iBRoad

Individual Building Renovation Roadmaps

Factsheet: Belgium - Flanders

Current use of EPCs and potential links to iBRoad

The Belgian Region of Flanders has about 3.1 million residential buildings (amounting to about half of the total building stock) with an overall poor building performance. Energy Performance Certificates (EPCs) are compulsory for all new buildings and for existing buildings when sold or rented. The Flemish Energy Agency (VEA) is responsible for the quality assurance of EPCs, executing compliance checks and performing on-site visits. Energy audits are not positively viewed by the market due to their high cost.

Overview of the building stock

Total building floor area:

3,700 km² (2015)

Share of residential floor area:

45%

Number of single-family houses:

2.1 million

Percentage of buildings built before 1990:

71%

Average residential energy consumption:

293 kWh/m²/year

Average residential envelope performance:

1.02 W/m²°C

Renovation rate:

< 1%

All data is from the EU Building Stock Observatory & NEAAP 2017

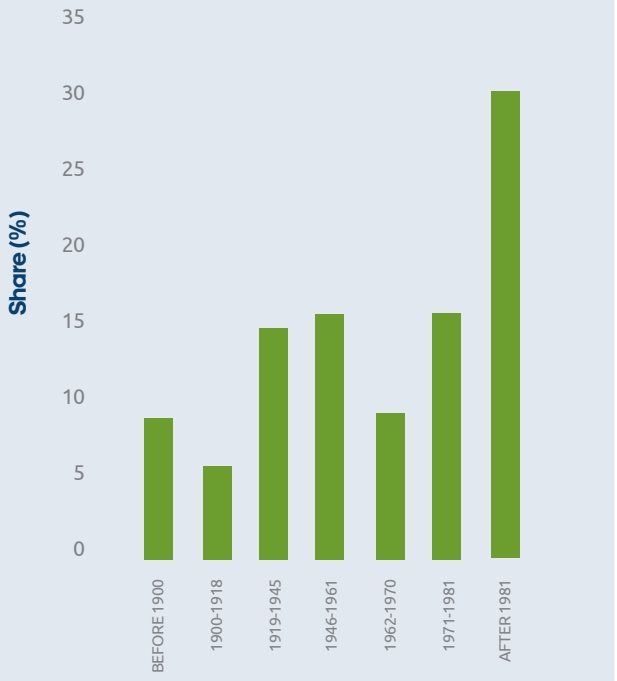

Figure 1: Flemish building stock per construction year (Source: EU Building Stock Observatory)

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The Flemish residential building sector, with 3.1 million residential buildings, accounts for around 14% of the Region's total energy consumption [1]. Single-family houses consume on average 60% more energy than the residential average (489 kWh/m^2/year compared to 398 kWh/m^2/year), while apartments have an average energy consumption of 293 kWh/m^2. In 2017, 53% of the Flemish homes did not have proper wall insulation, 18% had no roof insulation and 11% still had single-glazed windows [2] [3].

Flanders has a high percentage of privately-owned buildings: over 70%. Rented homes are in general in poorer condition than owner-occupied ones, on aspects such as insulation, glazing and heating. [4]

Only 3.5% of the residential building stock has an energy consumption below 100 kWh/m²/year, which can be considered a low energy consumption, while one building out of five has an energy consumption below 200 kWh/m². The 'Woonsurvey 2013' indicates that about 13% of the occupied residential building stock is of inadequate quality and requires renovation to improve stability, indoor air quality, dampness, electrical installations and more [3]. The renovation rate in the Flemish Region is considered to be below 1%, an estimation based on the number of building permits for renovation [5]. As several minor renovation measures do not require a building permit, this estimation undervalues the actual renovation rate.

Overview of existing policies and financial schemes

In Belgium, the implementation of the EPBD is a competence of the regional governments: Flanders, Wallonia and Brussels. The current energy performance requirements in the Flemish Region for new and renovated buildings were set in January 2006. New buildings must meet energy performance requirements based on the ratio of the annual primary energy consumption to a reference consumption, which is the E-level. Further requirements for new buildings are on the building envelope (S-level)[1], indoor air quality and thermal comfort. For new buildings, there is a clear market drive towards nZEBs. While, in 2012, only one in 25 new single-family dwellings met the nZEB requirements, in 2014 one out of 3 achieved them.

