EU Taxonomy Alignment Methodology Document for Green Residential and Commercial Buildings

November 2025

Client: ASR Nederland N.V.

Author: CFP Green Buildings

Table of contents

a.s.r. is a leading insurer in the Netherlands based on market share. a.s.r. helps customers in sharing risks and accumulating wealth for the future. It offers services and products in the areas of insurance, pensions, and mortgages for consumers, entrepreneurs, and employers. Additionally, a.s.r. is active as an asset manager also for third parties. a.s.r. considers the interests of people, the environment, society, and future generations. a.s.r. is listed on Euronext Amsterdam and included in the AEX. a.s.r.'s headquarters are in Utrecht, with additional locations in Enschede, Groningen, Heerlen and Leeuwarden. a.s.r. has 7,373 employees.

a.s.r. has developed the a.s.r. Green Finance Framework (the "Framework") under which it intends to issue green bonds, which may include public debt and private placements, and use the proceeds to finance or refinance, in whole or in part, existing or future projects that are expected to reduce the carbon footprint and energy consumption of a.s.r.'s investment portfolio, and support energy transition in the Netherlands.

Purpose of this document

The purpose of this document is to provide a methodology explaining the implications of the EU Taxonomy criteria on the selection of Eligible Assets. In this case the acquisition and ownership of buildings. Annex I (Climate Change Mitigation) of the EU Taxonomy Delegated Regulation from June 2021, Section 7.7 and Section 7.1, formulates the Technical Screening Criteria for Substantial Contribution to Climate Change Mitigation for sustainable buildings as follows:

- ***For buildings built before the 31st of December 2020***, the building has at least an Energy Performance Certificate (EPC) class A. As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31st of December 2020 and at least distinguishes between residential and non-residential buildings. For buildings built after the 31st of December 2020, the PED must be at least 10% lower than the threshold set for nearly zero-energy building (NZEB) requirements.
- ***Where the building is a large non-residential building*** (with an effective rated output for heating systems, systems for combined space heating and ventilation, air-conditioning systems or systems for combined air-conditioning and ventilation of over 290 kW) it is efficiently operated through energy performance monitoring and assessment.

The Annex I to the Delegated Act clarifies in footnote 281 that the Primary Energy Demand is the "calculated amount of energy needed to meet the energy demand associated with the typical uses of a building expressed by a numeric indicator of total primary energy use in kWh/m² per year and based on the relevant national calculation methodology and as displayed on the Energy Performance Certificate".

Moreover, The Energy Performance of Buildings Directive defines in Article2(9)[1] Primary Energy as "energy from renewable and non-renewable sources which has not undergone any conversion or transformation process". It also explains in Annex I that "the energy performance of a building shall be determined on the basis of calculated or metered energy use and shall reflect typical energy use for space heating, space cooling, domestic hot water, ventilation, built-in lighting and other technical building systems". Currently, the methodology and requirements in this report are based on the EPBD III framework. However, starting from 2026, the EPBD IV will be introduced in phases. This upcoming directive will bring changes in several key areas, for example the distribution of energy labels as of 2030. As a result, certain aspects and indicators used in this report need to be revised and updated once certain parts of the EPBD IV become effective to ensure alignment with the new regulatory framework.

CFP Green Buildings has been asked to provide consulting services to develop a methodology to define the top 15% most energy-efficient residential buildings in the Netherlands and the definition of the NZEB minus 10% of both residential and commercial buildings. CFP was not asked to investigate the Do No Significant Harm (DNSH) criteria, such as climate change adaptation. This methodology would form the basis of the selection of assets for the Green Residential and Commercial Buildings category under de a.s.r.'s Eligible Green Building Portfolio, in accordance with their Green Bond Framework.

[1] The Energy Performance of Buildings Directive, page 15. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401275

Executive Summary

The purpose of this document is to provide a methodology explaining the implications of the EU Taxonomy criteria on the selection of Eligible Projects. In this case the acquisition and ownership of buildings.

The criteria used for the selection of assets are described below.

Acquisition and ownership of buildings built before the 31st of December 2020

The EU Taxonomy formulates the Technical Screening Criteria for Substantial Contribution to Climate Change Mitigation for sustainable buildings as follows:

- The building has at least an Energy Performance Certificate (EPC) class A.

OR

- As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.

In addition, for large non-residential buildings, building installations are efficiently operated through energy performance monitoring and assessment.

Green residential buildings

Currently registered EPC A labels account for 23.69% of the total Dutch residential buildings stock and 20.81% of the Dutch residential buildings stock that was built before the 31st of December 2020.

Residential buildings constructed in accordance with the 2006 building regulations form a key segment of the high-performing national housing stock. These buildings comply with an EPC score of 0.8 or lower, corresponding to an energy label of A+ or higher. In total, buildings complying with the building requirements set in 2006 represent 12.20% of the national residential building stock built before 2021. In addition, pre-2006 buildings that achieve the same or better level of performance (by having an energy label A+ or higher) account for 0.46% of the stock built before 2021. Combined, these buildings represent 12.67% of the national residential building stock built before 2021 and are therefore considered part of the Green Buildings portfolio.

Green commercial buildings

Currently, 13.61% of the Dutch commercial buildings do have an EPC A. For the buildings built before 31 December 2020 10.61% have an EPC A.

From 2026, all large non-residential buildings in the Netherlands with an effective rated output above 290 kW must comply with BACS regulations, ensuring energy-efficient operation through continuous monitoring and assessment; a.s.r. can perform additional checks to confirm compliance.

Therefore, commercial buildings with an EPC rating A, and, if required, compliant to the BACS regulation are selected for the Green Buildings Portfolio.

Acquisition & Ownership of Buildings built after 31 December 2020

The EU Taxonomy formulates the Technical Screening Criteria for Substantial Contribution to Climate Change Mitigation for buildings built after 31 December 2020 and the construction of new buildings as follows:

- The Primary Energy Demand (PED) is at least 10% lower than the threshold set for the nearly zero-energy building (NZEB) requirements.

