CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

(CT5) Certification and Training

Status in 2022

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1. Introduction

Core Team (CT) 5 of the CA EPBD V dealt with Certification of Buildings and Training of experts and was responsible for the preparation of discussions among all CA EPBD participants. The focus of CT5 was the upgrading of Energy Performance Certificates (EPCs), their quality, visibility, usability, as well as sharing experiences and best practices and examining new approaches. This also includes the experts involved in issuing those certificates, their training, and qualification, among other topics.

This report summarises some of the main analyses and conclusions of CT5, to be eventually made available to a wider audience.

2. Objectives

The topics discussed in CT5 related to the EPBD, especially elements dealing directly with EPCs and independent experts: the Energy Performance Certificates (Article 11); Issue of Energy Performance Certificates (Article 12); Display of Energy Performance Certificates (Article 13); and Independent Experts (Article 17).

The relevance of EPCs and the role of experts extends beyond those articles to other parts of the EPBD such as:

- Developing EPC databases and examining how the data can be better used;
- Using EPCs to differentiate and promote energy efficient buildings;
- Supporting Long-Term Renovations Strategies (LTRS);
- Linking EPCs and data with financing;
- Developing databases to collect and share information.

Underpinning the CT5 discussion are three themes linked with the EPC and the certification schemes:

- **Quality** (inputs, outputs, data, methodologies, experts, etc.);
- **Visibility** (awareness, communication, image, perception of EPC, range, how EPCs call to action, advertising, etc.);
- **Usability** (information, how triggers lead to action, choices made, interoperability, etc.).

CT5 also considered the discussion in previous CA forums, mainly CA EPBD IV, so that the outcomes of past sessions could support future discussions and build upon previous findings.

3. Analysis of Insights

3.1 Energy Performance Certificates implementation across Member States

Over the years, the CA EPBD has covered several topics and contributed to the evolution, implementation and promotion of the energy performance of buildings in Europe. However, due to the context and diversity of the countries, each Member State may have approached the same range of topics differently.

Therefore, it is important to map EPC developments in Member States in order to evaluate their status and learn lessons from the implementation of different schemes.

In order to do this, several sessions were organised under the CA EPBD V in the format of presentations and discussion, poster sessions or surveys where the objective was to map, compare, and evaluate EPC quality control schemes, the energy auditors' qualification and process for issuing the EPCs, the databases and data-driven outcomes among different Member States, and the communication activities. Relevant activities were analysed to find common themes and ideas and to identify differences among Member States, as discussed in the following sections.

3.1.1 EPC schemes in the EU

Currently, all Member States have implemented an EPC framework with components such as quality and enforcement schemes, setup and use of a database, training of experts, and communication. Since these frameworks were operational, in mid-2019, CT5 set out to evaluate how many EPCs had been issued. Out of the 31 respondents, which included all EU Member States (still with the UK) plus Norway, the rough number of EPCs registered was around **54 million**, with the distribution as shown in Table 1.

Coupled with these registered EPCs, each Member State also implemented a database to collect EPC data or information. The survey identified different approaches to storing and using that data to generate the EPC, ranging from collecting data and performing the EPC calculations inside the register, to simply collecting a copied version of the EPC without individual data. Figure 1 shows the approaches taken at that time.

Country / Region	# of EPCs	Ref. date	Country / Region	# of EPCs	Ref. date
UK	20,094,859	-	**Belgium - WL**	576,990	23/04/2019
France	7,593,763	16/05/2019	**Lithuania**	233,536	19/04/2019
The Netherlands **	3,800,000	11/04/2019	**Croatia**	232,403	12/04/2019
Spain	3,600,000	-	**Belgium - BR**	230,171	10/04/2019
Germany	2,302,307	31/10/2018	**Czech Republic**	152,911	24/03/2019
Belgium - FL	1,810,000	01/01/2019	**Slovakia**	128,439	03/04/2019
Portugal *	1,675,155	31/03/2019	**Finland**	115,700	23/04/2019
Greece	1,574,316	31/03/2019	**Austria**	100,000	31/12/2019
Italy *	1,100,000	01/04/2019	**Slovenia**	70,000	31/03/2019
Romania *	1,000,000	-	**Malta**	51,300	-
Hungary	951,436	21/05/2019	**Cyprus**	51,172	24/04/2019
Norway	898,620	10/04/2019	**Estonia**	30,255	-
Ireland	864,253	-	**Luxembourg**	17,000	-
Sweden	700,000	31/12/2018	**Latvia**	9,219	26/04/2019
Poland *	667,307	01/01/2017	**Bulgaria**	7,804	02/04/2019
Denmark	631,260	-			-

** Estimation or based on partial information*

*** Number of valid registered EPCs. This figure gives a better impression of the number of buildings that have an EPC. The number of registered EPCs also includes multiple EPCs for one building and EPCs that are older than 10 years.*

Table 1: Number of EPCs registered by country/region.

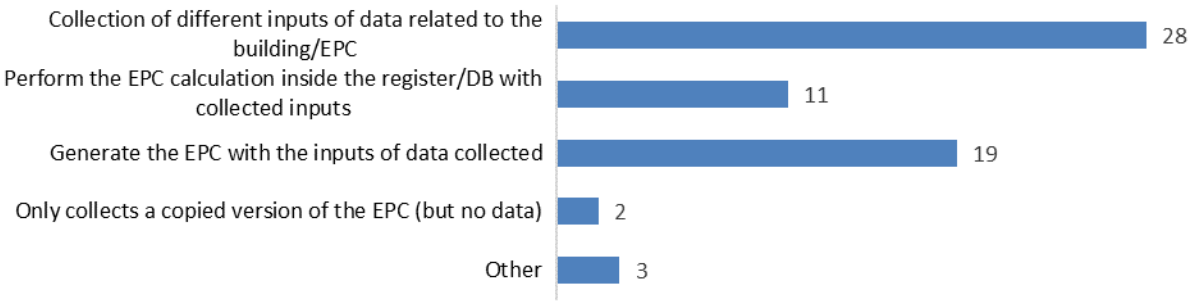


Figure 1: Collection and use of data in the EPC database to generate the EPC.

After the transposition of the revised 2018 EPBD, CT5 evaluated recent changes in 27 countries/regions in relation to the energy performance of buildings (EPB) methodologies and the EPC, and found many updates had been implemented at that time. The updates addressed the items listed in Figure 2.

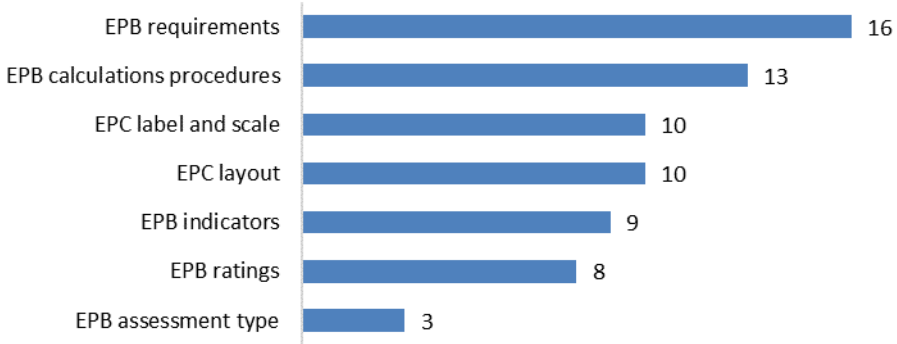


Figure 2: Changes made by Member States in the energy performance of buildings methodologies and the EPC, after the 2018 EPBD transposition.

The most relevant indicator of an EPC is its label, sometimes coupled with two indicators expressing both the actual performance and the building potential (e.g., UK) or the primary energy consumption and the CO_2 emissions (e.g., France). A little more than **60% of Member States use the traditional A-G label**, but others have implemented other approaches, not only using a different number of classes but also introducing subclasses. The following figures present the status in May 2021 based on an evaluation of 27 Member States in relation to the EPC label classes and subclasses.

