THE RESULT OF THE PEB CERTIFICATE

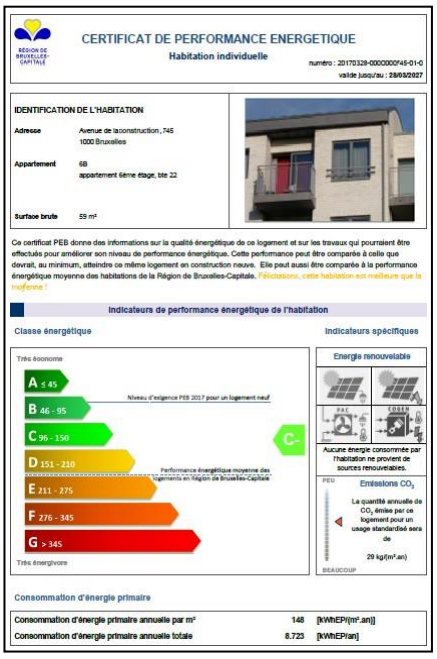
For residential

Content

1. WHAT IS THE PURPOSE OF THE PEB CERTIFICATE?

The EPB certificate allows prospective buyers or tenants of an apartment or house to **compare the energy performance of different properties** (houses or apartments) on the market under similar conditions of use.

2. WHAT DOES THE LETTER (FROM A TO G) ON THE PEB CERTIFICATE MEAN?


CERTIFICAT DE PERFORMANCE ENERGETIQUE
Habitation individuelle
IDENTIFICATION DE L'HABITATION
Indicateurs de performance énergétique de l'habitation
Classe énergétique
Indicateurs spécifiques
Energie renouvelable
A ≤ 45
B 46 - 95
C 96 - 150
D 151 - 210
E 211 - 275
F 276 - 345
G > 345
C-
Consommation d'énergie primaire
Consommation d'énergie primaire annuelle par m² 148 [kWhEP/(m².an)]
Consommation d'énergie primaire annuelle totale 8.723 [kWhEP/an]

This letter designates an energy class, ranging from A to G. Each class corresponds to a **range of levels of theoretical total energy consumption**, calculated from the characteristics of the building (house or apartment, number of facades, ...) and technical installations (heating, air conditioning), in standard conditions of use.

If the property is rated A or B, it means that it is very energy efficient. If the property is rated F or G, it means it is very energy intensive.

To refine the evaluation, intermediate classes (+) or (-) have been introduced. If the property is A++, it is particularly energy efficient.

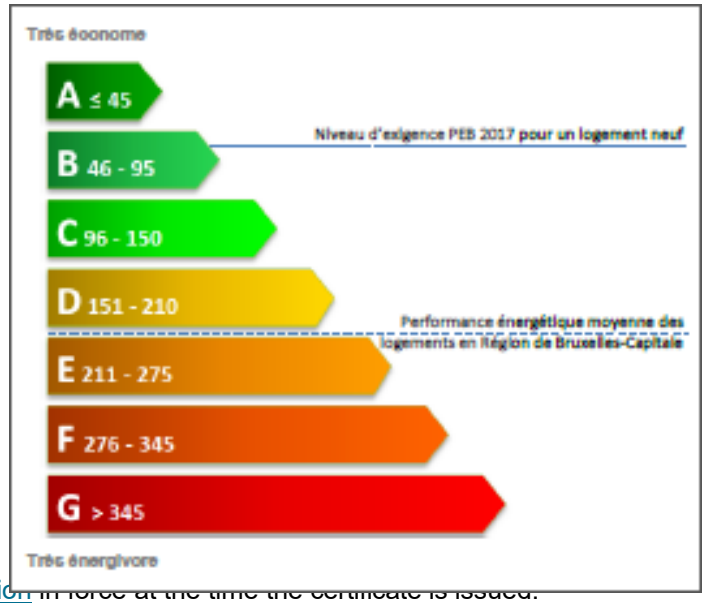
3. HOW IS THE ENERGY CLASS OF THE PROPERTY CALCULATED?