The EU Taxonomy also describes additional criteria under EU economic activity 7.1 for buildings that are larger than 5.000 m^2. CFP has not analysed compliance with these criteria in this document. a.s.r will analyse compliance with these additional criteria where relevant.

Green residential buildings

Buildings built since 2021 are 10% more energy efficient than the NZEB requirements when they comply to the following values:

- Ground based houses should have a maximum primary fossil energy usage of 27 kWh/m^2/year.
- Flats and apartments should have a maximum primary fossil energy usage of 45 kWh/m^2/year.

The NZEB requirements are translated into an EPC rating, expressed as the EP2 score (PED score on the energy label). Therefore, all residential buildings built since 2021, with an EP2 score that is lower than the maximum threshold for the building type, are selected. Depending on the type of residential building, these buildings have a label A+++ ($0 < PED \leq 50$) or A++++ ($PED \leq 0$) rating. a.s.r. uses label A++++ as the selection criteria based on the EEM NL guideline[2].

Green commercial buildings

Buildings built since 2021 are 10% more energy efficient than the NZEB requirements when they comply to the following values:

- Offices should have a maximum primary fossil energy usage of 36 kWh/m^2/year.
- Retail assets should have a maximum primary fossil energy usage of 54 kWh/m^2/year.

For buildings larger than 5,000 m^2 a.s.r. needs to ensure fulfilment of the criteria and will require additional evidence on the presence of robust and traceable quality control processes.

The NZEB requirements are translated into an EPC rating, expressed as the EP2 score. Therefore, all commercial buildings built since 2021, with at least EPC A++++ and with an EP2 score (PED score on the energy label) that is lower than the maximum threshold for the building type, are selected.

[2] Dutch Energy Efficient Mortgage Framework 2024, page 62. https://www.eemnl.com/_files/ugd/4fce6d_67035a0ba8774fddb289a89970b4e3bc.pdf

Upcoming regulatory changes – EPBD IV

At present, this methodology aligns with the EPBD III framework. From 2026, the EPBD IV will be implemented in phases across the EU, introducing major updates that will impact the EPC system and Taxonomy alignment:

- A new A–G label scale to replace A+, A++, A+++, A++++ classes by 2030;
- Revised calculation methods integrating measured energy data;
- Minimum energy-performance standards for the worst-performing non-residential buildings by 2030/2033;
- Zero-emission building (ZEB) requirements for all new buildings from 2030; and
- Introduction of whole-life carbon (WLC) reporting for embodied emissions.

As a result, certain assumptions and KPIs in this report, particularly those linked to EPC thresholds and NZEB definitions, will need to be reviewed and updated once the new energy label classes come into force (2030). However, since our analysis for residential buildings is based on identifying the top 15% of buildings using building regulations as the benchmark, the shift in the EPC A-class definition under EPBD IV will not affect the overall outcome of the portfolio assessment to measure the top 15%. The same applies to the NZEB-10% selection methodology, which also remains unaffected by these upcoming classification changes. A revision may be relevant for example to assess whether post-2020 buildings, evaluated under the new labelling methodology, may qualify for the NZEB-10% selection in future updates.

Residential buildings

Annex I (Climate Change Mitigation) of the EU Taxonomy Delegated Regulation from June 2021, chapter 7.7, formulates the Technical Screening Criteria for Substantial Contribution to Climate Change Mitigation for sustainable buildings as follows:

- ***For buildings built before the 31st of December 2020***, the building has at least an Energy Performance Certificate (EPC) class A. As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.
- ***For buildings built after the 31st of December 2020,*** the PED needs to be at least 10% lower than the threshold set for nearly zero-energy building (NZEB) requirements.

PED refers to the quantity of energy required to obtain the total amount of energy that a dwelling demands from fossil fuels such as gas and electricity. The higher the number of residents or the bigger the living space, the greater the PED. To achieve the required PED of a residential building, sustainability and retrofitting strategies are essential to reduce primary energy consumption and improve the energy rating.

EPC labels in the Netherlands

EPC labels are important instruments that should contribute to enhancing the energy performance of buildings. The certificate can potentially influence builders and real estate owners to increase energy efficiency and implement energy-saving measures in renovation projects.

As a result of the 2002 European Energy Performance of Buildings Directive (EPBD) (2002/91/EC), Energy Performance Certificates (EPCs) have become a mandatory requirement for European Union (EU) Member States. EPCs play a pivotal role within the context of this directive, which mandates that Member States provide information on the energy performance of buildings to the property owners or tenants. To demonstrate and confirm a building's energy performance, an EPC must be made available alongside an inspection report upon which the EPC is based. The recast of the EPBD (Directive 2010/31/EU) in 2010 increased even further the policy attention and the importance of EPCs.

An EPC label serves the purpose of indicating how energy-efficient a home is and suggests energy-saving measures that can be implemented. The assigned letter on an energy label is determined based on fossil energy consumption, expressed in kilowatt-hours per square meter per year (kWh/ m^2/year). The label classes for homes range from A++++ to G. Homes with an A++++ label are the most energy-efficient (with a maximum PED of 0 kWh/m^2/ year), while houses labelled G are the least energy-efficient. The label also provides an overview of housing characteristics, including the type of housing, insulation, glazing, and

heating system. The current status of EPC ratings in the Netherlands is described in Table 1 below.

Table 1 shows that registered EPC A labels or higher account for 23.69% of the Dutch residential building stock. This exceeds the top 15% of the national or regional building stock expressed as operational PED, therefore it is necessary to define which buildings belong to the top 15%.

Moreover, Table 2 shows a similar outcome for the buildings built before the 31st of December 2020. Registered EPC A labels or higher account for 20.81% of the Dutch residential building stock built before the 31st of December 2020.