Renovation works with a building permit must fulfil requirements on insulation levels, indoor air quality and technical building systems [6]. At the end of 2014, over 30 stakeholders reached consensus with public authorities and delivered recommendations for a more ambitious deep renovation strategy, titled "Renovation Pact" [7]. The Flemish Government adopted this Renovation Pact in July 2015 and commissioned the Ministers of Energy, Environment and Housing to work out a long-term comprehensive action plan. The overall strategy of the Renovation Pact is to put forward and implement a feasible, acceptable and ambitious long-term energy performance requirement that all residential buildings must meet by 2050 at the latest. For existing buildings, this long-term goal to 2050 is set at 100 kWh/m^2. Reaching the set objective would mean an overall improvement of the building performance between 65% and 85% [5]. This means that, in the next three decades, on average, more than 80,000 houses a year need to be renovated to a high energy performance level. Action and marketing plans are being developed, including supportive and financial instruments such as:

- The building logbook: an improved energy performance certificate for residential buildings including more extensive and personalised renovation advice.
- An individual renovation roadmap.
- A platform for sharing best practices.
- Specific measures targeting the alleviation of energy poverty.

[1] This is a new indicator, replacing the existing K-level as from January 2018. [7]

- Targeted financial instruments and incentives for deep renovation, as well as subsidies for collective renovation within neighbourhoods [5].

The precursor of the Flemish Renovation Pact is the Energy Renovation Programme 2020. The objective of this programme is to have, by 2020, every house insulated and with an energy efficient heating installation and double glazing. The 'On the road to nearly Zero Energy Buildings (nZEB)' strategy is complementary to the Energy Renovation Programme 2020 and supports early adopters.

The Flemish government provides the following financial support schemes to foster a more efficient building stock:

- Subsidies for energy renovation measures to roof, floor and wall insulation as well as installation of heat pumps, efficient glazing and solar thermal systems;
- A total renovation bonus added on top of the individual subsidies if at least three measures are executed within a five-year period;
- Discount of property taxes;
- Additional financial incentives targeting the socially vulnerable households;
- Zero- or low-interest 'Energy loans' for the home-owner, to finance energy-saving renovation activities, with a limit up to €15,000 (more than 15,000 loans were granted since 2015). Vulnerable households do not have to pay an interest rate and receive guidance throughout the process [3].

The experts' opinion*

- **The main barriers for energy efficiency improvements in buildings were identified as: (i) high renovation costs, (ii) uncertainty on which measures to implement, (iii) insecurity about the end result (will it be worth it & done correctly?), (iv) limited amount of energy advisors for deep renovation, (v) limited experience with renovation in the building sector (focus has long been on new buildings), (vi) lack of financial resources, (vii) split incentive between home-owners and tenants, (viii) co-ownership in multi-unit buildings and (ix) unclear regulatory landscape.**
- **The average building owner does not have a proper understanding of the energy performance of the building. Even though the awareness is increasing and energy efficiency is becoming more important in decision-making processes concerning renovations, most Belgians still live in energy-intensive houses.**

* based on interviews and feedbacks received from national experts

The implementation status of the EPC

EPCs are mandatory in Flanders since 2008, and the Flemish Energy Agency (VEA) is responsible for their implementation [3]. The EPC has to be displayed in relevant advertisements, shown to the buyer before transaction and handed over to the new owner, or tenant, when the deal is completed.

The compliance rate is high, with 93% of sold or rented buildings being equipped with an EPC (2013). In case of absence of an EPC, (potential) tenants or future owners can file a complaint for which the building owner is imposed to a penalty ranging from €500 to €5,000.

For existing residential buildings, qualified experts called 'Energy Experts Type A' are entitled to issue EPCs. The energy expert is required to visit the building to gather all relevant information to generate an EPC [5].

The energy performance score of the building is expressed in kWh/m^2/year (primary energy) and is shown in a calculated energy index (asset rating) for both new and existing buildings (Annex). Since 2013, the EPC includes a section with recommendations and potential measures on how to reduce energy consumption in the building.

About half of the participants of a survey (1,000 respondents) stated that the EPC has an impact on the choice of their house (for rental market, 37%) and 30% of respondents used the EPC to negotiate on the price (18% on the rental market) [2].

To improve the EPC and to be a stronger influencing element on the housing market, a renewed version will be launched in January 2019. The goal is to launch an easily-accessible document with (i) an attractive visual design, (ii) a clear insight of

FACT BOX
EPCs in Belgium - Flanders Region

Responsible authority:
The Flemish Energy Agency (VEA), executing agency of the Flemish Government.

Availability of a central registry of EPCs:
Yes, but data is not publicly available [8]

Number of EPCs issued:
991,113 (as of Sept 2017)

Percentage of buildings with EPCs
29% of the residential buildings in the Flemish Region [6] (2014).