A certifier visits the premises and enters the data about the property into a software program that calculates a total theoretical consumption expressed in kWh. To facilitate reading and comparison between different properties, **the result is then integrated into the corresponding energy class**. For example, with a theoretical consumption of 148 kWhEP/(m².yr), the property will be in energy class C-, which includes all properties with a theoretical consumption between 133 and 150 kWhEP/(m².yr).

Details of energy classes :

Classe énergétique		$kWh_{EP}/m^2/an$		$kWh_{EP}/m^2/an$
A++			<	0
A+	de	0	à	15
A	de	16	à	30
A-	de	31	à	45
B+	de	46	à	62
B	de	63	à	78
B-	de	79	à	95
C+	de	96	à	113
C	de	114	à	132
C-	de	133	à	150
D+	de	151	à	170
D	de	171	à	190
D-	de	191	à	210
E+	de	211	à	232
E	de	233	à	253
E-	de	254	à	275
F	de	276	à	345
G	>	346		

4. HOW WERE THE ENERGY CLASSES DEFINED?



The scale of energy classes from A to G has been designed to integrate the entire housing stock in Brussels, both houses and apartments, whether they are old or new. It should be noted that it is more difficult to achieve a good energy performance with a four-faced house, which has more walls in contact with the outside, than with a compact apartment where there is less heat loss.

The continuous line evaluates the theoretical consumption of a similar new property, built according to the requirements of the EPB regulation in force at the time the certificate is issued.

The dotted line represents the average consumption of all types of housing in Brussels.

5. ARE THE CLASSES THE SAME IN THE 3 REGIONS?

The Brussels-Capital Region, Flanders and Wallonia have been obliged to develop a scale of classes according to the average performance of their own fleet

The presentation of the results is also different between the three regions. The presentation of the results is also different from one region to another: Flanders does not use letters, but only a color scale (illustration on energiesparen.be) while Wallonia uses a scale with letters (illustration on energie.wallonie.be).

6. CAN THE RESULT OF THE PEB CERTIFICATE BE DIFFERENT FROM THE CONSUMPTION ON MY BILL?

In order to be able to compare different goods, the consumption of the EPB certificate is calculated on the basis of **identical conditions of use for all**. So the result of your EPB certificate will probably be different from your actual consumption depending, for example, on the number of people in your household, your consumption of domestic hot water or your heating habits. But, for the same behaviour and weather conditions, you know that a C-rated property will consume less energy on average than a D-rated property. Hence the interest in comparing certificates when buying or renting.

Other elements can also explain a difference, sometimes important, between the result of the EPB certificate and your real consumption: the fact that the calculation does not take into account the electrical consumption of the household appliances, the use of default values when the certifier does not have justified information, or the fact that the consumption mentioned on the EPB certificate takes into account the energy necessary to produce the energy consumed: what is called the primary energy[1] .

7. WHAT ARE THE STANDARD OPERATING CONDITIONS THAT ARE USED TO CALCULATE TOTAL ENERGY CONSUMPTION?

Several assumptions were taken into account to obtain a comparable result from one property to another:

- **Minimum comfort**: the calculation method assumes that everyone behaves in the same way and applies the principles of rational use of energy related to the maintenance of the indoor temperature, ventilation and hot water needs. In reality, if you heat a lot or use a lot of hot water, your actual consumption may be higher.
- **Occupancy**: for the certificate, the dwelling is supposed to be used 365 days/year. In reality, if you go on vacation for a week in winter and turn off the heating, this can result in a 5 to 10% reduction in your actual annual heating consumption. But this does not change the average consumption shown on your EPB certificate.
- **An average climatic year**: the calculation method considers an average climatic year based on the records of the last 20 years recorded by the Royal Institute of Meteorology. An exceptionally mild winter will therefore reduce your heating consumption, but will have no impact on the EPB certificate.
- **Ventilation**: the calculation method takes into account an energy consumption related to the renewal of the air in the dwelling, because a ventilation system is necessary to ensure a good air quality and to solve possible humidity problems. If the dwelling does not have a ventilation system, the calculation still takes into account a virtual energy consumption for ventilation by default, so as not to disadvantage users of ventilation.