EPC rating	EPC Score (NEN 7120)	PED in kWh/m²/year (NTA 8800)	Registered certificates	% of total certificates	% of total the total builing stock[3]
A++++		PED ≤ 0	34,909	0.67%	0.42%
A+++		0 < PED ≤ 50	122,588	2.35%	1.48%
A++		50 < PED ≤ 75	80,140	1.53%	0.97%
A+		75 < PED ≤ 105	134,804	2.58%	1.63%
A	< 1.20	105 < PED ≤ 160	1,587,646	30.41%	19.19%
B	1.21-1.40	160 < PED ≤ 190	843,212	16.15%	10.19%
C	1.41-1.80	190 < PED ≤ 250	1,243,914	23.83%	15.03%
D	1.81-2.10	250 < PED ≤ 290	501,214	9.60%	6.06%
E	2.11-2.40	290 < PED ≤ 335	298,723	5.72%	3.61%
F	2.41-2.70	335 < PED ≤ 380	188,176	3.61%	2.27%
G	>2.70	> 380	185,528	3.55%	2.24%
Total			5,220,854	100.0%	63.10%

Table 1: EPCs in The Netherlands [4]

EPC rating	EPC Score (NEN 7120)	PED in kWh/m²/year (NTA 8800)	Registered certificates	% of total certificates	% of total the total builing stock[5]
A++++		PED ≤ 0	4,099	0.08%	0.05%
A+++		0 < PED ≤ 50	20,811	0.42%	0.25%
A++		50 < PED ≤ 75	34,096	0.69%	0.41%
A+		75 < PED ≤ 105	108,550	2.18%	1.31%
A	< 1.20	105 < PED ≤ 160	1,555,109	31.27%	18.79%
B	1.21-1.40	160 < PED ≤ 190	841,045	16.90%	10.16%
C	1.41-1.80	190 < PED ≤ 250	1,242,320	24.97%	15.01%
D	1.81-2.10	250 < PED ≤ 290	500,210	10.05%	6.05%
E	2.11-2.40	290 < PED ≤ 335	298,051	5.99%	3.60%
F	2.41-2.70	335 < PED ≤ 380	187,259	3.76%	2.26%
G	>2.70	> 380	183,727	3.69%	2.22%
Total			4,975,277	100.0%	60.13%

Table 2: EPCs of buildings built before the 31st of December 2020 in The Netherlands [4]

[3] There are 8.274.478 residential buildings at 01-01-2025 (most recent data of CBS - https://opendata.cbs.nl/statline/#/CBS/nl/dataset/81955NED/table?fromstatweb).

[4] Source for EPC labels: https://www.ep-online.nl/, data from 01-01-2025.

[5] The amount of residential buildings on YE2024 minus the newly built houses in 2021-2024; https://opendata.cbs.nl/statline/" \l "/CBS/nl/dataset/81955NED/table?fromstatweb"; 7,985,930.

Registered certificates

Near the end of 2024, approximately 5.2 million residential buildings in the Netherlands have a registered EPC. Of these buildings, approximately 2 million are registered with an EPC rating A or higher. The energy efficiency of existing residential buildings can be determined using three different methods:

- A more extensive calculation at location (which considers around 150 building characteristics), resulting in the EPC or PED score. A certified professional calculated this energy label with the NTA8800 (since 2021) or the NEN7120 (before 2021);
- A calculation made at a distance, by a certified energy advisor and based on the most important building characteristics (this method was used until December 2020);
- The provisional energy label provided by the Dutch government.

These first two methods result in a registered certificate, with an EPC, which is calculated by certified energy advisors and validated by audited organisations.

As for the third method, in 2015, all non-labelled residential buildings were allocated with provisional energy certificates. The Dutch government defines these provisional certificates and are based on building characteristics such as the construction year and the type of building. All buildings built in the Netherlands after 2006 received a provisional EPC rating of A if a registered EPC was not provided. In practice, 94.2% of these provisional certificates also lead to a registered label A. The provisional energy labels are no longer valid as of 1 January 2021 and not used in the assessment to define the top 15% most energy-efficient residential buildings in the Netherlands.

There is a limitation to calculating the percentage of EPC A-rated dwellings as a percentage of the total residential building stock. The number of registered certificates is based on the EP-Online database. This database is owned and maintained by the Netherlands Enterprise Agency (RVO) and includes all EPCs. The database includes certificates of multi-purpose buildings (e.g., offices combined with housing) and houses with recreational purposes. The Kadaster (national Land Registry Office) does not include these buildings in the residential building stock. The impact, however, of this limitation on the definition of the top 15% green residential buildings in the Netherlands is negligible.

Development of the EPC requirements

The Dutch Building Regulation sets out energy efficiency requirements for different building types using an EPC score. For example, the Dutch Building Code 2000 requires an EPC score of 1.0 or lower.

These EPC scores of buildings improve based on the introduction of a new Building Code. The correspondence between building years and the EPC score is shown in Figure 1. The sources in which these regulations can be verified are attached in the appendix. Over time, the Dutch Building Regulation became more stringent in energy efficiency and sustainability requirements for new buildings, resulting in a more efficient PED. Therefore, new buildings built according to the most recent regulations are likely to have improved efficiency compared to older buildings complying with older regulations. For this reason, the building's year of construction can be used to define the top 15% of most energy-efficient residential buildings in the Netherlands.

Until the 1st of January 2021, energy labels were calculated with the NEN7120 methodology resulting in an EPC score for each building which can be compared to the EPC score set in the building regulation. Since the 1st of January 2021, NEN7120 has been replaced by the NTA8800. The NTA8800 also calculates the energy label score but uses the PED as a dimension instead of EPC. Figure 2 shows the thresholds of the energy label classes according to the NTA8800. These limits are expressed in PED.

