to an existing retention facility, it must be demonstrated that this facility has taken into account the capacity demand of the new location to be developed.
CN9	Infiltration equivalent to dynamic steering	When the minimum required amount of precipitation fully infiltrates via a facility within 72 hours on or directly next to the plot, this can be considered equivalent to dynamic control.
CN10	Dynamic steering by the competent authority	The purpose of dynamic steering is to respond to the weather. In the event of drought, the discharge can be slowed down, and in the event of heavy precipitation, the discharge is accelerated in advance to have maximum retention capacity. If the system is dynamically controlled by a competent authority, such as a water board, in order to steer more effectively than at building or plot level, for example, this is also considered dynamic steering.
CN11	Discharge at sea or open water	When discharging directly into open water or the sea, three credits can be awarded by default. The retention capacity is then considered sufficient to absorb a shower of 70 mm per hour for one hour.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Types of oil separators

Class 1

These are designed to separate a concentration of less than 5 mg/L from rainwater under standard test conditions. These are used when the separator needs to remove very small oil droplets.

Class 2

These are designed to separate less than 100 mg/L from rainwater under standard test conditions.

Suitable for use in drainage areas where a lower quality requirement applies and/or for absorbing a large spill.

Both classes can be executed either 'fully tenacious' or as a 'circulation' separator:

Surface water run-off

Fully tenacious separators

Treat the current delivered by the drainage system, which is normally equal to the current generated at a rainfall intensity of 54 mm/hour.

Bypass separators

Fully treat all streams generated by rain intensities up to 5 mm/hour. Currents above this speed can run around the separator. These separators are used when there is an acceptable risk not to fully treat large flows.

Competent authority

This refers to the body responsible for granting permits and determining the conditions for the drainage of run-off rainwater to natural and municipal watercourses, also known as a water manager.

Static or dynamic flow

The water must be able to leave the retention facility so that it can function again in the event of new precipitation. This can be done by a static flow, where the same amount of water leaves the supply continuously, or by a dynamic flow, which is adjusted based on the weather forecast. A dynamic flow rate ensures that the retention capacity is available at the right time.

Paved surface

These include roofs, car parks and garages, access roads, pavements, final/service areas and pavements with a run-off effect when precipitation falls on them.

Open water

"Open water" refers to bodies of water that are not surrounded by land, such as ocean, seas, lakes, or rivers that do not have clear boundaries such as, for example, a lake with a full fence or enclosed area. It is therefore water that is not demarcated or protected by land masses.

Additional information

70 mm/hour amount of precipitation

A shower with 70 mm of precipitation per hour on every square meter. The shower lasts one hour. The capacity of the facilities must be sufficient to absorb this storm on location (a lower requirement applies to criteria 1 and 2, whereby a large part of the storm can be absorbed).

The 70 mm storm is a future scenario for an event that can occur once every 100 years. However, this means that a precipitation amount of 70 mm per hour can fall annually in several places in the Netherlands, but on average at specific locations.

Water retention facilities

There are several solutions for water retention. Local buffering and reuse of rainwater is preferred, because it solves local problems such as desiccation and loading of sewers. Examples are:

- Storage ponds;
- Wadis;
- Rietvelden;
- Permeable pavement (e.g. paving on a permeable sublayer);
- Rainwater harvesting systems for roofs;
- Green roofs (in accordance with NTA 8292);
- Blue-green roofs (green roofs with water retention facilities).

Surface water run-off

Infiltration facilities

A natural or artificial facility (drainage system or soak away), to stimulate the infiltration of rainwater into the ground. Because in addition to large showers, longer dry periods are also more common in our climate, infiltration facilities are preferable to other drainage systems. The rainwater is thus added to the groundwater (to be controlled slowly by the water board) instead of having to be drained into main waterways and rivers in a short time.

Water and soil control, combinations of measures

Natural soil and water systems underground, and the way in which they work together, are important for the development of areas (according to the Environment and Planning Act). To prevent water damage from high precipitation, protect the soil from drying out and salinization, and prevent pollution (by minimizing the risk of soil contamination), these things need to be looked at together.

The risk of water damage can be reduced by temporarily retaining rainwater on or around the plot. The use of the retention capacity of a green roof, the collection of water in infiltration facilities and retention basins, and facilities such as wadis can be used well together and may be added up if they contribute to the capacity. Infiltration into the soil also helps to prevent desiccation in the long term. In addition to physical measures, such as infiltration crates, this can also be done on unpaved ground or with semi-open paving.

It is always important to avoid pollution, as pollutants can end up in the soil or surface water through infiltration.

Discharge rate and regional context

Due to climate change, the amount of precipitation in the Netherlands is becoming increasingly extreme. There will be longer dry periods and periods with a lot of rain or heavy showers more often. The situation may vary from region to region. For example, the problems in the sandy soils are different from those in the clay and peat areas. This means that the solutions requested by the local water boards and municipalities may differ per region. However, the solutions from this scheme can be applied everywhere and fit well with regional differences. The main differences are in the speed at which the water has to be drained. In Limburg it can be done faster, while in the west of the Netherlands a longer drainage time is needed.