Period of validity of an EPC:
10 years

Recommendations included in the EPC:
Yes, there is a list of standardised recommendations, tailored to the building. Open advice is also optional [5] [9].

Energy label/continuous scale:
Continuous scale until the end of 2018 which will change to energy label from January 2019 [6].

Price range for an EPC:
€150-€250 [6]

Body responsible for performing quality checks:
VEA

Median EPC rating:
D

Median primary energy:
349 kWh/m^2/year

Penalties for qualified experts for non-compliance:
Fines between € 250 and € 5,000 if the EPC is not correct.

Number of certified experts:
>1,000

Requirements to become a certified energy expert:
Training with an exam, but no initial diploma requirements. For new buildings: an engineering or architect diploma is required, followed by a specific training of at least 95 hours and an exam.

Indicative cost of training for energy experts:
€150 (cost of the exam)

how the building performs in comparison with the long-term goals for 2050, (iii) understandable recommendations for future renovation steps, (iv) a concise selection of technical information, and (v) an estimation of the financial investment cost for each of the recommendations.

Home-owners and tenants do not have access to the digital EPC, available in the central database. A web-based tool will be available in 2019 allowing end-users to load their EPC on this tool, where they can assess the impact of specific renovation measures on the energy rating, see the impact on the investment costs, etc.

The experts' opinion

- **Most experts think that the EPC plays a moderate role when buying or renting an apartment. Although it will not prevent people from renting a house, it would influence the transaction price.**
- **Most experts said that the EPC information is not useful for the building owner when deciding on renovation measures. A reason for this is that although EPCs primarily give an indication on the building's energy efficiency level, they do not show real energy use. Also, the provided recommendations are often not examined and there needs to be an explanation/interpretation of the EPC results to the owner by an expert.**
- **The EPCs do not incentivise deep renovation. The decision-making for deep renovation needs to be combined with more profound renovation advice and the EPC is not sufficient.**
- **The EPCs must be combined with personal/tailored energy advice and a priority plan for energy renovations for the (future) owner.**
- **Since there are no diploma requirements for the experts, in some cases this results in low quality EPCs and hence doubtful EPC ratings. This affects the credibility of the EPC on the market. Also, the layout of the current EPC document is visually unattractive and for many users the content is often difficult to read and understand.**

Current status of energy audits and potential market for iBRoad

This section is about energy audits and tools, which are not included in the EPC framework. The audit described here is not identical to the energy check needed to produce an EPC.

The Flemish Energy Agency has provided in the previous years an energy audit procedure in parallel to the EPC. The energy audit experts should follow a training and be registered. The audit involves a software tool. This initiative was not very successful and was not picked up by home-owners nor the market. This is mainly due to the higher cost of the audit in comparison to the cost of the EPC (the cost range for an energy audit is €400-€800, compared to the cost range

for an EPC of €150-€250). Despite the recommendations included, the document is not user-friendly.

Currently, the EPC is being adapted based on a stakeholder and end-user involvement process, to develop an EPC+, integrating customised energy renovation advice.

Several local governments offer energy renovation advice to their citizens. Advice is mostly offered for free or at a low cost, and includes in some cases an on-site visit and a follow up during the renovation process. The renovation advice experts use private or self-developed renovation planning tools such as the Axii renovation planner [10].

The experts' opinion

- **Most experts would welcome the introduction of recommendations for deep energy renovation in the EPC. However, there is a concern regarding the feasibility of this service, its impact on the price of the EPC and the required time to issue the EPC.**
- **Recommendations should be made on a case-by-case, as general advice is not useful. Also, the list of recommendations should include the stage at which the renovation should take place and should also involve an on-site visit by a professional.**
- **Since there is only one energy calculation tool for energy audits, iBRoad could have an interface with the data behind the performance calculation tool (database).**