[1] The concept of primary energy is developed in question 10 below.

8. HOW DOES THE CERTIFIER COLLECT DATA DURING HIS VISIT?

The certifier is obliged to respect the rules laid down by Brussels Environment in a protocol which defines the way in which the data must be collected to establish the EPB certificate. Thanks to the respect of this protocol, if two different certifiers each establish an EPB certificate for the same property, the result will be identical.

During his visit, the certifier collects two types of data based on two methods:

1) **Visual control:** certain elements such as the type of roof, the number of facades or the presence of double glazing, are to be noted visually;
2) **Verification based on proof:** other elements, such as wall insulation, require proof, such as an invoice or photos. The list of acceptable proofs is available from your certifier or in the info-sheet "The visit of the residential certifier" on the Brussels Environment website.

9. WHAT HAPPENS IF THE CERTIFIER DOES NOT HAVE ACCESS TO ACCEPTABLE EVIDENCE DURING THE SITE VISIT?

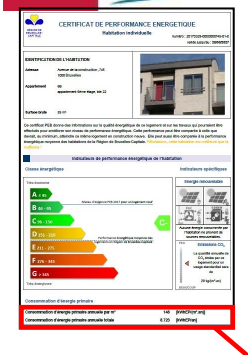
If you do not have supporting documentation to demonstrate the presence of an element to be included in the calculation, such as wall insulation, the certifier will have to take into account a **default value** that varies according to the type of element concerned. For wall insulation, for example, the default value depends on the year of construction. These default values are almost always unfavorable and the result of the calculation will therefore probably be worse than if the certifier had had access to acceptable evidence. **It is therefore essential to gather as much acceptable evidence as possible (plans, invoices, technical data sheets,...) before the visit of the certifier in order to be able to transmit it to him.**

In the absence of acceptable evidence, and to avoid the use of default values, destructive analysis (e.g. drilling a hole) is also allowed if the owner agrees in writing.

10. THE PEB CERTIFICATE RESULT IS EXPRESSED IN "PRIMARY ENERGY" (EP). WHAT DOES THIS MEAN?

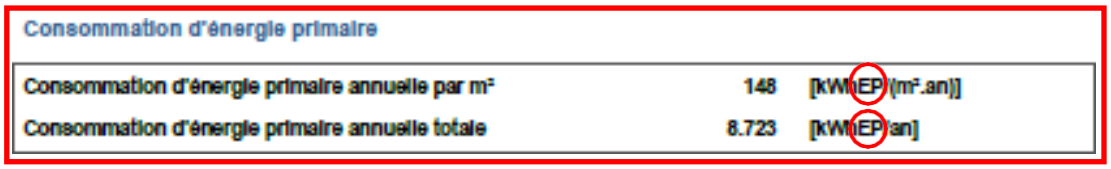
Primary energy takes into account not only the energy consumed in the building, but also the energy required to produce that energy.

A standard conversion factor, which takes into account the fuel used to produce the energy, is applied to the amount of energy consumed to obtain the corresponding amount of primary energy.



For example, if you only use electricity for heating, your heating consumption will be penalized by a factor of 2.5. Indeed, in Belgium, to produce and supply 1 kWh of electricity, you need to consume on average 2.5 kWh of primary energy upstream. A theoretical electricity consumption of 1,000 kWh per year therefore corresponds to a theoretical consumption of 2,500 kWh of primary energy per year.