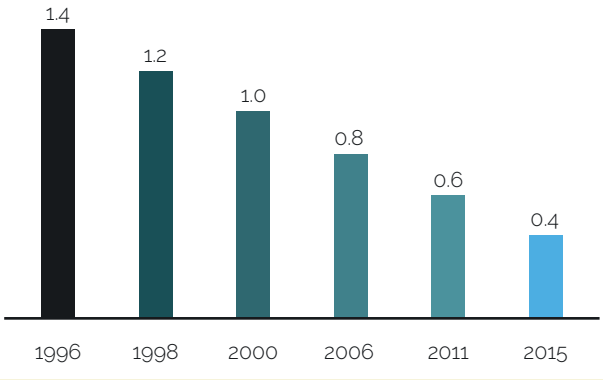

Figure 1: EPC score per year (according to building code)

Although both methodologies of the NEN7120 and NTA8800 are not entirely comparable, the expected PED of, for example, an EPC A+ would be between 75 and 105 kWh/m^2 and have an EPC score between 0.6 and 0.8[6].

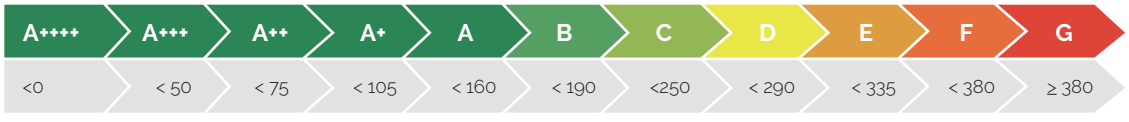

Figure 2: Primary Energy Demand in kWh/m^2 per energy label

[6] https://www.rijksoverheid.nl/onderwerpen/huurwoning-zoeken/vraag-en-antwoord/heeft-de-energieprestatie-van-mijn-woning-invloed-op-de-huurprijs

When selecting a year of construction to determine the top 15%, it is recommended to align it with the year a new Building Code is introduced[7]. This is because buildings constructed after the introduction of a new Building Code generally have improved energy efficiency in order to meet its requirements. The Building Code that was introduced in 2006 requires an EPC score of 0.8 or lower (Figure 1), which corresponds to an EPC rating of A+ (Figure 3)[8].

Table 3 lists new buildings built between 2000 and 2020, based on the Kadaster database. On year end 2024, there were approximately 8.3 million residential buildings in the Netherlands[10]. Of these buildings, approximately 7.99 million buildings were built before 2021[11].

The buildings built between the introduction of the building code of 2006 and year end 2020 represent 12.20% of the total Dutch residential building stock that was built before the 31st of December 2020 (as is required by the EU taxonomy[12]), which means that this part of the building stock will not exceed 15% of the market as shown in Table 4.

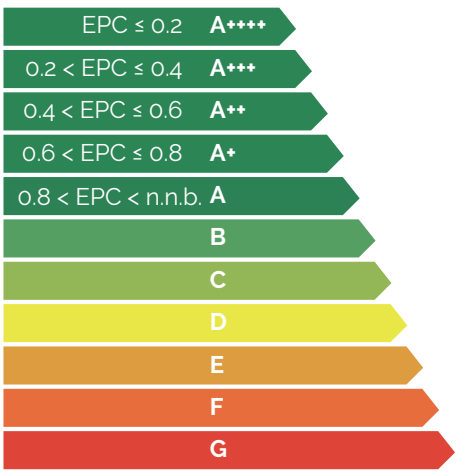

Figure 3: Correspondence between EPC scores and energy labels[9]

Period	New build houses
2000	74,774
2001	77,181
2002	71,143
2003	64,102
2004	69,832
2005	71,541
2006	77,103
2007	85,201
2008	84,174
2009	87,835
2010	60,556
2011	62,199
2012	48,668
2013	49,311
2014	45,170
2015	48,381
2016	54,849
2017	62,982
2018	66,585
2019	71,548
2020	69,985

Table 3: All residential buildings built between 2000 and 2020

Period	New build houses	Percentage of residential buildings stock built before YE2020
2002-2020	1,251,165	15.76%
2003-2020	1,180,022	14.78%
2004-2020	1,115,920	13.98%
2005-2020	1,046,088	13.10%
2006-2020	974,547	12.21%

Table 4: Top 15% of residential buildings stock built before 31 December 2020

[7] There is no public data available at the address level regarding the year the permit was requested. The closest public data available is the construction year of the building. However, the year 2006 is chosen because it is a year in which the building code can provide clear delineation. As shown later in this report, the selected cutoff year of 2006 for residential buildings represents 12.20% of the residential building stock before the 31st of December 2020.

[8] https://zoek.officielebekendmakingen.nl/blg-55501.pdf (page 9).

[9] The NTA 8800 expresses an energy label using the Primary Energy Demand value. Under the previous methodology (NEN 7120), the label was expressed as a single numerical value: the EPC score, aligned with the EPC requirements in the building regulations of that period. This table provides an indicative comparison, showing which EPC scores correspond to which energy label.

[10] There are 8,274,478 residential buildings at 01-01-2025, source: https://opendata.cbs.nl/statline/" \l "/CBS/nl/dataset/81955NED/table?fromstatweb

[11] The amount of residential buildings on YE2024 minus the newly built houses in 2021-2024; https://opendata.cbs.nl/statline/" \l "/CBS/nl/dataset/81955NED/table?fromstatweb"; 7,985,930.

[12] Annex I (Climate Change Mitigation) of the EU Taxonomy Delegated Regulation from June 2021, chapter 7.7: As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31st December 2020 and at least distinguishes between residential and non-residential buildings.

Renovated buildings built before 2006

In addition to all buildings that are constructed after the building regulations introduced in 2006, there are also renovated buildings that demonstrate the same or even better energy performance levels. As stated earlier, the building regulations define a minimum requirement of an EPC score of 0.8, which can be argued corresponds to an energy label of A+ (PED of 105 kWh per square meter) or better.

Therefore, the definition of the top 15% of the national residential building stock also includes buildings constructed before 2006 with at least an energy label A+. In total, 37,034 buildings constructed before 2006 have an energy label of A+ or higher and are therefore included in the top 15% of the national residential building stock. This represents 0.46% of all buildings built before 2021.