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Review: **Sympraxis Team**

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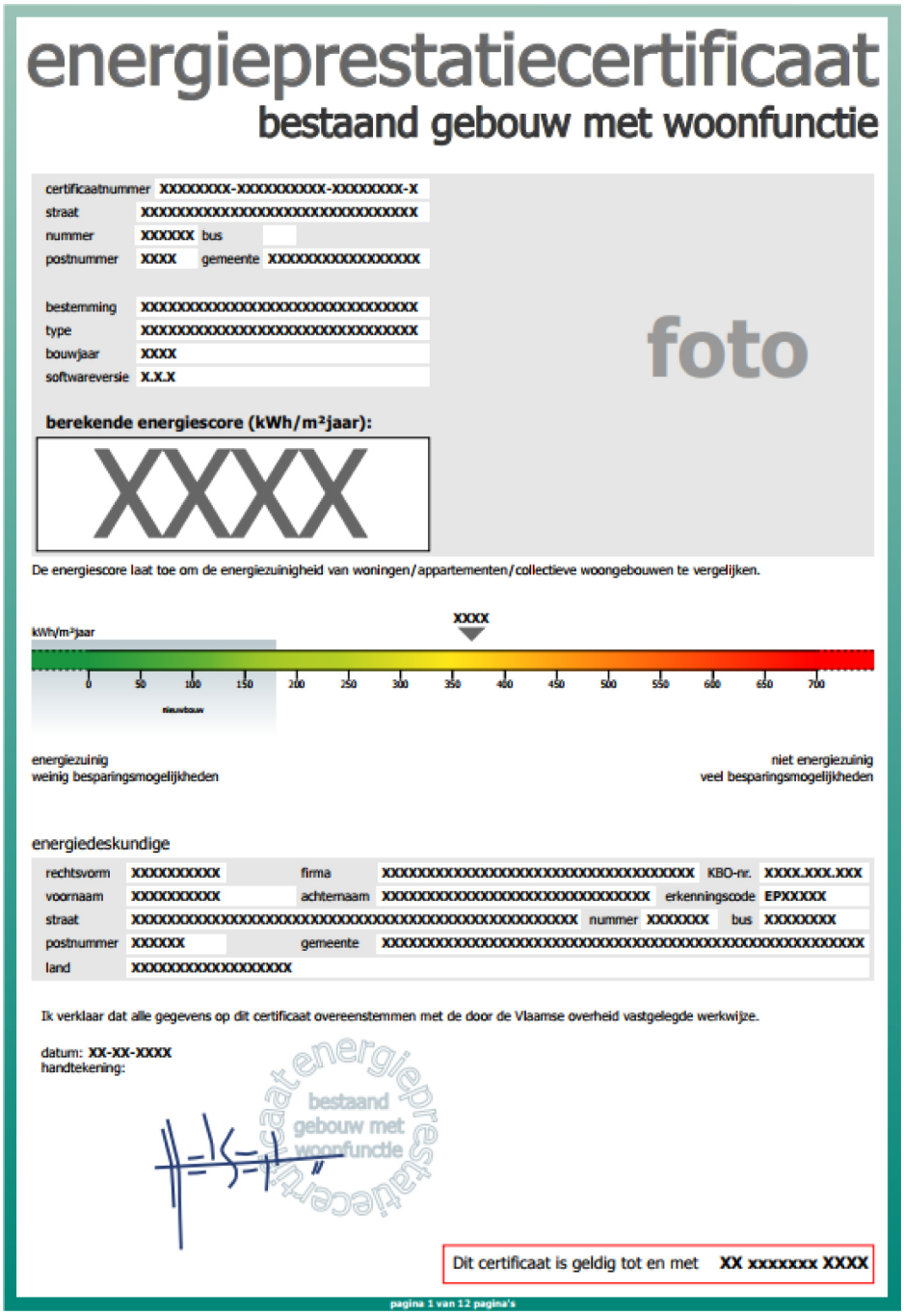
All of iBRoad's reports, analysis and evidence can be accessed from **ibroad-project.eu**.

iBRoad project partners

Annex

Belgium – Flanders Energy Performance Certificate



energieprestatiecertificaat

bestaand gebouw met woonfunctie

certificaatnummer XXXXXXXX-XXXXXXXXX-XXXXXXXX-X
straat XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
nummer XXXXXX bus
postnummer XXXX gemeente XXXXXXXXXXXXXXXX

bestemming XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
type XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
bouwjaar XXXX
softwareversie X.X.X

foto

berekende energiescore (kWh/m²jaar):

XXXX

De energiescore laat toe om de energiezuinigheid van woningen/appartementen/collectieve woongebouwen te vergelijken.

kWh/m²jaar
XXXX
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700
nieuwbouw

energiezuinig
weinig besparingsmogelijkheden

niet energiezuinig
veel besparingsmogelijkheden

energiedeskundige

rechtsvorm XXXXXXXXXX firma XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX KBO-nr. XXXX.XXX.XXX
voornaam XXXXXXXXXX achternaam XXXXXXXXXXXXXXXXXXXXXXXXXXXX erkenningscode EPXXXXX
straat XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX nummer XXXXXXX bus XXXXXXXX
postnummer XXXXXX gemeente XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
land XXXXXXXXXXXXXXXXXX

