

International Scientific Conference
«Renewable Energy Sources Transition – The Energy of the Future»
Mary, 8 July 2024

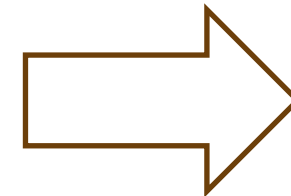
Sustainable and energy efficient building certifications

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International consultant, SECCA

Why buildings?

- 30% of global final energy consumption
- 26% of global greenhouse gas emissions
- 45% of materials utilized in construction
- 36% of overall waste generation
- Humans spend 80% of time indoors (residential, health, work environments)

*For EU it is vision of a
decarbonized building stock
by 2050*



Sustainable and energy efficient building certifications

EU legislative requirements:

- Energy Performance certificates and minimum energy efficiency requirements
- **Nearly zero-energy building** and **zero-emission buildings requirements** (starting from 2028) for new buildings
- Upcoming: CO₂ life cycle perspective and Level(s) framework

Voluntary sustainable building certification schemes:

- BREEAM - Building Research Establishment's Environmental Assessment Method
- LEED - Leadership in Energy and Environmental Design
- DGNB - German Sustainable Building Council
- PH – passive house
- EDGE - green building certification from International Finance Corporation (IFC), a member of the World Bank Group
- ..



Energy Performance of Buildings Directive



- As of **2030 all new buildings must be zero-emission**; new public buildings must be zero emission already by 2027



- The **worst-performing 15% of the EU building** stock will have to be upgraded from Energy Performance Certificate (EPC) **label G to at least label F by 2030**, public and non-residential buildings leading the way by 2027. Residential buildings should be renovated from G to at least F by 2030, and to at least E by 2033



- The **obligation to have an energy performance certificate is extended to buildings undergoing major renovation, buildings for which a rental contract is renewed and all public buildings**



- Requirement to roll out **charging infrastructure for electric vehicles in residential and commercial buildings** and to promote dedicated parking space for bicycles



- Buildings or building units which are **offered for sale or rent must have an energy performance certificate**, and the energy performance class and indicator should be stated in all advertisements

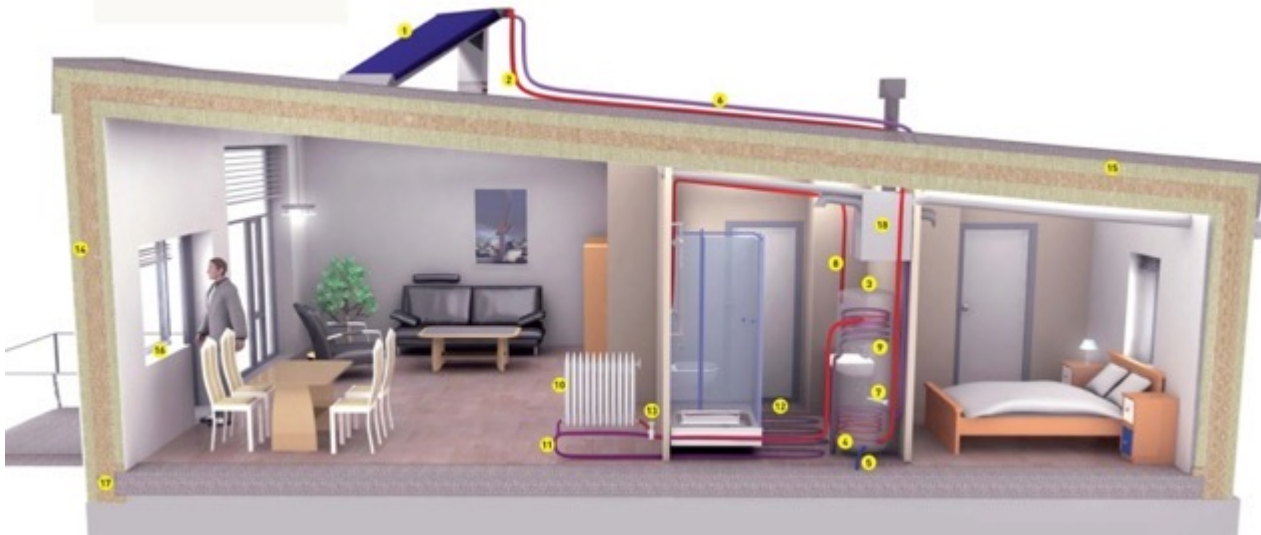


- National Building Renovation Plans will be fully integrated into National Energy and Climate Plans to ensure comparability and tracking of progress – they will need to include **roadmaps for phasing out fossil fuels in heating and cooling by 2040 at the latest**