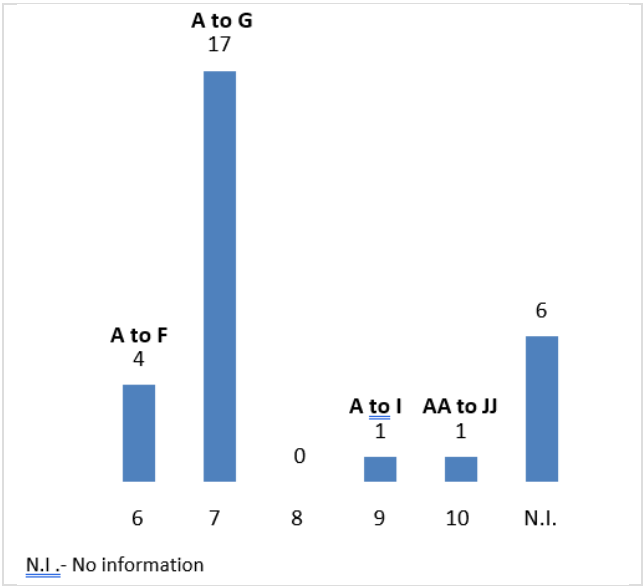


Figure 3: Number of classes in the EPC label.

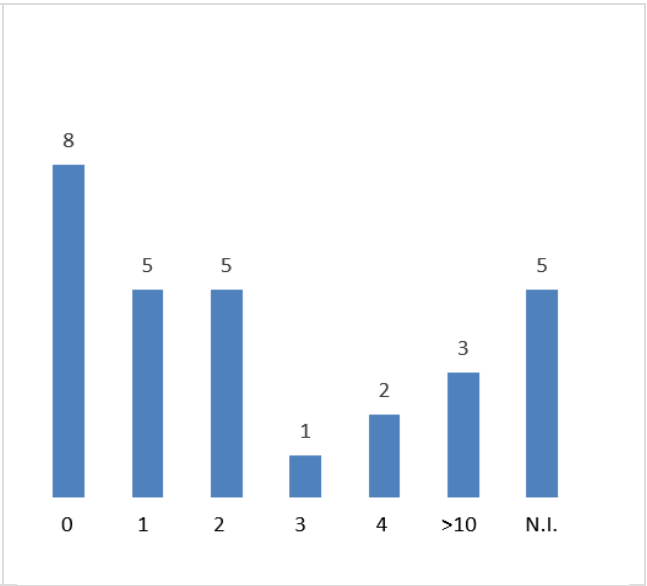


Figure 4: Number of subclasses in the EPC label.

Some Member States (Germany or Belgium-Flanders or in the case of Latvia, totally continuous with no steps) have also adopted a continuous scale that can be also stepped to include EPC classes.

Annex 1 provides further detail of the EPC layout adopted by each Member State.

3.1.2 Quality control

Annex II of the EPBD states that Member States should implement '*independent control systems for energy performance certificates and inspection reports*'. Out of 26 respondents, 24 implemented a compliance system to evaluate the EPC quality. Analysis shows that there is not a harmonised approach for the EPC compliance systems, which can be grouped as follows:

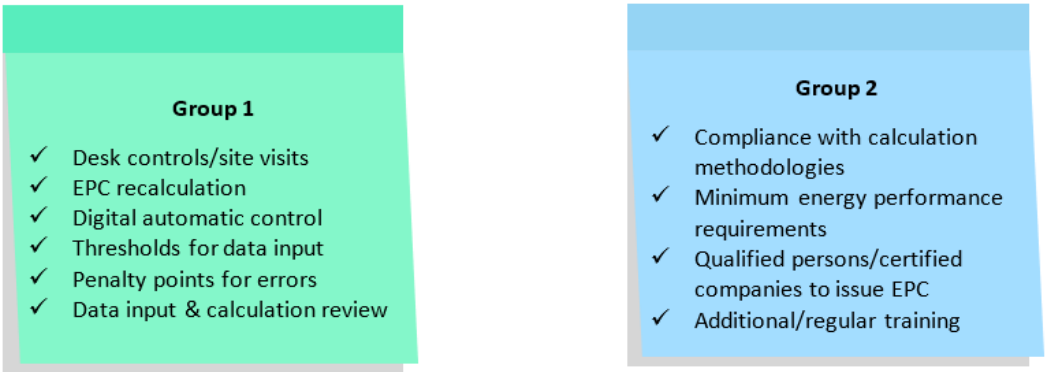


Figure 5: EPC compliance approach.

Despite these different approaches, the EPBD offers three verification options for these compliance checks. The method used is left open to each individual Member State and, as the results show, despite large variations, most states comply with the recommended guidelines.

EPC verification options	Minimum percentage checked	Maximum percentage checked
Validity check of the input/output data	From 0 %	Up to 100 %
Validity check of the input/output data + recommendation measures	From 0 %	Up to 20 %
Validity check of the input/output data + recommendation measures + on-site visit	From 0 %	Up to 4 %

Table 2: EPC verification options.

There are also different definitions for an inaccurate EPC. In general, mistakes in data input are considered the most relevant issue because they can lead to further errors in output data, or to erroneous calculations or inappropriate proposed measures. Figure 6 shows how Member States characterise the inaccuracy of an EPC.

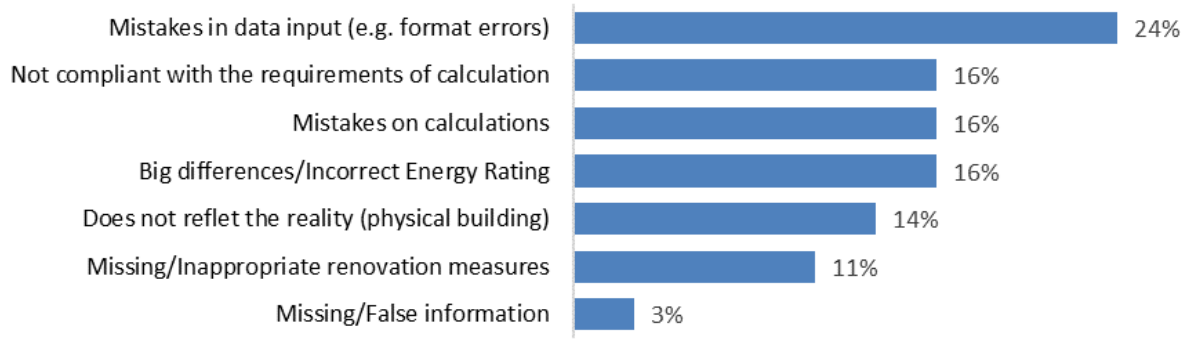
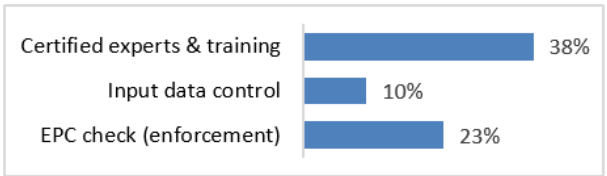


Figure 6: Categories used to define an EPC as inaccurate.

Member States discussed and shared their experiences with the processes for quality control. It was clear that an open and detailed quality control process could lead to better assessments, as assessors understand the sanctions that they can face for poor performance. Although the processes can be expensive, this is seen as a worthwhile cost. Issues identified included assessors circumventing the processes, the drawbacks of completely random selection for verification, and the most appropriate method for verifying measured EPC data. Member States are also aware that an EPC quality scheme is not only based on the quality of data. Figures 7 and 8 present actions that Member States consider most relevant to improving EPC quality and the degree in which they have been implemented, e.g., 'more' implemented in Figure 7, 'less' implemented in Figure 8.



Other actions included: more data available, better data sources, external consultation support, experts license cancelation

Figure 7: Actions 'more' implemented to improve EPC quality schemes.

Other actions included: CEN standards adoption, site visits, mandatory training for experts, changes in the EPC pricing (increase), simplified tools (existing buildings)

Figure 8: Actions 'less' implemented to improve EPC quality schemes.

Regarding the enforcement strategy to correct inaccurate EPCs, Member States generally rely on two approaches: some 'mechanisms in force' and 'sanctions'. It is important to note that it is best to have both a preventive and a reactive strategy in order to guarantee the quality of the EPC (Table 3).

Mechanisms in force	**Sanctions**
• Independent control systems • Complain from owners • Certified companies to issue EPCs • EPC inspection/control/verification • Information campaigns • Training of experts	• Fines • Suspension/loss of accreditation (auditors/companies) • EPC rejection/cancelation • Publish the list of companies charged

Table 3: Enforcement strategy by Member States.