Ik verklaar dat alle gegevens op dit certificaat overeenstemmen met de door de Vlaamse overheid vastgelegde werkwijze.

datum: XX-XX-XXXX
handtekening:

energieprestatiecertificaat bestaand gebouw met woonfunctie

Dit certificaat is geldig tot en met XX xxxxxxx XXXX

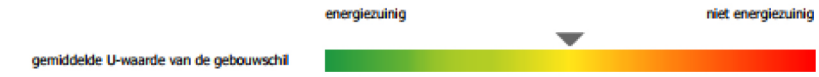
pagina 1 van 12 pagina's

energieprestatiecertificaat

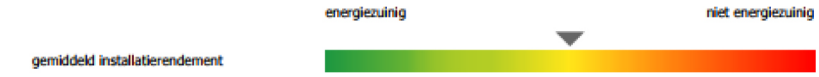
bestaand gebouw met woonfunctie

certificaatnummer	XXXXXXXX-XXXXXXXXXX-XXXXXXXX-X				
straat	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	nummer	XXXXXX	bus	
postnummer	XXXX	gemeente	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		

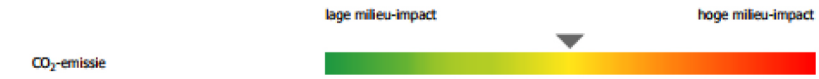
Energiezuinigheid van de gebouwschil



Energiezuinigheid van de verwarmingsinstallatie



Impact op het milieu



Karakteristiek jaarlijks primair energieverbruik

karakteristiek jaarlijks primair energieverbruik (kWh/jaar)	xxx.xxx

De energiescore op het energieprestatiecertificaat wordt verkregen door het karakteristieke jaarlijkse primaire energieverbuik te delen door de bruikbare vloeroppervlakte.

Het karakteristieke jaarlijkse primaire energieverbruik (kWh/jaar) is de hoeveelheid primaire energie die gedurende één jaar nodig is voor de verwarming, de aanmaak van sanitair warm water, de ventilatie en de koeling van de woning. Eventuele bijdragen van zonneboilers en zonnepanelen worden in mindering gebracht.

Het wordt berekend op basis van een standaardklimaat en een standaardgebruik. Dit betekent dat er alleen rekening wordt gehouden met de karakteristieken van de woning en niet met het gebruik van de woning. Het karakteristieke jaarlijkse primaire energieverbruik stemt daardoor niet overeen met het werkelijke energieverbruik, maar laat toe om het energieverbruik van woningen op een objectieve manier te vergelijken.

Het primaire energieverbruik drukt uit hoeveel energie uit fossiele brandstoffen (aardgas, stookolie of steenkool) gebruikt wordt door de gebouwinstallaties. Voor elektrische installaties brengt dat een belangrijk bijkomend verschil teweeg met het werkelijke energieverbruik omdat er niet alleen rekening wordt gehouden met de energie die verbruikt wordt in de woning, maar ook met de energie die verloren gaat bij de productie en het transport van de elektriciteit. Voor één eenheid elektriciteit bij de gebruiker is 2,5 keer zoveel energie nodig in de vorm van aardgas, stookolie of steenkool.

Vrijtekeningsbeding

De aanbevelingen op het energieprestatiecertificaat zijn standaardaanbevelingen, die door de software gegenereerd worden op basis van de invoergegevens van de energiedeskundige volgens een door de Vlaamse overheid vastgelegde werkwijze.

Mogelijk zijn een aantal standaardaanbevelingen praktisch niet uitvoerbaar of risico-vol. Soms zijn bij de uitvoering aanvullende aanbevelingen nodig om de kwaliteit van het binnenmilieu of het comfort te behouden of te verbeteren. Verder onderzoek door een adviseur, architect, installateur of aannemer is in sommige gevallen vereist. De opsteller kan niet aansprakelijk gesteld worden voor de schade die ontstaat als de geadviseerde aanbevelingen zonder nader onderzoek of ondeskundig uitgevoerd worden.

De energiedeskundige kan bijkomende opmerkingen of aanbevelingen aan de standaardaanbevelingen toevoegen. U vindt die onder 'Aanbevelingen en opmerkingen van de energiedeskundige'.

Energiewinsten en subsidies voor energiebesparende maatregelen

Informatie over energiewinsten, subsidies of andere financiële voordelen vindt u op www.energiesparen.be