Nearly Zero Energy buildings

Transforms a building or building:

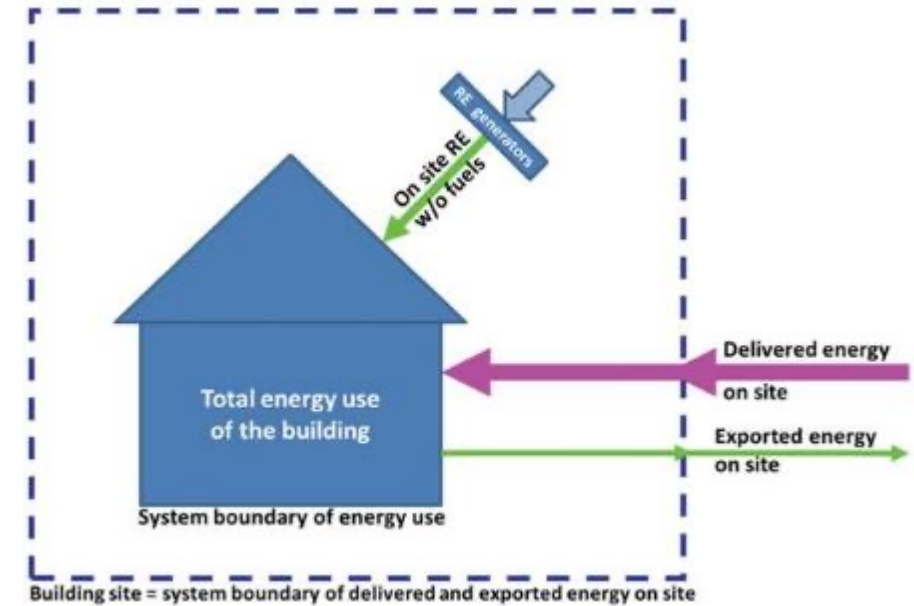
- before 1 January 2030, into a **nearly zero-energy building** (starting from 2021)
- as of 1 January 2030, into a **zero-emission buildings** (as of 1 January **2028**, new buildings owned by public **bodies**)



Bosco Verticale, Milan

Nearly zero-energy building definition

- As per the Energy Performance of Buildings Directive (EPBD), energy performance cannot be lower than the cost-optimal level reported by Member States for 2023
- Buildings must meet a nearly zero or very low energy requirement
- A significant portion of the required **energy should come from renewable sources**
- **This includes renewable energy produced on-site or in close proximity to the site**



Source: REHVA

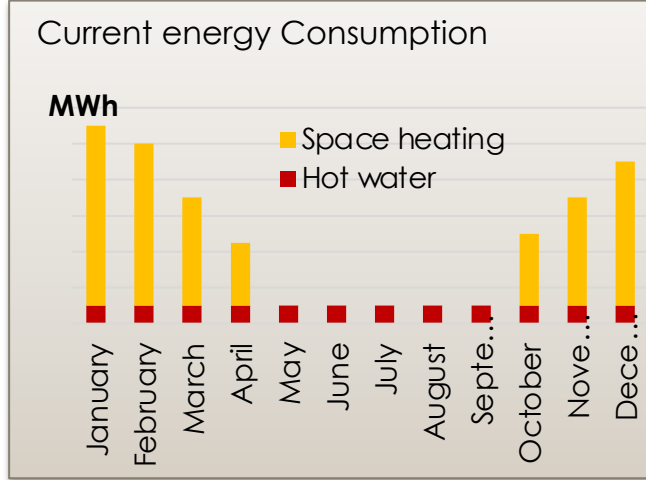
Zero-emission buildings

- Nearly zero-emission building (NZEB) means a building that has a very **high energy performance**, while the nearly zero or very low amount of energy required should be covered to a very **significant extent by energy from renewable source**
- **and without on-site carbon emissions from fossil fuels**
- Focus of the proposal is the reduction of **operational greenhouse** gas emissions, ZEB definition further include the calculation life-cycle Global Warming Potential (GWP) and its disclosure through the energy performance certificate of the building