The quality of the EPC is also influenced by the cost of the EPC quality assessment scheme that is implemented and the overall cost of the EPC charged by the expert. The information gathered from 26 Member States led to the following observations:

- **EPC quality assessment scheme**: 11 Member States have evaluated the cost of running an EPC quality assessment scheme and adjusted it by implementing the following approaches:
    - Rely more on automatic software checks;
    - Change the compliance criteria;
    - Adjust the size of the samples checked every year;
    - Complement EPC checks with experts training;
    - Clarification of inspection protocols in place;
    - Simplified EPC calculations for existing residential buildings.
- **Overall cost of the EPC**: 14 Member States said that the cost of the EPC charged by the expert does not fairly represent the amount of effort for the expert to provide a qualitative EPC.

3.1.3 EPC experts

The EPBD states that EPCs must be issued by independent experts acting individually or through a company. At the end of 2020, CT5 evaluated the status of EPC experts in 25 Member States (including regions) and found that there were different categories of experts, ranging from 1 to 5, with an average of **2 categories of experts** in each state. **There were a total of approximately 160,000 experts** with more than half coming from Italy.

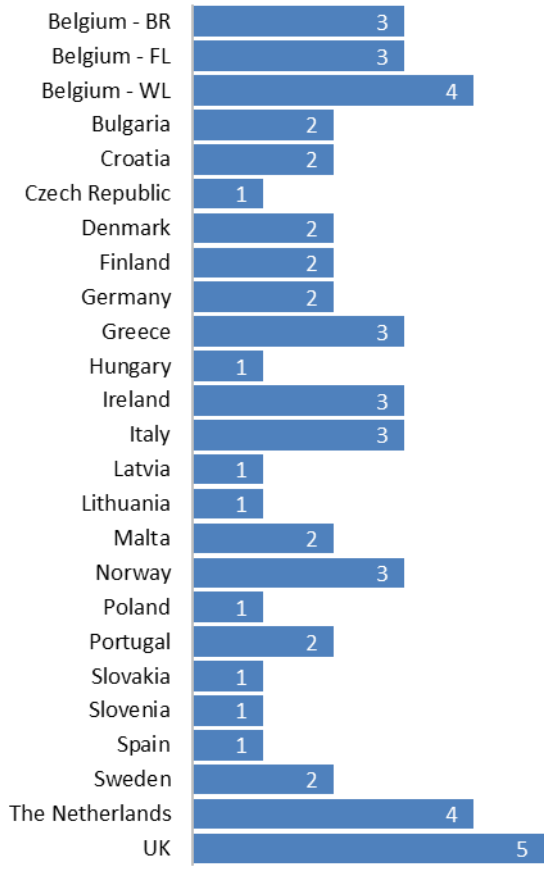


Figure 9: Number of categories of experts per Member State.

Country / Region	Number of experts	Reference data	Experts per 1,000 inhabitants
Belgium - BR	**1,640**	09/12/2019	**1.34**
Belgium - FL	**2,579**	2019	**0.39**
Belgium - WL	**3,160**	14/01/2020	**0.87**
Bulgaria	**751**	04/12/2019	**0.11**
Croatia	**2,450**	2020	**0.61**
Czech Republic	**1,364**	13/01/2020	**0.13**
Denmark	**900**	31/01/2020	**0.15**
Finland	**1,195**	09/02/2020	**0.22**
Greece	**16,374**	31/12/2019	**1.53**
Hungary	**1,900**	Early 2020	**0.19**
Ireland	**720**	03/02/2020	**0.14**
Italy	**103,409**	-	**1.74**
Malta	**680**	12/12/2019	**1.32**
Lithuania	**668**	2020	**0.24**
Poland	**15,950**	25/09/2020	**0.42**
Portugal	**2,176**	17/12/2019	**0.21**
Slovakia	**395**	31/12/2019	**0.07**
Slovenia	**400**	2020	**0.19**
Sweden	**775**	17/12/2019	**0.07**
The Netherlands	**3,576**	16/12/2019	**0.21**

Table 4: Number of qualified experts per Member State (compared to Member State' population in 2020).

Although the EPBD provides flexibility for Member States to decide whether the EPC is issued by an expert acting as single person or by companies, most decided to implement the first option. In some cases, EPCs can also be issued by companies, sometimes depending on the type of EPC, as seen in Table 5.

To issue an EPC it is necessary to have an appropriate education background. Most Member States require experts to be architects or engineers, while some also allow for other qualifications such as secondary school, experience based, or an accreditation system. Despite these options, the required qualifications in general depend on the building type. More details are included in Table 6.

Country / Region	Single person	Company / Legal
Belgium - BR	X	
Belgium - FL	X	X
Belgium - WL	X	X
Bulgaria		X
Croatia	X	X
Czech Republic	X	X
Denmark	X	X
Finland	X	
Germany	X	
Greece	X	X
Hungary	X	
Ireland	X	
Lithuania	X	
Malta	X	
Norway	X	X
Poland	X	
Portugal	X	
Slovakia	X	
Slovenia	X	
Spain	X	
Sweden	X	
The Netherlands	X	
UK	X	

Table 5: Type of entity that issues EPCs.

Country / Region	Architect	Engineer	Other
Belgium - BR	X	X	X
Belgium - FL	X	X	
Belgium - WL	X	X	X
Bulgaria	X	X	
Croatia	X	X	
Czech Republic	X	X	X
Denmark			X
Finland	X	X	X
Germany	X	X	X
Greece	X	X	
Hungary	X	X	
Ireland	X	X	X
Italy	X	X	X
Latvia			
Lithuania		X	X
Malta	X	X	
Norway	X	X	
Poland	X	X	X
Portugal	X	X	
Slovakia	X	X	
Slovenia	X	X	
Spain	X	X	X
Sweden		X	
The Netherlands			X
UK			X

Table 6: Background education needed to issue an EPC.

Some Member States have also imposed a minimum level of university degree (or equivalent) required for an expert to issue EPCs. In most cases the minimum level required is a bachelor's degree, as presented in Table 7.

Apart from type of education and degree level, some states require a certain level of experience that ranges from 0 to 10 years. In very specific cases, e.g., in Greece, the experience is measured in terms of energy audits performed. Further details are given in Table 8.

Country/ Region	Secondary	Bachelor	Master
Belgium - BR	X	?	?
Belgium - FL	?	?	?
Belgium - WL		X	X
Bulgaria	X	X	X
Croatia		X	X
Czech Republic	X		
Denmark	X		
Finland		X	X
Germany		X	X
Greece		X	
Hungary		X	
Ireland	X	X	
Italy	X	X	
Latvia			
Lithuania		X	X
Malta		X	
Norway		X	X
Poland		X	
Portugal		X	
Slovakia			X
Slovenia		X	
Spain			X
Sweden		X	X
The Netherlands	X	X	X
UK			

Table 7: Minimum level of degree required for an expert to issue EPCs.

Country/ Region	Case 1	Case 2	Case 3
Belgium - BR	-	2	
Belgium - FL			
Belgium - WL	-	2	
Bulgaria	2	3	6
Croatia	2	5	10
Czech Republic	3	6	
Denmark	2	3	
Finland	1	3	
Germany			
Greece	10 audits	30 audits	
Hungary			
Ireland			
Italy			
Latvia			
Lithuania	3		
Malta			
Norway	2	4	10
Poland	5		
Portugal	5		
Slovakia	3		
Slovenia	2		
Spain			
Sweden	5		
The Netherlands			
UK	Other		

Table 8: Minimum level of experience required for an expert to issue EPCs (in years except Greece).

In general, EPC experts must complete training to become a registered expert and be qualified to issue EPCs. A little more than **50%** of Member States **require experts to take mandatory training** while for **40% this training is voluntary**. The type of training is also differentiated by expert categories and can range from 8 to 115 hours with an **average training of 49 hours**.

Also to retain qualification, experts must attend **mandatory training in around 44%** of Member States while this **training is voluntary for around 36%**. The conditions for voluntary training are also quite varied, including the following options:

- yearly training;
- a certain number of training hours every 3 years or 5 years;
- experts could be requested to go to mandatory training;
- up-skill or refreshing trainings;
- yearly report of work done and training and re-examination every 5 years;
- voluntary training via a points system.

Table 9 provides detailed information of the level of training requested by Member States.