Conclusion of the top 15% expressed as Primary Energy Demand

Eligible existing residential buildings must have an EPC rating of A or an operational PED that belongs to the top 15% of green residential buildings. To define the top 15% most energy-efficient buildings in the Netherlands, a cut-off building year of construction can be selected as a criterion. Buildings built since 2003 belong to the top 15% newest buildings built until year-end 2020. As it is recommended to align with a year in which a new Building Code is introduced, 2006 will be selected as the cut-off year. By selecting a cut-off equal or higher than 2006, it is possible to align with the stricter requirements that were imposed by the Building Code of those years. This is because buildings will have improved energy efficiency in order to comply with the stricter Building Code requirements introduced in 2006. Residential buildings built since 2006 comply with an EPC score of 0.8 or lower, which in most cases, corresponds to an EPC certificate A+. This translates into a selection of buildings with a PED of <105 kWh/ m^2/year. A limited share of buildings constructed before 2006 meet this level of performance. In total, 37,034 buildings built before 2006 achieve an EPC score of 0.8 or lower (equivalent to label A+ or better), representing 0.46% of the total residential building stock and therefore forming part of the top 15%. In summary, buildings constructed in accordance with the 2006 building regulations account for 12.20% of the national residential building stock, while pre-2006 buildings with an A+ label or higher represent 0.46% of the stock built before 2021, resulting in a combined total of 12.67%.

As buildings are occasionally renovated to achieve an energy label of A+ or higher, this methodology should be periodically reviewed to ensure it remains up to date and reflective of the actual building stock performance.

NZEB – 10% requirements for new buildings

Beng Regulations

The EU Taxonomy formulates the the Technical Screening Criteria for Substantial Contribution to Climate Change Mitigation for sustainable buildings built after 31 December 2020 and the construction of new buildings as follows:

The Primary Energy Demand (PED), defining the energy performance of the building resulting from the construction, is at least 10% lower than the threshold set for the nearly zero energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council. The energy performance is certified using an as built Energy Performance Certificate (EPC).

On the 1st of January 2021, the NTA8800 was introduced in the Netherlands and included the "Bijna Energieneutrale gebouwen" (BENG) regulations. BENG is the Dutch definition of NZEB and these regulations replace the EPC regulations for new buildings and the energy index for existing buildings. This means that every newly built house has to meet the BENG criteria instead of the EPC regulations.

All new buildings must meet these regulations and are derived from and are in line with the European Energy Performance of Buildings Directive. For now, the EPBD III is still in use. However, from 2026 forward, the EPBD IV will be implemented in stages. The BENG regulations for new buildings make a distinction in three different criteria: BENG 1, BENG 2, and BENG 3.

- **BENG 1:** Maximum energy demand in kWh per square meter per year. This indicator focuses particularly on demand for heating and cooling. The design of the building, the amount of insulation, and the orientation of the building are key in calculating the energy demand.
- **BENG 2:** Maximum primary fossil energy usage in kWh per square meter per year. This indicator is the sum of all energy-related aspects of a building. This includes heating, cooling, heating systems for water, and mechanical or natural air ventilation. When energy is generated locally with, for instance, solar panels, the amount of generated energy can be deducted from this indicator.
- **BENG 3:** Percentage of renewable energy that is generated specifically at the building area. The generation of renewable energy on-site, such as solar energy, still has a positive impact on the energy performance rating.

The method for the calculations is the most important difference between the EPC and the NTA8800. Both methods contain strict regulations in order to improve the sustainability of buildings. Insulation is still important, and electrical heating with heat pumps is, in both cases, considered better than heating with gas.

The generation of renewable energy on-site, such as solar energy, still has a positive impact on the energy performance rating.

The NTA8800 also changes the regulations for energy certificates for existing buildings. The new calculation for existing buildings is most

comparable with the BENG 2 calculation for new buildings. Instead of using an index as an outcome of the calculation, the NTA8800 uses the annual primary fossil energy usage measured in kWh/ 10 NZEB – 10% requirements for new buildings m², for both new and existing building certificates. The EU Taxonomy introduces a criterion that qualifies buildings that outperform the NZEB requirements by at least 10% in primary energy. In the case of the Netherlands, this is best presented in terms of BENG 2, and the 10% improvement displayed in Table 5 below.

The EPCs from before 2021 are still comparable to the BENG regulations that are applicable since 2021. The outcome of the BENG calculation leads to an EPC, and the label also provides an overview of housing characteristics, such as the housing type, insulation, glazing, and heating.

Selection of assets according to the criteria

All energy labels that have been registered since 2021 indicate the primary fossil energy usage per kWh/m²/year (EP2 score). This value can be compared to the NZEB requirements in order to select the buildings that are 10% more energy efficient. All energy labels in the Netherlands can be found in the EP-online database.[14] Dutch assets are registered in Kadaster, which provides information on the building years.

Type of residential building	**Maximum primary fossil energy usage[13]**	**10% improvement**
Ground bases houses	30 kWh / m² / year	27 kWh / m² / year
Flats and apartments	50 kWh / m² / year	45 kWh / m² / year

Table 5: BENG 2 requirements for new buildings and 10% improvement

[13] In accordance with the EU Taxonomy, new buildings built as of 1 January 2021 are Taxonomy-aligned if the net primary energy demand of the new construction is at least 10% lower than the primary energy demand resulting from the relevant NZEB requirements. When referring to primary fossil energy consumption, the system losses (such as pipe losses during heating), auxiliary energy (such as pumps) and the efficiency of the generators (such as the central heating boiler) are included. This is not the case with energy demand.