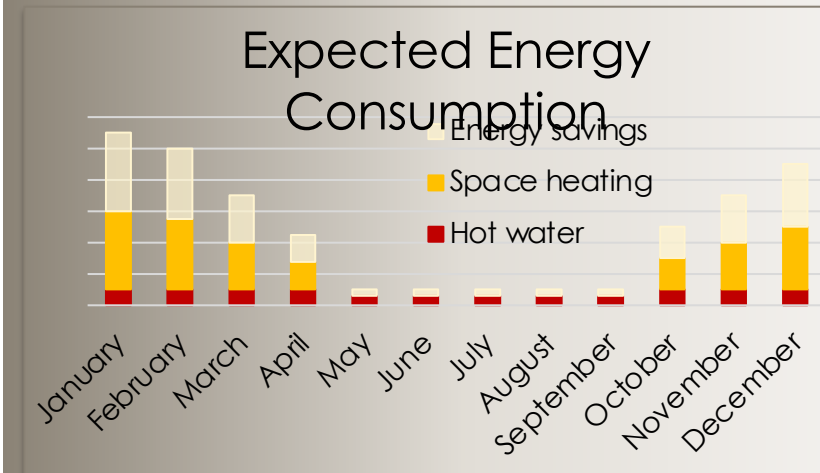


Energy Performance certificates in buildings

Energy Audit

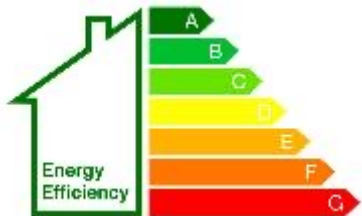


Identify and quantify measures



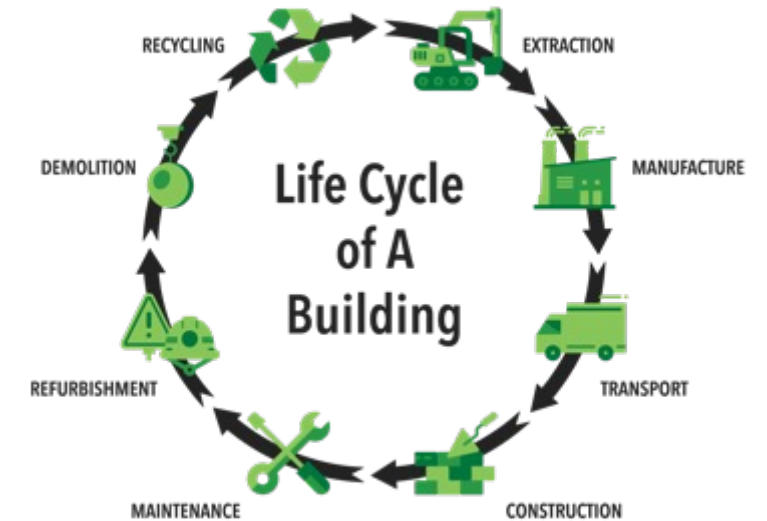
EPC - Energy Audit Report

Economic and financial analysis



EU initiative that joins up sustainable building thinking across the EU

- **Sustainable building certifications**, also known as green building rating tools, evaluate and acknowledge buildings meeting specific sustainability criteria
- **These certifications serve to reward companies and organizations** for constructing and operating environmentally friendly buildings



Who and Why use buildings certification systems

- **Building developers and financiers**, to be assured of the building's quality and sustainability
- **Tenants and owners**, to be confident in a healthy, comfortable work/living environment and rational resource consumption
- **Real estate brokers**, to provide clear information about the building's quality and environmental impact, comparing it with other buildings
- **Building managers**, to reduce building maintenance costs
- **State and municipal institutions**, to demonstrate best practices in construction and achieve the best possible socio-economic and environmental performance