Country/ Region	BEFORE becoming an independent expert		AFTER becoming an independent expert	
	Type		Type	
	Mandatory	Voluntary	Mandatory	Voluntary
Belgium - BR	X			X
Belgium - FL	X		X	
Belgium - WL	X		X	
Bulgaria	X			X
Croatia	X		X	
Czech Republic		X	X	
Denmark			X	
Finland		X		X
Germany	X		X	
Greece		X		
Hungary		X	X	
Ireland	X	X		X
Italy	X			X
Latvia				
Lithuania	X		X	
Malta	X		X	
Norway				
Poland		X		X
Portugal		X		X
Slovakia		X		X
Slovenia	X			X
Spain		X		
Sweden	X		X	
The Netherlands		X	X	
UK	X		X	
Total	13	10	11	9

Table 9: Level of training requested my Member States.

As a complement to training, experts must pass an **examination to be qualified**, with the following variations:

- **20 Member States/regions require examinations** to become a qualified EPC expert;
- The average threshold of the examination ranges from 50% to +90% with an **average of 69% score**;
- The average success rate ranges from 33% to 100% with an **average of 71% rate**;
- In some cases, there's a **mix of written examination + oral examination**;
- Some countries have **different examination thresholds for different parts of the examination**;
- Some countries **mix written + oral with practical real cases**;
- Some countries have a **deducting score** (score negative for wrong answers).

The topics addressed in the EPC qualification examination are also different. Out of 25 assessed Member States, 23 identified ‘building envelope and windows (U values, solar factors, etc)’ as the topic most evaluated while only 4 check compliance for ’elevators/escalator’s’. Interestingly, ‘site visits’ are only covered by 13 Member States. Figure 10 lists the topics addressed in the examination.

Regarding the number of topics evaluated in the examination, Portugal and Sweden are on top with 29 topics evaluated. Table 10 provides the number of topics covered by country.

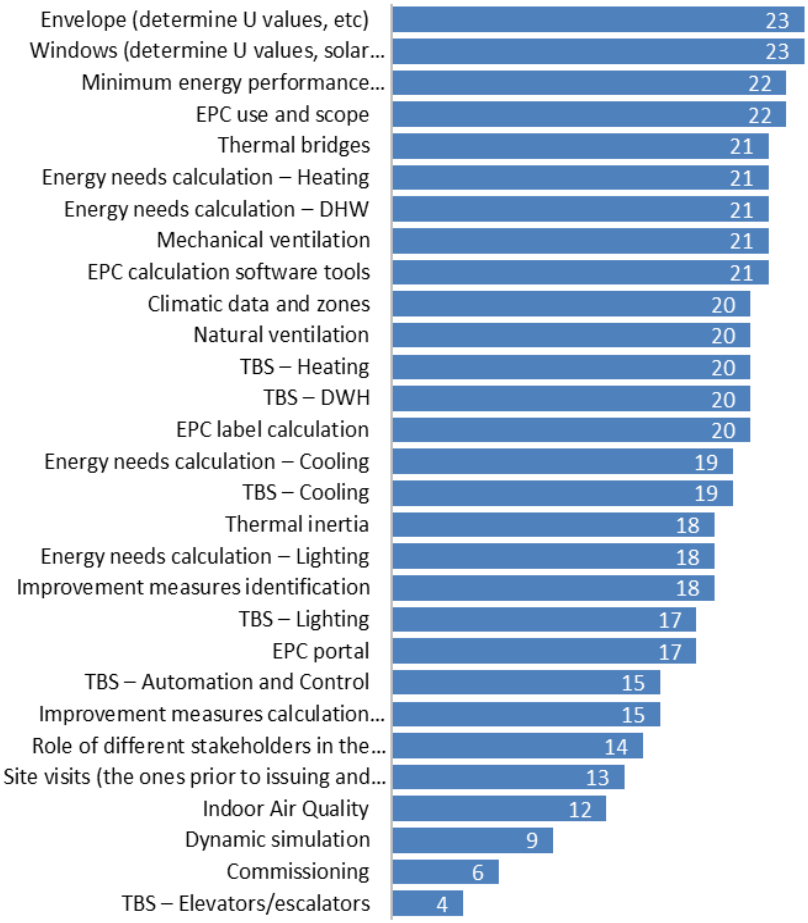


Figure 10: Topics addressed in the examination to obtain the EPC qualification.

Country/ Region	Topics in the examination
Portugal	29
Sweden	29
Slovakia	28
Ireland	27
Malta	27
Croatia	26
Finland	26
Bulgaria	25
Hungary	25
Italy	25
UK	25
Slovenia	24
Czech Republic	23
Denmark	23
Greece	23
Belgium - FL	21
Belgium - WL	21
Lithuania	20
Poland	20
The Netherlands	22
Belgium - BR	12
Germany	9
Spain	7
Latvia	-
Norway	-

Table 10: Examination topics covered my Member States.

Complementary findings related to site visits where:

- Most building visits by experts are undertaken at completion of construction or renovation. At least **4 countries have no site visits for some or all building categories.**
- A site visit lasts on average **110 minutes**.
- Most Member States provide support to experts, with **5 states accompanying the experts on the site visits**.

Member States also provided their input on the link between the support provided to experts and the quality assessment results. Some statements collected where:

- *'80% of the quality is due to the quality of the initial training; further support initiatives are diminished if initial training is not good'*
- *'Not more than 10% are poor EPCs'*
- *'Around 0.10% are poor EPCs'*
- *'Quality assessment reports are available allowing to check compliance and results'*
- *'Mandatory training in 2018 resulted in experts making less mistakes when inspecting a building'*

3.1.4 EPC databases

While the EPBD does not require Member States to set up EPC databases, many countries have done so (except Germany). Because there is no specific guidance on how to set up those databases, it is not surprising that different approaches have been taken. Member States are also required to transpose the INSPIRE Directive 2007/2/EC, which establishes an infrastructure for spatial information in Europe to support policies. To support the link between both directives, a project under the EU Location Framework produced a technical report addressing the 'Harmonisation of existing Energy Performance Certificate datasets'[1] which could be a starting point for adding value to EPCs and their related database. In addition, new requirements for databases were defined in the 2018 revised EPBD, offering an opportunity to create or upgrade existing EPC databases. There was discussion and sharing of best practice on the issue of different types of information stored in existing EPC databases and experience with interoperability with other databases and services. Member States recognised that it is important to solve these issues, as well as other concerns, e.g., compliance with the General Data Protection Regulation (GDPR), so that analysis of the information in databases can provide valuable insights into the building stock throughout the EU.

EPC databases provide a wealth of information that can be used for very different purposes such as increasing the knowledge of the building stock, supporting national renovation strategies or academic studies, and providing valuable insights for the financial sector or real estate agencies.

In order to use the EPC data, Member States have defined different types of categories of data. Out of the 31 countries/regions evaluated (which included the three regions of Belgium, Norway and the UK but excluded Germany because it does not have an EPC database), the following information was collected in mid-2019:

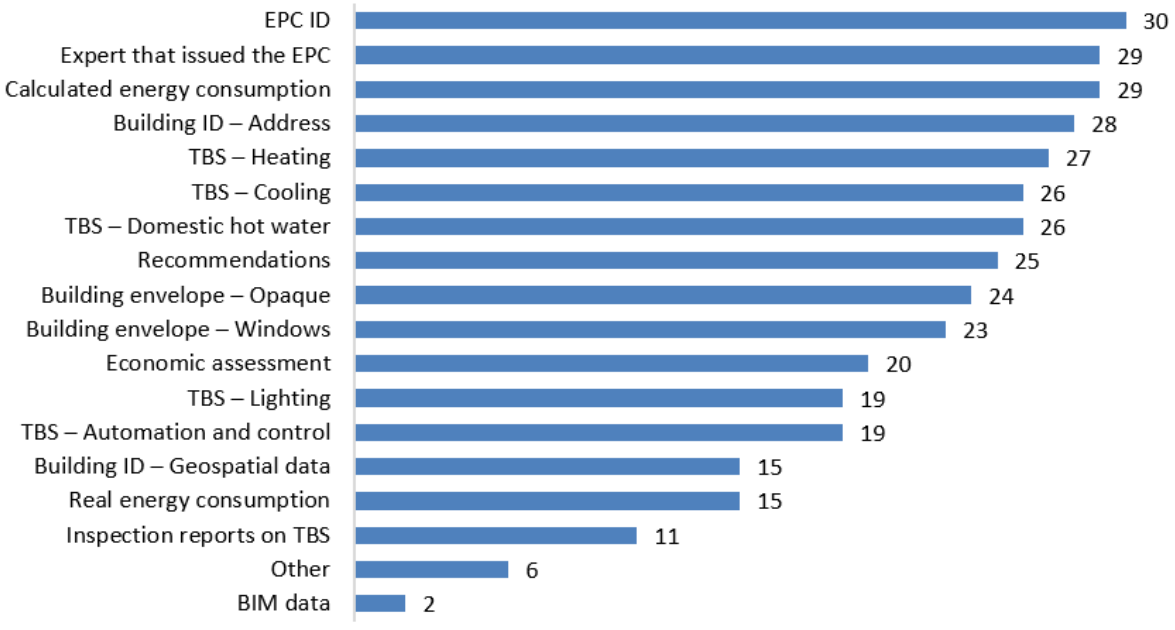


Figure 11: Type of data collected by Member States in the EPC database.