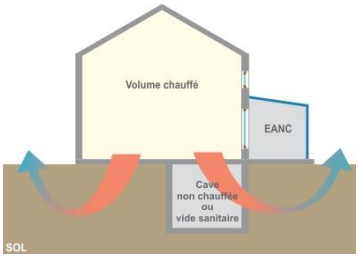
Please note! The consumption mentioned on your energy supplier's bills is not expressed in primary energy. You may therefore notice a significant difference between the result of the EPB certificate and the statement of your invoice.



11. WHAT ELEMENTS CAN PENALIZE THE RESULT OF THE PEB CERTIFICATE?

Not everyone is in the same boat: the energy performance of Brussels homes varies greatly! Some houses, even recent ones, can obtain a disappointing result. This is mostly due to the physical characteristics of the building or the construction techniques. Here is a non-exhaustive list of elements that can penalize the result of the EPB certificate:

- **An apartment under a roof: the** surface of the walls that face outwards, i.e. the heat loss surface, is greater than that of an apartment located between two apartments.
- **A high number of facades**: the more facades there are, the greater the surface area through which heat escapes.
- **An apartment under the roof:** if the height under the roof is too low, part of the floor area is not taken into account in the living area, even though the losses via this roof are real. As the result is expressed as a proportion of the living area, this type of dwelling seems less efficient.
- **Poor orientation:** a building facing northeast, for example, will benefit less from the heat provided by solar radiation than a building facing south.



- **An apartment with a floor on a cellar or on the ground without insulation:** there will be more heat loss through the floor than in the case of an apartment located between two apartments.
- **An uninsulated roof** (or a roof for which proof of insulation is not available): this means more heat loss than a roof that is insulated.

heat through the roof.

- **A non-insulated wall** (or a wall for which proof of insulation is not available): a conventional masonry wall, even a thick one, does not offer much resistance to heat penetration.
- **Electrical production**: heating the dwelling or domestic water with an electrical appliance has a negative impact on the result of the EPB certificate, especially because of the conversion into primary energy.
- **A window** from the 70's, with double glazing and metal frame, has the same energy performance as a window from the 50's with single glazing in a wooden frame. On the other hand, a window installed today saves 2 to 3 times more energy.
- **Uninsulated pipes:** uninsulated heating or hot water pipes in unheated spaces are a major source of heat loss and energy consumption.
- **An old boiler (**more than 15 years old).

- **No thermostat or outdoor sensor:** A heater that is not connected to a thermostat or outdoor sensor is burning fuel unnecessarily.
- **The use of default values:** in the absence of acceptable evidence and the possibility of visual inspection, the certifier must use default values that penalize the final result.
- **The absence of the periodic inspection certificate for the boiler:** this certificate contains precise data, such as the measured efficiency. Without this document, the certifier uses unfavorable default values.

Please note! Before July 2, 2008, the requirements for construction or renovation were limited to basic insulation. Since July 2, 2008, the insulation requirements have been reinforced and the requirements have been extended to other items such as ventilation, technical installations, etc. As a result, the energy performance of even recent properties may be well below the standards in force since July 2, 2008 in the Brussels-Capital Region.

12. WHAT GUARANTEES THE QUALITY OF THE PEB CERTIFICATE?

- **Quality control** of the work of the certifiers entrusted to an external organization. A certifier who does not respect his obligations, in particular the respect of the protocol, is exposed t o a suspension or even a withdrawal of his approval.
- The **certifier** who draws up the EPB certificate is a **professional approved** by Brussels Environment, a professional who carries out his activity in an independent manner and is obliged to scrupulously respect the very strict procedure described in the protocol drawn up by Brussels Environment.
- A precise **calculation method** developed by a consortium of experts in building design, special techniques and thermodynamics that ensures the reproducibility of certificates, the principle according to which two different certifiers issue a similar EPB certificate for the same property.
- **The supervision of the certifiers by Brussels Environment**, which provides them with a helpdesk and a FAQ for any questions they may have while carrying out their activity.