For example: EDGE Green Building Certification

EDGE (Excellence in Design for Greater Efficiencies) is a global green building certification system developed by the International Finance Corporation (IFC), a member of the World Bank Group

Key Requirements:

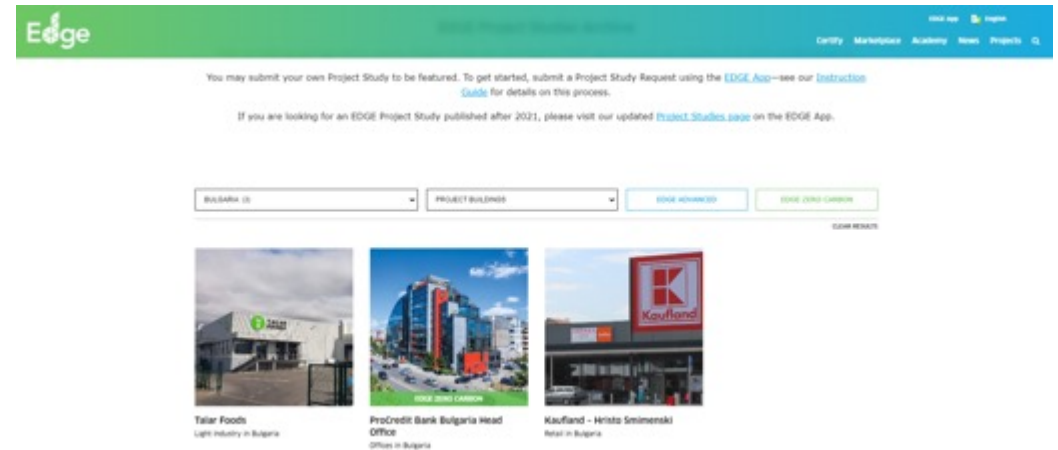
Minimum Reductions:

- **Energy Use:** 20% reduction
- **Water Use:** 20% reduction
- **Embodied Carbon in Materials:** 20% reduction

Benchmarked against a standard local building

Certification Process:

- Achievements are verified through EDGE software calculations, based on building design documents
- Successful projects receive Preliminary Certification, confirming they meet EDGE criteria



BREEAM building database

Explore BREEAM

EXPLORE THE DATA BEHIND BREEAM PROJECTS

Explore Assessors/APs Certified Assessments Maps Data Data Lab

Certified Assessments



CERTIFIED BREEAM ASSESSMENTS

This section provides a listing of the BREEAM Assessments that have been certified under BREEAM 2008 onwards - excepting a small number of buildings which cannot be listed for client confidentiality reasons. It also includes assessments certified by National Scheme Operators under BREEAM affiliated schemes.

Project Phase All

Project Type All

ADVANCED SEARCH

SEARCH

Results 1 - 20 of 37710

Results per page 20

Building / Asset Name	Client / Developer	Scheme	Rating Score	Stage/ Valid Until	Certificate No.	Assessor/Auditor	Town Postcode/Zipcode	Country
More...	DEAS Asset Management	In-Use International Commercial V8 Part 1 - Asset Performance	Very good 58.3%	14 Dec 2026	BIU00015788-1.0	CBRE AS	Oslo 0166	Norway
More...	Olav V8 gate 5 AS	In-Use International Commercial V8 Part 1 - Asset Performance	Very good 56.3%	27 Feb 2027	BIU00009695-1.0	Multiconsult Norge AS	Oslo 0161	Norway
More...	Aberdeen Standard Investments	In-Use International Commercial V8 Part 1 - Asset Performance	Good 40.0%	19 Dec 2026	BIU00016499-1.0	CBRE AS	Oslo 0250	Norway
More...	Bilingsley Company	In-Use USA Commercial V8 Part 1	Pass 33.9%	14 Sep 2026	BIU00015025-1.0	Jordan & Skala Engineers, Inc	Piano 75093-8201	United States



<https://tools.breeam.com/>