The detail and complexity of the EPC, including the number of variables collected, varies amongst Member States. On average, **195 variables for a residential EPC** and **211 variables for a non-residential EPC** were collected. The size of the database ranged from 0.3 gigabytes to 3.5 terabytes with **an average of 543 gigabytes**. This difference of size very much depends on the data stored and additional documentation or photos. On average, an EPC (and its related data/documents) takes around **1.5 megabytes of data storage.**

Country/Region	Average number of variables per EPC		EPC DB size	EPC size
	Residential	Non-residential	(in GB)	(in kB)
Austria	500	600	5.0	52
Belgium - BR	200	-	130.0	592
Belgium - FL	750	750	950.0	550
Belgium - WL	400	-	1,300.0	2,363
Bulgaria	221	221	14.0	1,881
Cyprus	31	31	0.7	13
Czech Republic	-	-	750	-
Denmark	240	240	2,000.0	3,322
Estonia	-	-	430.0	14,903
Finland	80	80	64.0	580
Greece	95	190	2.0	1.8
Ireland	70	-	935.0	1,134
Italy	100	100	81.0	77
Lithuania	123	123	0.2	0.9
Luxembourg	165	-	-	-
Malta	100	100	-	-
Portugal	250	300	3,500.0	2,191
Romania	30	30	600.0	629
Slovakia	168	210	2.2	18
Slovenia	70	80	99.0	1,483
Spain	150	180	-	-
Sweden	200	200	196.0	294
The Netherlands	150	150	1.6	0

Table 11: Number of variables and size of EPC database.

The success of an EPC database comes from its use. Member States indicated that different interoperability processes have been implemented and data is flowing from and into the EPC database. The most connected services are governmental institutions, access to cadastre, academia and statistics offices. Figure 12 shows the types of service or entity that interoperate with the EPC database and the direction of the flow of data.

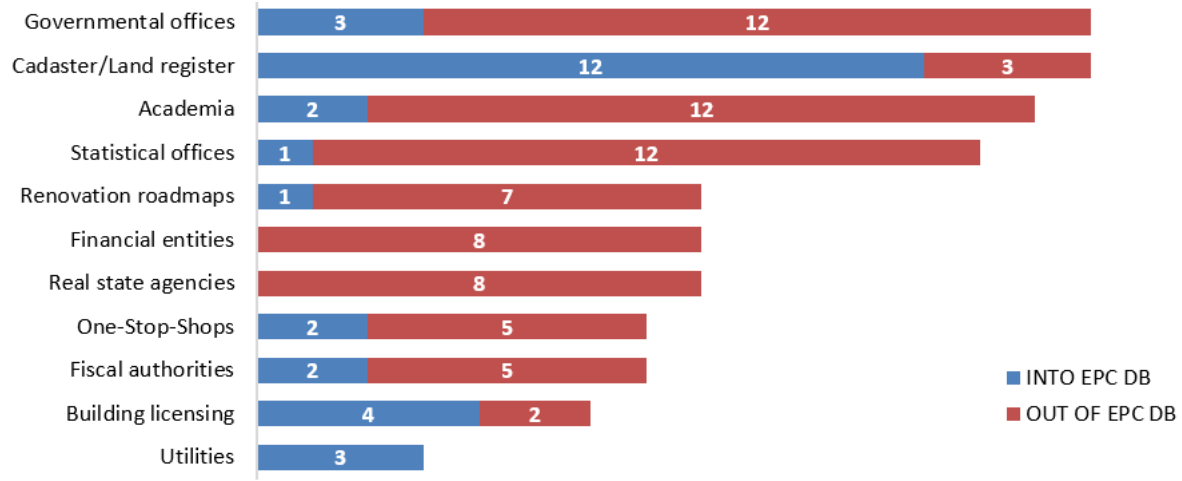


Figure 12: Type of entity that interoperates with the EPC database and the direction of the flow of data.

Additional findings on access of EPC data included:

- **2/3 of countries/regions** used EPC data for data mining, analytics, or similar uses;
- Although in most of the situations included in Figure 12 the data are also accessed in 'real time', **most of the accesses to the EPC database are undertaken 'on request';**
- **Data are generally shared on an ad hoc basis** though there are cases of real time data access. This is generally done through a webservice or a file transfer.

Figure 13 presents the case of Portugal where EPC data are accessed for three typologies of actions: i) support for policymaking, ii) incentivising renovation actions and iii) support for stakeholders.

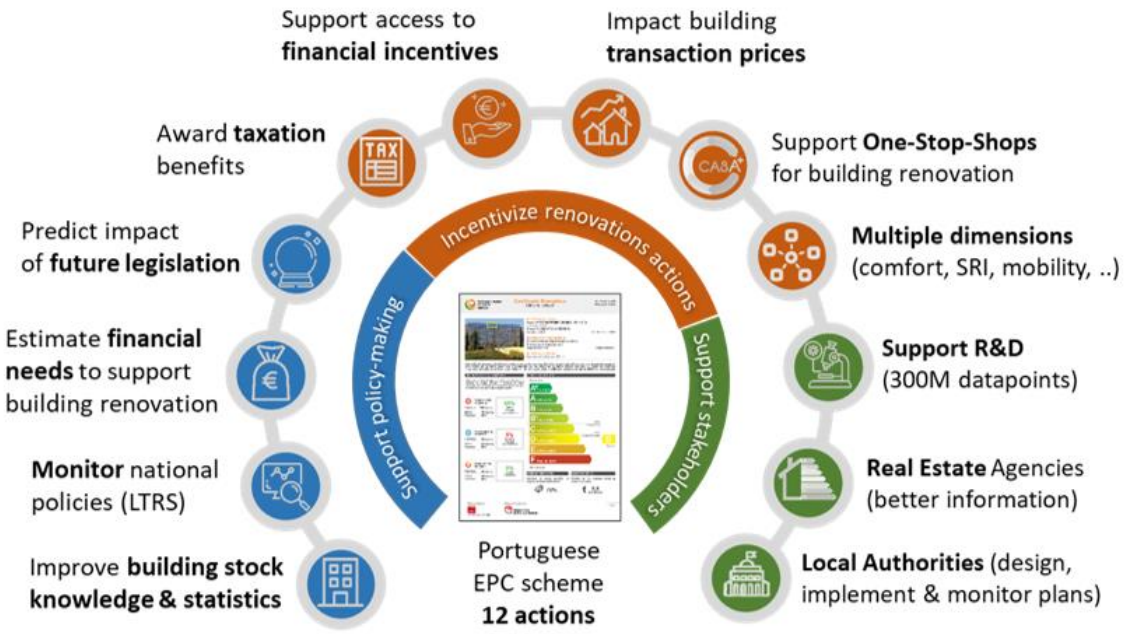


Figure 13: Use of EPC data in Portugal.

Highlights of 3.1	Sessions evaluated the following topics: 1. EPC schemes where different approaches from Member States to set-up an EPC framework were taken 2. Quality control, where the goal was to present best practice among the Member States on the EPC quality control scheme 3. EPC experts, where the goal was to understand the process behind the development and operation of independent experts 4. Databases, where the goal was to get an overview of the existing databases (where they exist, what data, structure, etc.) and to understand what actions have been taken by each Member States when using these data

Main Outcomes of 3.1
For all four topics, a range of strategies have been implemented. A large number of EPCs have already been issued and EPCs are well embedded in many procedures. Member States have evolved in terms of layouts and indicators included in the EPC, with some aligning them with 2050 targets. There are several quality control schemes in place, training requirements for experts are diverse, and the method of storing data related to EPCs and experts varies. However, the results show that in all areas, an open and transparent system can achieve the best results because all parties understand the method used. This can result in more reliable data, which means it is more useful. Although there are concerns regarding data protection, most Member States have overcome them by putting appropriate controls in place aligned with the GDPR legal requirements.