13. WHAT SHOULD YOU DO IF YOU FIND ANOMALIES IN THE PEB CERTIFICATE?

If you think that your certificate contains an anomaly, you must **contact the certifier** who issued the ILL certificate. He or she is the only one to have recorded the characteristics of your property on site and is the only one responsible for the accuracy of the certificate issued. Although errors are possible, Brussels Environment notes that it is often a misunderstanding of the result rather than an anomaly. Certain characteristics[2] can indeed be penalizing for the result of the EPB certificate. It is up to the certifier to explain the elements that affect the result.

If you wish, you can ask to **consult the encoding report** which includes the data collected by the certifier during his visit. This will allow you to ensure that the data collected corresponds to reality.

After these steps, if you doubt the quality of the work of your certifier, you can **send a complaint** to Brussels Environment via the e-mail address that you will find on the EPB certificate.

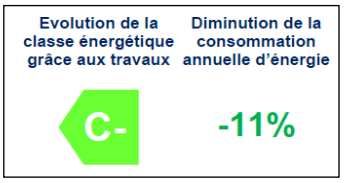
[2] See question 11 in particular.

A complaint must always mention the name of the certifier, the certificate number and the address of the property concerned. This complaint can lead to a check of the EPB certificate by Brussels Environment. If this control proves that the EPB certificate has not been issued in accordance with the rules laid down in the protocol, the EPB certificate will be revoked by Brussels Environment and the certifier will issue a new EPB certificate at his expense. The certifier is also exposed to a suspension or even a withdrawal of his approval.

14. ON WHAT PRINCIPLES ARE THE RECOMMENDATIONS ESTABLISHED TO IMPROVE THE ENERGY PERFORMANCE OF THE PROPERTY?

The recommendations mentioned on the EPB certificate take into account two criteria:

1) **Cost effectiveness:**
The profitability of the recommendations of the EPB certificate is evaluated in terms of energy savings. Because if we can theoretically evaluate the financial profitability of a recommendation, it can be heavily penalized by technical or urbanistic constraints related to the implementation.



And to limit ourselves to the most interesting recommendations, only the recommendations that allow a potential saving of at least 2% are mentioned on the certificate.

2) **Technical feasibility:**

The recommendations mainly concern the insulation of the building envelope, the pipes and the accessories of the technical installations which are relatively simple to implement.

For the envelope, the insulation of opaque walls and the replacement of glazed walls with low thermal coefficient are favored. These measures can still be taken relatively easily thanks to the diversity of techniques and products available, which allow for implementation adapted to every situation.

For technical installations, the recommendations favour simple actions that can be easily carried out by the occupant himself, such as insulating pipes and tanks, or by a professional, such as installing a thermostat.

15. HOW ARE THE RECOMMENDATIONS PRESENTED?

The top 3 recommendations for implementation are displayed on the front page of the EPB certificate. They are presented in descending order of potential savings. As the three recommendations are implemented, the table shows:

- the evolution of the **level of energy performance** achieved ;
- the **cumulative** decrease in energy consumption, expressed in %.

Example:

Caption:

N°	Each recommendation is numbered. This number is included in the encoding report next to the elements concerned.
Target	An icon illustrates the part of the housing concerned by the recommendations. They are accumulated on each line and the icon is thus enriched with each line of the new recommendation.
Recommendation	This is the title of the recommendation concerned by the line. A recommendation is added to each line, in dark blue, while the recommendations of the previous lines appear in light blue.
Evolution of the energy class thanks to the work	The level indicated is the one achieved through the **successive and cumulative** implementation of the recommendations issued. In the example, the three implemented recommendations allow to wait for the class C.
Reduction in annual energy consumption	The reduction in energy consumption is given in relation to that calculated for the property when the certificate was issued. It is calculated in primary energy and expressed as a percentage that indicates the cumulative savings that can be achieved through the successive implementation of the recommendations issued.