[14] Source for EPC labels: https://www.ep-online.nl

Commercial buildings

Annex I (Climate Change Mitigation) of the EU Taxonomy Delegated Regulation from June 2021, chapter 7.7, formulates Technical Screening Criteria for Substantial Contribution to Climate Change Mitigation for sustainable buildings as follows:

- ***For buildings built before 31st December 2020,*** the building has at least an Energy Performance Certificate (EPC) class A. As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31st December 2021 and at least distinguishes between residential and non-residential buildings.
- ***Where the building is a large non-residential building*** (with an effective rated output for heating systems, systems for combined space heating and ventilation, air-conditioning systems or systems for combined air-conditioning and ventilation of over 290 kW) it is efficiently operated through energy performance monitoring and assessment[15].

PED refers to the quantity of energy required to obtain the total amount of energy that a dwelling demands from fossil fuels such as gas and electricity. To achieve the required PED of a commercial building, sustainability and retrofitting strategies are essential to reduce primary energy consumption and improve the energy rating.

EPC labels in the Netherlands

EPC labels are important instruments that should contribute to enhancing the energy performance of buildings. The certificate can potentially influence builders and real estate owners to increase energy efficiency and implement energy-saving measures in renovation projects.
EPCs have become a requirement for EU Member States to implement as a consequence of the 2002 European Energy Performance of Buildings Directive (EPBD) (2002/91/EC). EPCs play a central role in the context of Article 20 (2) EPBD. The EPBD asks Member States to provide information on the energy performance of buildings to the owner(s) or tenant(s). To illustrate and confirm the energy performance of buildings, an EPC must be published alongside an inspection report on which the EPC is based. The importance of EPCs has increased throughout the years, notably due to the recast of the EBPD (Directive 2010/31/EU) in 2010.

An EPC label therefore aims to indicate how energy-efficient a building is and which energy-saving measures can be implemented. The assigned letter of a NTA8800 energy label is determined based on fossil energy consumption, expressed in kilowatt-hours per square meter per year (kWh/m^2/year). The label classes for commercial buildings run from A^{+++++} to G. Buildings with the label A^{+++++} are the most energy-efficient, and buildings labelled G are the least energy efficient. The label also provides an overview of building characteristics, such as the building type, insulation, glazing, and heating. The current situation of EPC ratings in the Netherlands is described in Table 6 and Table 7.

[15] As a result of this, the Netherlands has a new regulation about the Building Automated Controls System (BACS). The main focus of the BACS is on the monitoring of energy systems. From 2026, having a BACS will be mandatory for systems with an effective rated output above 290 kW, and from 2030, the requirement will also apply to systems above 70 kW.

Table 6 shows that registered EPC A labels or higher account for 11.47% of the Dutch commercial buildings stock. Appendix II shows the PED requirements for all building types, as this one is only showing the PED for office buildings.

Moreover, Table 7 shows a similar outcome for the buildings built before the 31st of December 2020. Registered EPC A labels or higher account for 10.61% of the Dutch residential building stock built before the 31st of December 2020.

EPC rating	EPC Score (NEN 7120)	PED in kWh/m²/year (NTA 8800)[16]	Registered certificates	% of total certificates	% of total the total builing stock[17]
A+++++		PED ≤ 0	1,853	0.70%	0.15%
A++++		0 < PED ≤ 40	3,110	1.18%	0.26%
A+++		40 < PED ≤ 80	10,529	3.97%	0.87%
A++		80 < PED ≤ 120	18,286	6.90%	1.51%
A+		120 < PED ≤ 160	22,426	8.46%	1.85%
A	< 1.05	160 < PED ≤ 180	82,743	31.23%	6.83%
B	1.05-1.15	180 < PED ≤ 200	31,269	11.80%	2.58%
C	1.16-1.30	200 < PED ≤ 225	43,619	16.46%	3.60%
D	1.31-1.45	225 < PED ≤ 250	17,061	6.44%	1.41%
E	1.46-1.60	250 < PED ≤ 275	11,049	4.17%	0.91%
F	1.61-1.75	275 < PED ≤ 300	6,914	2.61%	0.57%
G	>1.75	> 300	16,116	6.08%	1.33%
Total			264,975	100.0%	21.87%

Table 6: EPCs in The Netherlands[18]

EPC rating	EPC Score (NEN 7120)	PED in kWh/m²/year (NTA 8800)[17]	Registered certificates	% of total certificates	% of total the total builing stock[19]
A+++++		PED ≤ 0	1,200	0.47%	0.10%
A++++		0 < PED ≤ 40	1,736	0.69%	0.14%
A+++		40 < PED ≤ 80	7,792	3.09%	0.64%
A++		80 < PED ≤ 120	16,107	6.38%	1.33%
A+		120 < PED ≤ 160	21,030	8.33%	1.73%
A	< 1.05	160 < PED ≤ 180	80,851	32.03%	6.67%
B	1.05-1.15	180 < PED ≤ 200	30,809	12.21%	2.54%
C	1.16-1.30	200 < PED ≤ 225	42,723	16.93%	3.52%
D	1.31-1.45	225 < PED ≤ 250	16,612	6.58%	1.37%
E	1.46-1.60	250 < PED ≤ 275	10,740	4.25%	0.89%
F	1.61-1.75	275 < PED ≤ 300	6,836	2.71%	0.56%
G	>1.75	> 300	15,980	6.33%	1.32%
Total			252,398	100%	20.82%

Table 7: EPCs in The Netherlands[18]

[16] PED-scores for office buildings.

[17] There are 1,212,492 commercial buildings at 01-01-2025 (most recent data of CBS - https://opendata.cbs.nl/statline/#/CBS/nl/dataset/81955NED/table?fromstatweb).

[18] Source for EPC labels: https://www.ep-online.nl/

[19] The amount of commercial buildings on YE2024 minus the newly built houses in 2021-2024, based on data from CBS

Registered certificates

By the end of 2024, approximately 265 thousand commercial buildings in the Netherlands have a registered EPC. Of these buildings, 139 thousand are registered with an EPC rating A or higher. The energy efficiency of existing commercial buildings can be determined by using an extensive calculation at location (which considers around 150 building characteristics), resulting in the EPC or PED score.