3.2 The role of Energy Performance Certificates (EPC)

3.2.1 Link to renovation strategies

The EPBD revised in 2018 stresses the importance that each Member State should prepare regular medium- to long-term renovation strategies to underpin the transformation of residential and non-residential buildings into a highly energy efficient and decarbonised building stock by 2050. The EPC can support policy by drawing on its database to provide an overview of the energy performance of the national building stock, indicating the share of buildings to be renovated. An EPC can support individuals by providing information about measures a homeowner can take.

The EPBD calls for cost-effective approaches to renovation, which can also be found on the EPC. Member States should develop policies and actions to stimulate cost-effective deep renovation of buildings and to support targeted cost-effective measures and renovation. For example, they could introduce an optional scheme for Building Renovation Passports (BRP) where the EPC can provide information on the energy performance when it is issued. This helps Member States target the worst-performing segments of the national building stock and develop strategies to alleviate energy poverty. This can be linked to the mobilisation of investments and financial measures, where the EPC can be used to measure the improvement before and after renovation and to identify the less efficient buildings. This would make the EPC more relevant in overall and targeted strategies for energy performance of buildings.

Some Member States found that redesigning their EPC was very useful. They learned that by working with design companies and input from the general public, they could transform the EPC from a document that is technical and difficult to read into a tool that is more useful and user-friendly. This is achieved by making it visually attractive and focusing on the benefits to the user.

Another strategy could be setting up schemes to help owners to make use of the renovation measure information on the EPC. Owners may want to renovate but are unsure of the steps they should take. One-stop-shops have been set up in some Member States, bringing owners, experts and consultants together in the renovation process to achieve the aims of all parties. Importantly, overall simplification of the EPC process increased engagement. Many Member States are committed to adopting some of these approaches, and others, to further developing their EPCs.

Highlights of 3.2.1	There was a focus on the experiences in Member States linking the EPC with the Long-Term Renovation Strategies to evaluate examples of good practice as well as identifying possible ways of using the EPC in those strategies. The goal now is to boost the relevance of EPCs in renovation strategies throughout the EU.

Main Outcomes of 3.2.1

The re-design of the EPC emerged as a high priority in discussions on barriers and critical success factors in renovation strategies. The EPC label should be easy to read and visually attractive, with attention to the layout and, where possible, there should be a focus on images and icons to replace large blocks of text. It was widely agreed that it was crucial to focus on content that the user would find most beneficial.

To complement the EPC, there could be websites that provide examples and stories of good practice in other similar homes, recommendations on what to do and how the owner can carry out the next steps. This could link to concepts most people would understand, for example, by equating a recommended measure to a CO2 and cost saving or an increase in the value of the house.

Making an EPC clearer, simpler and perhaps cheaper could engage more people and make them more likely to implement the recommendations. In most Member States, the EPC was originally designed by engineers or architects. Strategies for improvement included using skilled design and communication professionals in order to make the EPC easy to use and attractive. The experience in Belgium (Flanders) shows that consumer research and engagement are key factors in ensuring that the final document is tailored to the homeowner. Feedback from users is also useful for determining if further changes could and should be made.

3.2.2 EPCs as a communication tool

In order to achieve the EU's long-term energy efficiency and climate targets, the rate of energy renovation of buildings must be increased. It is important to influence building owners by improving their awareness of the benefits of energy renovation. EPCs could be the first tool for providing guidance to building owners or managers, offering a unique opportunity to raise awareness, improve perception, and encourage action. The fact that EPCs are not sufficiently gaining the attention of building owners means the role of the EPC as a communication tool needs to be improved so that it is noticed and used by building owners. It will be important to learn more from the best practice of EPC advertising, materials, and design that focus on consumer needs and improve the relevance of EPCs, e.g., by offering step-by-step building renovation strategies.

Apart from its presentation, it is important to focus on the public perception and what motivates requests for an EPC. This will help to evaluate communication campaigns promoting the EPC at national or regional level. A session of the CA EPBD V was organised to compare Member States' main pages of the EPC layout, the public perception of their usability, and the various strategies used to promote EPCs.

Submissions from 13 Member States were analysed. There were several common themes and ideas as well as some differences. There were various differences in the information displayed, with some Member States showing a great deal of detail on the main page and a lot of text throughout the document. Others took a more icon- and picture-oriented approach to the EPC. A common approach is the use of a scale and label, which Member States found to be a useful communication tool. Almost all Member States said the

key driver for the EPC was that it was mandatory. On the other hand, this can lead to less direct engagement with building owners because they are obliged to carry out the assessment rather than doing it because it could provide clear tangible benefits. For about half of the Member States that provided input, these conclusions were based on perception rather than surveys or statistics.

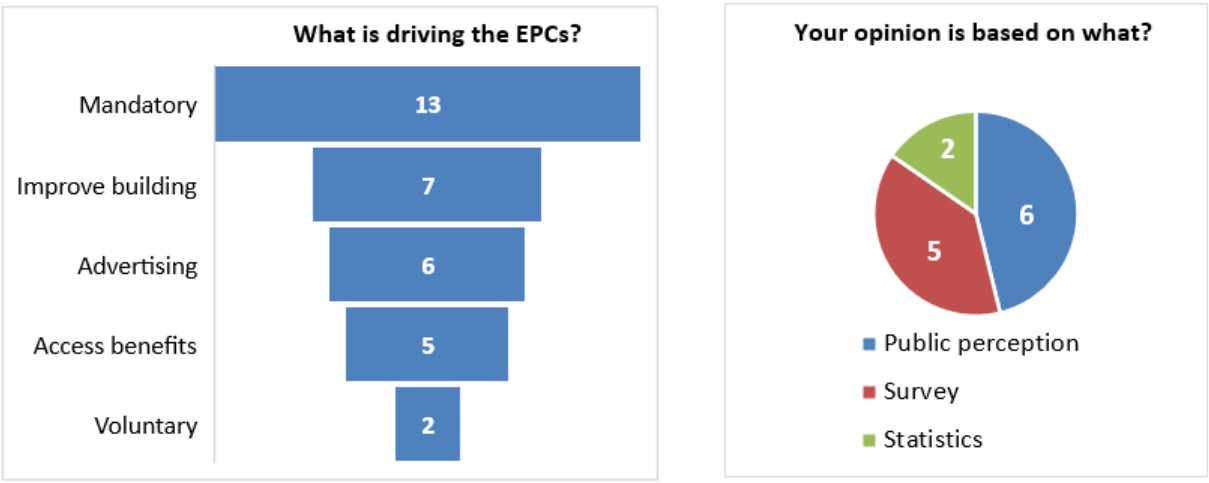


Figure 14: Results of the questionnaire on Member States EPC drivers.

Strategies for the revision process for the EPC layout improvement were discussed. The goals vary but some key ideas for improving the EPC include:

- Improving the layout of the EPC;
- Making the EPC more useful and relevant to the building owner;
- Linking the recommended measures to tangible benefits for the building owner; and
- Improving the public awareness and perception of the EPC.

Most Member States currently have a campaign for energy efficiency, many of which include EPCs. They use a range of strategies such as advertising in various forms of media and engagement with end-users. Some included non-traditional channels, e.g., YouTube adverts and TV soap operas, as a strategy to reach a wide audience.

The major barriers and challenges that can hamper the EPC promotion/advertising were:

- Low interest from consumers and third parties who:
    - do not see it as priority factor in purchasing/renting a house;
    - do not understand the EPC and the benefits in terms of energy savings;
- GDPR, EPC quality and perception (lack of trust, mandatory, etc.);
- No penalties available/difficult to control in digital/media formats;
- Absence of precise rules for publication;
- Database interoperability not available;
- Fast selling/renting process (issuing an EPC takes time);
- Lack of financing to promote the EPC.

Best practice identified to boost the EPC promotion/advertising included:

- Monitoring of compliance (e.g, inspection campaigns);
- Increase EPC visibility:
    - promote interoperability with third parties (EPC info available in their own platforms);
    - connecting EPC with financial incentives;
- Increase EPC awareness:
    - dialogue with professionals;
    - study of the impact of the EPC on the selling time and market value (promote the EPC as key value);
    - communication campaigns explaining the role of EPCs;
    - generate interest in buyers or tenants, so that they request this information as a condition of the purchase or rental.