If the drainage plan deviates from the guidelines, the Assessor must approve whether the solution is suitable. It is important that this does not lead to smaller facilities, but to other (faster or slower) solutions.

A retention facility that is suitable for a shower of 70 mm/hour is the best solution for the future and is in line with climate scenarios of, for example, the KNMI. However, it is not always necessary or possible to absorb a peak shower of 70 mm on private property. Moreover, peak showers do not always last an hour.

References

- Data on rainfall are available via KNMI Operational Data Centre (KODAC), <https://data.knmi.nl/portal/webapp/KNMI-Datacentrum.html>.
- BS EN 858-1:2002/A1:2004 and Separators and sludge traps for light liquids (e.g. oil and petrol) - Part 1: Design, requirements and testing, marking and quality control.
- BS EN 858-2:2003 and Separators and sludge traps for light liquids (e.g. oil and petrol) - Part 2: Determination of nominal size, installation, operation and maintenance.
- Discharge regulations for run-off rainwater activities decree - InfoMil Knowledge Centre.

Reduction of light pollution

Ensuring that the exterior lighting illuminates the right areas and that light pollution from both exterior lighting and light radiation from the building is minimized.

Credits available	: 2
Minimum standards	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

This issue consists of two parts:

- No exterior lighting (two credits);
- Minimization of light pollution (one credit).

Demonstrate that the following criteria are met:

Two credits – No outdoor lighting

1. If there is no outdoor lighting, such as area lighting, advertising lighting, lighting for lighting the building, the credits are assigned by default.

OR

If there is outdoor lighting at the building, then the following must:

One credit – Minimizing light pollution

2. The design of this lighting must comply with the Light Pollution Guideline 2020 of the Light Pollution Committee - NSVV (Dutch Foundation for Lighting).
3. The lighting (except the safety lighting) must be switched off automatically between 11:00 pm and 7:00 am. This can be controlled with a timer that turns off the lights at these times.
4. If emergency lighting is necessary and is used between 11:00 p.m. and 7:00 a.m., it must be dimmed during these hours in accordance with the Light Nuisance Directive 2020 and the rules from NEN-EN 12464-2:2024. This can be done, for example, by using an automatic switch to lower the lighting level from 11:00 p.m. or earlier.

Tables

None.

Reduction of light pollution

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.2	Expansion of the existing situation	If the assessment relates only to the extension, the existing building can be disregarded. If both the new and the existing building are assessed as a whole, both the existing and the new part must comply.
<i>General</i>		
CN2	Special safety requirements	If light fixtures are specified with specific safety standards that do not meet the set criteria, they can be disregarded. However, this must be demonstrated by evidence that the specific safety standards apply to the project in question. Examples are: <ol style="list-style-type: none"> Flashing lights used for the safe maneuvering of vehicles. Safety lighting in the road surface for the demarcation of the road (active lighting).
CN3	Guideline Light Nuisance 2020 with regard to Flora and fauna	The general guidelines for minimizing light pollution for flora and fauna apply to each project, but the extent of application depends on the location. The elaboration of this must be done in consultation with a recognized ecologist, as part of LE 04.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

None.

Reduction of light pollution

Additional information

Effect of light pollution on flora and fauna

Nocturnal artificial light has several negative effects on flora and fauna. Among other things, it disrupts the biorhythm and foraging behavior, changes reproductive behavior and causes difficulties during migration and orientation.

References

- Light Pollution Guideline 2020 – Light Pollution Committee – NSVV.
- NEN-EN 12464-2:2024.

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

Reduction of noise pollution

Preventing or reducing the risk that noise from installations and other noise sources will cause nuisance to nearby 'noise-sensitive' buildings and their users during the use stage.

Credits available	: 1
Pre requisite	: X
Minimum standard	: X
Project	: ✓
Filter issue	: X
Exemplary performance	: X

Criteria

This issue consists of two parts:

- No noise-sensitive buildings or areas (one credit);
- Prevent or reduce noise pollution (one credit).

Demonstrate that the following criteria are met:

One credit – No noise-sensitive buildings or areas

1. There are no noise-sensitive buildings and/or areas within a radius of 800 metres of the project to be assessed.

OR

If there are or will be existing noise-sensitive buildings and/or areas within a radius of 800 metres from the project to be assessed, then one must:

One credit – Prevent or reduce noise pollution

2. In accordance with environmental regulation - Measurement and calculation method noise industry, a noise study can be carried out into the expected long-term average assessment level (Lar, LT) and the maximum noise level (LAmax) by the project on noise-sensitive buildings, whereby:
 - a. The noise level at the location of the façade must be determined, and
 - b. In the case of buildings that are sensitive to the interior and/or adjacent, the noise in the building must be determined.
3. The noise survey must be carried out by an appropriately qualified person.
4. If the noise study shows:
 - a. That the noise level of the assessed project is lower or equal to the permissible noise exposure values from Table POL05.1, then the credit can be awarded.