There is a limitation to calculating the percentage of EPC A-rated dwellings as a percentage of the total residential building stock. The number of registered certificates is based on the EP-Online database. This database is owned and maintained by the Netherlands Enterprise Agency (RVO) and includes all EPCs. The database includes certificates of multi-purpose buildings (e.g., offices combined with housing) and houses with recreational purposes. The Kadaster (national Land Registry Office) does not include these buildings in the residential building stock. The impact, however, of this limitation on the definition of the top 15% green residential buildings in the Netherlands is negligible.

Since 1st January 2021, the NEN7120 has been replaced by the NTA8800. The NTA8800 also calculates the EPC score, but uses the Primary Energy Demand. Table 2 shows the limits of the energy label classes according to the NTA8800 for office buildings. These limits are expressed in PED. The limits of label classes for other types of assets can be found in appendix II.

Energy-efficient operation of buildings

In the Netherlands, the introduction of the Building Automation and Control Systems (BACS) regulation marks an important step toward the energy-efficient operation of large non-residential buildings. BACS focuses on monitoring and optimizing the performance of energy systems such as heating, cooling, and ventilation. Starting in 2026, all buildings with an effective rated output above 290 kW will be required to comply with BACS standards, ensuring that these systems are efficiently operated through continuous performance assessment. This means that, from 2026 onward, all large buildings in the Netherlands can be considered eligible under this EU Taxonomy requirement. To provide additional assurance, a.s.r. may conduct targeted checks on buildings to confirm compliance.

Based on experience from CFP, it can be assumed that if a building has an industrial function, it is likely to have a heating or cooling capacity exceeding 290 kW when its floor area is larger than approximately 10,000 m^2, based on an average heat capacity of 35 W/m^2. For buildings with an office or retail function, this threshold is typically reached when the floor area exceeds about 5,000 m^2, based on an average heat capacity of 60 W/m^2. However, as these estimations are highly building-specific, a conservative safety margin of 20% should be applied when identifying buildings that are required to have BACS. Table 6 gives an overview of the numbers mentioned above.

These thresholds can therefore be applied to identify buildings that are likely to stay below the 290 kW heating or cooling capacity. This allows part of the building stock to be pre-selected and marked as eligible, based on the fact that this criterion does not apply.

	Floor area	Floor area with 20% margin
Office	5,000 m^2	4,000 m^2
Retail	5,000 m^2	4,000 m^2
Industrial	10,000 m^2	8,000 m^2

Table 6: Estimated thresholds for buildings that do not have to comply to Building Automation and Control Systems regulation.

NZEB-10% requitements for new buildings

The EU Taxonomy formulates the Technical Screening Criteria for Substantial Contribution to Climate Change Mitigation for sustainable buildings built after the 31st of December 2020 and the construction of new buildings as follows:

- ***The Primary Energy Demand (PED)***, defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council. The energy performance is certified using an as built Energy Performance Certificate (EPC).

- ***Where the building is a large non-residential building*** (with an effective rated output for heating systems, systems for combined space heating and ventilation, air-conditioning systems or systems for combined air-conditioning and ventilation of over 290 kW) it is efficiently operated through energy performance monitoring and assessment[19].

CFP Green Buildings has not been asked to look into the additional criteria (2 and 3) for EU economic activity 7.1 of the EU Taxonomy.

BENG – 10% requirements for new buildings

On 1st January 2021 the NTA8800 was introduced in the Netherlands and included the BENG regulations. These regulations replace the EPC regulations for new buildings and the energy index for existing building. This means that every newly built building has to meet the BENG criteria instead of the EPC regulations.

BENG stands for 'nearly energy-neutral buildings' ("Bijna Energieneutrale Gebouwen" in Dutch). All new buildings must meet these regulations. They are derived from and are in line with the European Energy Performance of Buildings Directive. For now, the EPBD III is still in use. However, from 2026 forward, the EPBD IV will be implemented in stages. The BENG regulations for new buildings make a distinction in three different criteria: BENG 1, BENG 2 and BENG 3.

- **BENG 1:** Maximum energy demand in kWh per square meter per year. This indicator focuses particularly on the demand for heating and cooling. The design of the building, the amount of insulation and orientation of the building are key in calculating the energy demand.
- **BENG 2:** Maximum primary fossil energy usage in kWh per square meter per year. This indicator is the sum of all energy related aspects of a building. This includes heating, cooling, heating systems for water and mechanical or natural air ventilation. When energy is generated locally with, for instance, solar panels, the amount of generated energy can be deducted from this indicator.
- **BENG 3:** Percentage renewable energy that is generated specifically at the building area.

The method for the calculations is the most important difference between the EPC and the NTA8800. Both methods contain strict regulations in order to improve the sustainability of buildings. Insulation is still important and electrical heating with heat pumps is in both cases considered better than heating with gas.

[19] As a result of this, the Netherlands has a new regulation about the Building Automated Controls System (BACS). The main focus of the BACS is on the monitoring of energy systems. From 2026, having a BACS will be mandatory for systems with an effective rated output above 290 kW, and from 2030, the requirement will also apply to systems above 70 kW.

The generation of renewable energy on-site, such as solar energy, still has a positive impact on the energy performance rating.

The NTA8800 also changes the regulations for energy certificates for existing buildings. The new calculation for existing buildings is most comparable with the BENG 2 calculation for new buildings. Instead of using an index as outcome of the calculation, the NTA8800 uses the primary fossil energy usage measured in kWh/m², for both new and existing building certificates.

The EU Taxonomy introduces a criterion that qualifies buildings that outperform the NZEB requirements by at least 10% in primary energy. In the case of the Netherlands, this is best presented in terms of BENG 2 and the 10% improvement displayed in Table 7 below.

The EPCs from before 2021 are still comparable to the BENG regulations that are applicable since 2021.[20] The outcome of the BENG calculation still leads to an EPC and the label also provides an overview of building characteristics, such as the building type, insulation, glazing and heating.