Highlights of 3.2.2	CT5 evaluated the following topics: 1. EPC layout – what are the main pages of the EPC and what is presented on them? 2. EPC drivers – what is the public perception of the EPC and what drives their use? 3. EPC communication – what are the goals and strategies for EPC promotion?

Main Outcomes of 3.2.2
Key similarities among the various EPCs include the colour-coded scale and label which have been found to be useful in communicating the energy performance of a building. The differences between EPCs could also provide valuable information for any future revisions. One of the most important factors to take into account are the users and their needs. It is crucial that the EPC is targeted in a way that engages building owners. It was found that the information currently presented in an EPC is valuable; but many users are not reading the document to see this. Other suggestions included more use of visuals instead of text, a clearer illustration of the recommended measures, and more emphasis on the benefits to the building owner. Much of this can be learnt from consultation with a design or marketing company that specialises in communication with the public. Some Member States noted that use of communications firms was expensive but beneficial. With better presentation of the EPC, building owners were more engaged with the energy performance of their homes and more likely to carry out renovation works.

Following the session conducted in May 2022, most of the EPC layouts were collected as posters. These posters are available in Annex 1 of this report with a first page, details about the number of EPC versions and content as well as access to the full EPC layout.

4. Lessons Learned and Recommendations

Topic	Main discussions and outcomes	Conclusion of topic	Future directions
Energy Performance Certificates schemes in EU	• High rate of adoption of an EPC database despite being voluntary under the EPBD • Having the data available and being shared is still limited, which could limit the usability of the EPC and the potential uses of its data • Several different quality control schemes are in place and there are diverse training requirements for experts in Member States • An open and transparent system can achieve the best results as all parties understand the methods used • More reliable data makes it more useful • There are concerns about data protection, but with appropriate controls in place, these issues can be overcome. • All Member States recognise the benefits that a database can bring • There are inconsistencies between the number of EPCs reported and declared • Keeping 'old' EPCs is useful in tracking progress across building stocks • There is a need to address GDPR compliance to reduce	• Most Member States that adopted a database have quality control procedures in place that are compliant with Annex II of the EPBD • There are large variations in the percentage of EPCs and inspection reports that are checked • Most Member States require an examination to become certified as an expert • Requirements for training, both before and after the examination, are mixed • EPC databases available are useful for quality control and policy design • The information held in these databases is either not accessible or accessible only by request • Most Member States have already exceeded EPBD requirements in terms of setting up an EPC database • Databases are on different formats and structures (lack of consistency between them) • Solving issues across Member States is not straightforward as Member States may face different problems and have different contexts	• An open and detailed quality control process could lead to better assessments • There is a need to address the data protection issues and open the EPC data to the public whenever it is possible to widen its potential use • Using INSPIRE will allow Member States to store information in a consistent, harmonised and comparable way • Through projects like ENERFUND, this data will become even more valuable and informative

Topic	Main discussions and outcomes	Conclusion of topic	Future directions
	inconsistencies and ask people for consent in using their data • Access to information and statistics are useful for issues such as policy making	(e.g., GDPR and national)	
The role of EPCs – linking to renovation strategies	• Some Member States have found that redesigning their EPC has been very useful • Collaborating with design companies and the general public, the EPC can change from being a difficult to read technical document to one which the user wants to read • There are benefits in making the EPC document more visual and attractive as well as putting a focus on the benefits for the user • One-stop-shop is a concept to bring owners, experts and consultants together • An overall simplification of the EPC process can be an effective way to increase engagement	• The EPC is recognised as a tool which can help to decide and promote renovation strategies • Building owners should be engaged in the EPC process and document • Current EPC designs and layout can in some cases be confusing and overwhelming to users and should be made simpler, more visual and more attractive • Information should be useful to the user by focusing on what they can do and how much they will save	• Engage the right people in the EPC design layout (e.g., design and communication specialists) • Set up schemes that help owners make use of the renovation measure information on the certificate • Involve the end users to make the EPC more likely to be read and understood, making the renovation steps recognisable and implementable • Evaluate links between EPCs and Long-Term Renovation Strategies (LTRS)
The role of EPCs – EPC as a communication tool	• Colour coded scale and label are common among Member States and useful in communicating the energy efficiency of a building • Comparing EPCs can provide valuable information in any future revisions • EPCs can be targeted in a way that engages the users and their needs	• EPCs contain a wealth of information to explain current energy performance and motivate the owner to implement more measures to increase that performance • EPC information can fail to reach the homeowner for several reasons including poor design or the owner just not reading the document	• Collaborate with design experts to improve EPC communication and layout • Involve the building owners in the design process to have them more engaged with the energy efficiency of their homes and more likely to carry out renovation works • Continue with the information

Topic	Main discussions and outcomes	Conclusion of topic	Future directions
	• Information presented in an EPC is valuable but needs to be better presented to encourage more uses to read the document • Consultation of a design or marketing company that specialises in communication with the public is recommended	• The key driver for the EPC was that it was mandatory • It is important for Member States to ensure the information is presented in a way that engages the user • All Member States have processes underway to redesign and advertise the EPC and related processes	campaigns to advertise the EPC and engage the homeowners (including using modern and unconventional methods)

A key step for the CA EPBD is to learn from past meetings and Member States' practice, and to identify topics for future meetings. This will also give an idea of the current situation and the motivation of states, depending on their own national experience.

This report highlights approaches Member States used to set up and run an EPC framework. Though EPC data is well recognised as a key element for building renovation policy design and monitoring, more work is needed to understand the GDPR implications and limitations. The adoption of EPC databases amongst most of the Member States highlights the need for further standardisation in order to make the EPC data consistent and benchmarkable EU-wide. On the other hand, the building owner, the relevant stakeholders and design/communication professionals should be more closely involved in the EPC design and layout in order to guarantee the success of the building energy renovation, from certification to implementation.

Much work has been developed by Member States but there are still further challenges related to certification and training, the next generation of EPCs with a strong focus in EPC digitalisation, new/revised EPC indicators, the building capacity of independent experts, or the changes to EPC schemes in the revised 2018 EPBD and the upcoming version. Additional uses of EPCs can be related to buildings renovation strategies (e.g., Long Term Renovation Strategies, Building Renovation Passports, etc.), financing options, smart buildings (e.g., smart readiness indicator, building automation systems, etc.) or the challenges brought by the data protection issues in what concerns EPCs and building's data public access.

5. References

1. https://op.europa.eu/en/publication-detail/-/publication/4b124f17-fb18-11eb-b520-01aa75ed71a1/language-en

Annex 1 – EPC layout posters by Member States

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

AUSTRIA

Residential - New building

Energieausweis für Wohngebäude

ÖSTERREICHISCHES INSTITUT FÜR BAUTECHNIK

OIB-Richtlinie 6
Ausgabe: April 2019

Logo

BEZEICHNUNG		**Umsetzungsstand**	Planung, Bestand, Ist-Zustand
Gebäude(-teil)		Baujahr	
Nutzungsprofil		Letzte Veränderung	
Straße		Katastralgemeinde	
PLZ/Ort		KG-Nr.	
Grundstücksnr.		Seehöhe	

SPEZIFISCHER REFERENZ-HEIZWÄRMEBEDARF, PRIMÄRENERGIEBEDARF, KOHLENDIOXIDEMISSIONEN und GESAMTENERGIEEFFIZIENZ-FAKTOR jeweils unter STANDORTKLIMA-(SK)-Bedingungen

	$HWB_{Ref, SK}$	PEB_{SK}	$CO_{2eq,SK}$	$f_{GEE, SK}$
A ++				
A +				
A	A (Beispiel)		A (Beispiel)	
B		B (Beispiel)		
C				C (Beispiel)
D				
E				
F				
G				

HWB_{Ref}: Der **Referenz-Heizwärmebedarf** ist jene Wärmemenge, die in den Räumen bereitgestellt werden muss, um diese auf einer normativ geforderten Raumtemperatur, ohne Berücksichtigung allfälliger Erträge aus Wärmerückgewinnung, zu halten.

WWWB: Der **Warmwasserwärmebedarf** ist in Abhängigkeit der Gebäudekategorie als flächenbezogener Defaultwert festgelegt.