OR

- b. If the noise study shows that the noise level of the assessed project is higher than the permitted noise exposure values from Table POL05.1, measures must be taken until at least the noise exposure values from Table POL05.1 are met

Reduction of noise pollution

Tables

Table POL 05.1 Permissible noise exposure on a 'noise-sensitive' building

	07.00-19.00 HRS	19.00-23.00 HRS	23.00-07.00 HRS
L _{A,r} ,L _T on the façade of sensitive buildings	45 dB (A)	40 dB (A)	35 dB (A)
L _{A,r} ,L _T within indoor and adjacent sensitive buildings	30 dB (A)	25 dB (A)	20 dB (A)
L _{A,max} on the façade of sensitive buildings	65 dB (A)	60 dB (A)	55 dB (A)
L _{A,max} within indoor and adjacent sensitive buildings	50 dB (A)	45 dB (A)	40 dB (A)

Compliance note

REFERENCE	SUBJECT	DEFINITION
<i>Scope</i>		
CN1	Applicability of the criteria	Chapter 3.2 Table 6 shows the scope for each criterion, by use function and project type. Criteria that do not apply are displayed there. Additional or modified criteria for a specific project type and use case are listed in the issues compliance notes
CN1.1	Expansion of the existing situation	For an extension of a building, the existing situation must also be included in the calculation.
CN1.2	Part of a larger project	If the building is part of a larger project where noise-sensitive destinations exist or are being developed, an acoustic study is needed to assess whether the building will not cause problems in the future. To know whether future developments are planned in the area, it is necessary to look at the environmental plan or, if applicable, the adopted change plan and the rules that apply to the surrounding locations. For more information, see the website of the Environment Desk.
CN1.3	Construction noise and noise pollution during construction	Noise nuisance during construction is not covered by this issue (see CN5 Scope of the acoustic study). This is assessed in issue MAN 03.
<i>General</i>		
CN2	Assessed building is itself a noise-sensitive destination	If the building itself is a noise-sensitive destination, an acoustic survey must be carried out regardless of the distance to other noise-sensitive destinations.
CN3	Qualified acoustic consultant	A person who meets all of the requirements listed below can be considered adequately qualified: <ul style="list-style-type: none"> a. Has received an education at college or university level and has completed it with a diploma or has completed an equivalent education with a diploma in acoustics or sound testing. b. At least three years of relevant professional experience as an acoustic consultant (during the last five years). Such experience should clearly demonstrate a practical

Reduction of noise pollution

REFERENCE	SUBJECT	DEFINITION
		<p>understanding of the factors affecting acoustics in relation to construction and the environment, including an advisory role to make recommendations for appropriate acoustic performance levels and mitigation measures.</p> <p>If an adequately qualified acoustic consultant verifies the acoustic measures or calculations of another non-compliant acoustic consultant, that qualified acoustic consultant must have read, checked and confirmed in writing that the report:</p> <ol style="list-style-type: none"> Complies with the practice of the sound industry. Is adequate with regard to the assessed building and the proposed scope of the work. Doesn't contain incorrect, biased, or exaggerated recommendations.
CN5	Scope of the acoustic research	The acoustic study must include all noise sources in and around the building.

Methodology

None.

Evidence

CRITERIA	DESIGN	POST-CONSTRUCTION STAGE
All	One or more supporting documents, as stated in chapter 4.0 BREEAM-NL Evidence, must demonstrate that the project meets the criteria.	

Definitions

Acoustic consultant

An acoustic consultant gives advice on acoustics and sound. This person works to reduce noise pollution in buildings or, conversely, to improve sound quality for certain types of buildings.

Additional information

What a noise-sensitive building is and which functions fall under it can be found in the Living Environment Quality Decree (Bkl).

References

- ISO 1996-1:2016 and: Acoustics – Description, measurement and assessment of ambient noise – Part 1: Basis quantities and procedures.
- ISO 1996-2: 2017 and – Acoustics – Description of assessment and measurement of ambient noise – Part 2: determination of ambient noise levels.

Attachments

The various checklists and instructions can be downloaded from www.breeam.nl/support. This concerns the checklist and instructions:

- Technical checklist A1
- Checklist A3
- Technical checklist A5
- Technical checklist A9
- Technical checklist A11

This document is for informational purposes only and cannot be used for certification. The official Dutch version prevails.

We guarantee a
Better tomorrow

BREEAM® | NL

www.dgbc.nl cannot be used for certification. The official Dutch version prevails.



Dutch
Green Building
Council

Benoordenhoutseweg 46
2596 BC The Hague

T +31 (0)88 55 80 100
E helpdesk@dgbc.nl

www.dgbc.nl
www.breem.nl