Selection of assets according to the criteria

All energy labels that have been registered since 2021 indicate the primary fossil energy usage per kWh/m²/year (EP2 score). This value can be compared to the NZEB requirements in order to select the buildings that are 10% more energy efficient. All energy labels in the Netherlands can be found in the EP-online database.[22] All Dutch assets are registered in Kadaster, which provides information on the building years and square meters of the assets.

EPBD IV

From 2026, the new EPBD IV will be introduced in phases in the Netherlands. This updated directive will lead to changes in the EPC system, including revised calculation methods, new minimum performance standards for existing buildings, and a re-scaled A–G energy label to be applied by 2030. As a result, certain figures and references in this report may need to be updated in a later stage.

Type of commercial building	Maximum primary fossil energy usage[21]	10% improvement
Office	40 kWh / m² /year	36 kWh / m² /year
Congress	60 kWh / m² /year	54 kWh / m² /year
Childcare	70 kWh / m² /year	63 kWh / m² /year
Education	70 kWh / m²/year	63 kWh / m² /year
Healthcare (without beds)	50 kWh / m² /year	45 kWh / m² /year
Healthcare (with beds)	130 kWh / m² /year	117 kWh / m² /year
Retail	60 kWh / m² /year	54 kWh / m² /year
Sport	90 kWh / m² /year	81 kWh / m² /year
Lodging	130 kWh / m² /year	117 kWh / m² /year

Table 7: BENG 2 requirements for new buildings and 10% improvement

[20] https://wetten.overheid.nl/BWBR0020921/2021-07-01

[21] In accordance with the EU Taxonomy, new buildings built as of 1 January 2021 are Taxonomy-aligned if the net primary energy demand of the new construction is at least 10% lower than the primary energy demand resulting from the relevant NZEB requirements. When referring to primary fossil energy consumption, the system losses (such as pipe losses during heating), auxiliary energy (such as pumps) and the efficiency of the generators (such as the central heating boiler) are included. This is not the case with energy demand.

[22] Source for EPC labels: https://www.ep-online.nl/

Appendix I

Table 8 below shows official governmental sources pointing out the Dutch regulations concerning the EPC requirements for newly built houses.

EPC Score requirements	Year introduced	Source	Details
1,4	1996	https://zoek.officielebekendmakingen.nl/stb-1997-461.html	NOTA VAN TOELICHTING, I. Algemeen, 2. Plan van aanpak duurzaam bouwen
1,2	1998	https://zoek.officielebekendmakingen.nl/stb-1997-461.html	ARTIKEL I, Artikel 71a
1	2000	https://zoek.officielebekendmakingen.nl/stb-1999-439.html	ARTIKEL I, Artikel 71a
0,8	2006	https://zoek.officielebekendmakingen.nl/blg-55501.pdf	Page 9
0,6	2011	https://zoek.officielebekendmakingen.nl/stcrt-2010-17595.html	ARTIKEL I, Tabel 5.11
0,4	2015	https://zoek.officielebekendmakingen.nl/stb-2015-425.html	ARTIKEL I, Tabel 5.1

Table 8: Sources underlying the EPC requirements in different building periods (according to building code).

Appendix II

Energie-label-klasse NTA8800	kantoor	bijeenkomst zonder kinderopvang	bijeenkomst met kinderopvang	onderwijs	gezondheidszorg anders (niet-klinisch)	gezondheidszorg met bedgebied (klinisch)	winkel	sport	logies	cel
A+++++	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00
A++++	0.01-40.00	0.01-50.00	0.01-55.00	0.01-50.00	0.01-45.00	0.01-90.00	0.01-60.00	0.01-35.00	0.01-50.00	0.01-60.00
A+++	40.01-80.00	50.01-100.00	55.01-110.00	50.01-100.00	45.01-90.00	90.01-180.00	60.01-120.00	35.01-70.00	50.01-100.00	60.01-120.00
A++	80.01-120.00	100.01-150.00	110.01-165.00	100.01-150.00	90.01-135.00	180.01-270.00	120.01-180.00	70.01-105.00	100.01-150.00	120.01-180.00
A+	120.01-160.00	150.01-200.00	165.01-220.00	150.01-200.00	135.01-180.00	270.01-360.00	180.01-240.00	105.01-140.00	150.01-200.00	180.01-240.00
A	160.01-180.00	200.01-230.00	220.01-265.00	200.01-235.00	180.01-210.00	360.01-430.00	240.01-285.00	140.01-155.00	200.01-230.00	240.01-300.00
B	180.01-200.00	230.01-255.00	265.01-290.00	235.01-260.00	210.01-230.00	430.01-470.00	285.01-315.00	155.01-170.00	230.01-255.00	300.01-330.00
C	200.01-225.00	255.01-285.00	290.01-330.00	260.01-295.00	230.01-260.00	470.01-530.00	315.01-355.00	170.01-195.00	255.01-285.00	330.01-370.00
D	225.01-250.00	285.01-320.00	330.01-365.00	295.01-330.00	260.01-295.00	530.01-595.00	355.01-395.00	195.01-215.00	285.01-320.00	370.01-415.00
E	250.01-275.00	320.01-355.00	365.01-405.00	330.01-360.00	295.01-325.00	595.01-655.00	395.01-435.00	215.01-240.00	320.01-355.00	415.01-455.00
F	275.01-300.00	355.01-385.00	405.01-445.00	360.01-395.00	325.01-355.00	655.01-715.00	435.01-475.00	240.01-260.00	355.01-385.00	455.01-500.00
G	> 300.00	> 385.00	> 445.00	> 395.00	> 355.00	> 715.00	> 475.00	> 260.00	> 385.00	> 500.00

EP 2 (primair fossiel energieverbruik in kWh/m²

info@cfp.nl

J.C. Wilslaan 29
7313 HK Apeldoorn
t +31 (0)55 355 5199
f +31 (0)55 355 2555