HEB: Beim **Heizenergiebedarf** werden zusätzlich zum Heiz- und Warmwasserwärmebedarf die Verluste des gebäudetechnischen Systems berücksichtigt, dazu zählen insbesondere die Verluste der Wärmebereitstellung, der Wärmeverteilung, der Wärmespeicherung und der Wärmeabgabe sowie allfälliger Hilfsenergie.

HHSB: Der **Haushaltsstrombedarf** ist als flächenbezogener Defaultwert festgelegt. Er entspricht in etwa dem durchschnittlichen flächenbezogenen Stromverbrauch eines österreichischen Haushalts.

RK: Das **Referenzklima** ist ein virtuelles Klima. Es dient zur Ermittlung von Energiekennzahlen.

EEB: Der **Endenergiebedarf** umfasst zusätzlich zum Heizenergiebedarf den Haushaltsstrombedarf, abzüglich allfälliger Endenergieerträge und zuzüglich eines dafür notwendigen Hilfsenergiebedarfs. Der Endenergiebedarf entspricht jener Energiemenge, die eingekauft werden muss (Lieferenergiebedarf).

f_{GEE}: Der **Gesamtenergieeffizienz-Faktor** ist der Quotient aus einerseits dem Endenergiebedarf abzüglich allfälliger Endenergieerträge und zuzüglich des dafür notwendigen Hilfsenergiebedarfs und andererseits einem Referenz-Endenergiebedarf (Anforderung 2007).

PEB: Der **Primärenergiebedarf** ist der Endenergiebedarf einschließlich der Verluste in allen Vorketten. Der Primärenergiebedarf weist einen erneuerbaren ($PEB_{ern.}$) und einen nicht erneuerbaren ($PEB_{n.ern.}$) Anteil auf.

CO_2eq: Gesamte dem Endenergiebedarf zuzurechnenden **äquivalenten Kohlendioxidemissionen** (Treibhausgase), einschließlich jener für Vorketten.

SK: Das **Standortklima** ist das reale Klima am Gebäudestandort. Dieses Klimamodell wurde auf Basis der Primärdaten (1970 bis 1999) der Zentralanstalt für Meteorologie und Geodynamik für die Jahre 1978 bis 2007 gegenüber der Vorfassung aktualisiert.

Alle Werte gelten unter der Annahme eines normierten BenutzerInnenverhaltens. Sie geben den Jahresbedarf pro Quadratmeter beheizter Brutto-Grundfläche an.

Dieser Energieausweis entspricht den Vorgaben der OIB-Richtlinie 6 „Energieeinsparung und Wärmeschutz" des Österreichischen Instituts für Bautechnik in Umsetzung der Richtlinie 2010/31/EU vom 19. Mai 2010 über die Gesamtenergieeffizienz von Gebäuden bzw. 2018/844/EU vom 30. Mai 2018 und des Energieausweis-Vorlage-Gesetzes (EAVG). Der Ermittlungszeitraum für die Konversionsfaktoren für Primärenergie und Kohlendioxidemissionen ist für Strom: 2013-09 – 2018-08, und es wurden übliche Allokationsregeln unterstellt.

1

Types/variants of EPCs available:

6

1. New building residential building
2. Non-residential building new building
3. Other energy-consuming buildings
4. Residential building renovation
5. Non-residential building renovation
6. Other energy-consuming buildings

Content of EPC (first page):

- Name of the energy certificate
- Address data
- Position Altitude
- Labeling for heating, primary energy, carbon dioxide emissions and total energy efficiency factor
- Normative background and description of the values of the labeling

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

BELGIUM

(Brussels region)

Display EPC for public occupied buildings

RÉGION DE BRUXELLES-CAPITALE

CERTIFICAT DE PERFORMANCE ÉNERGÉTIQUE

Bâtiment public

Valide jusqu'au : 23/12/2021
Numéro : P2020.12-0076
Établi par : 0471022

BÂTIMENT

Siège de Tours et Taxis, Avenue du Port 86C, 1000 Bruxelles

Organisation(s) publique(s): Bruxelles Environnement

ANNÉE CERTIFIÉE: 2019
SURFACE: 17.632 m²

PERFORMANCE ÉNERGÉTIQUE

FAIBLE CONSOMMATEUR

A < 77
B 77 - 190
C 191 - 304
D 305 - 418
E 419 - 532
F 533 - 646
G > 646

Performance énergétique moyenne
Services administratifs

B-

GRAND POTENTIEL D'AMÉLIORATION

Consommation d'énergie primaire annuelle par m²: **156 [kWhEP/(m².an)]**

ÉMISSIONS DE CO_2

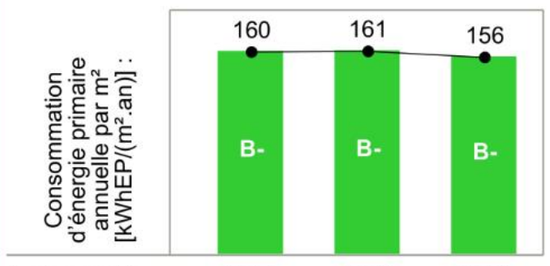
25 kg éq CO_2/(m².an), soit 440.800 kg éq CO_2/an pour le bâtiment public.
Par rapport aux autres bâtiments publics de même catégorie, c'est :

PEU — BEAUCOUP

COÛTS

10 €/m², soit 183.800 € pour le bâtiment public (estimé selon les prix du marché)

ÉVOLUTION DE LA CONSOMMATION



Année certifiée:	2017	2018	2019
Consommation [MWh/an] dont:	**1.268**	**1.281**	**1.243**
Electricité	80 %	78 %	81 %
Combustible	20 %	22 %	19 %

Ce bâtiment public a atteint en 2019 une performance énergétique équivalant à la classe B-

TRÈS BIEN !

RECOMMANDATIONS

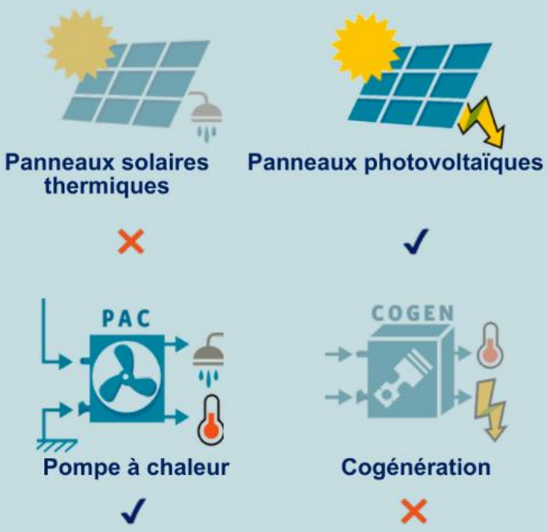
Pour réduire les besoins en énergie de ce bâtiment public, le certificateur conseille de:

1. Finaliser la validation des données de consommation et des dispositifs de sous-comptages de la GTC
2. Analyser les résultats de l'optimalisation de la régulation pour donner priorité à la pompe à chaleur et assurer un équilibre entre les apports en chaud et en froid
3. Evaluer le programme de sensibilisation mis en place depuis 2014

ÉNERGIES RENOUVELABLES

CE BÂTIMENT A PRODUIT DE L'ÉNERGIE RENOUVELABLE EN 2019

Au moyen de :



D'où viennent ces chiffres ?

Tous les indicateurs sont calculés à partir des mesures des consommations d'énergie des organisations publiques reprises sur ce certificat, lesquelles sont normalisées en fonction du climat. La consommation d'énergie primaire annuelle par m² est ensuite calculée en convertissant d'abord la consommation normalisée en énergie primaire, puis en divisant le résultat obtenu par la surface certifiée.

Plus d'informations sur le certificat PEB bâtiment public ? https://environnement.brussels/

Types/variants of EPCs available and content:

5

1. **Residential**: 1st page EPC label, complementary indicators, other pages with recommendations, individual building components information
2. **Non-Residential**: Same as residential (see above)
3. **Display EPC for public occupied buildings**: 1 page with EPC label, building ID, recommendations, energy expenses (€) and evolution of the consumption on the last 3 years
4. **New residential building**: 1st page EPC label, other pages with compliance with the energy requirements, complementary indicators, individual building components information
5. **New non-residential building** : Same as new residential building (see above)

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

BELGIUM

(Flanders region)

Existing buildings residential

Energieprestatiecertificaat

Bestaand gebouw met woonfunctie

(foto van de woning)

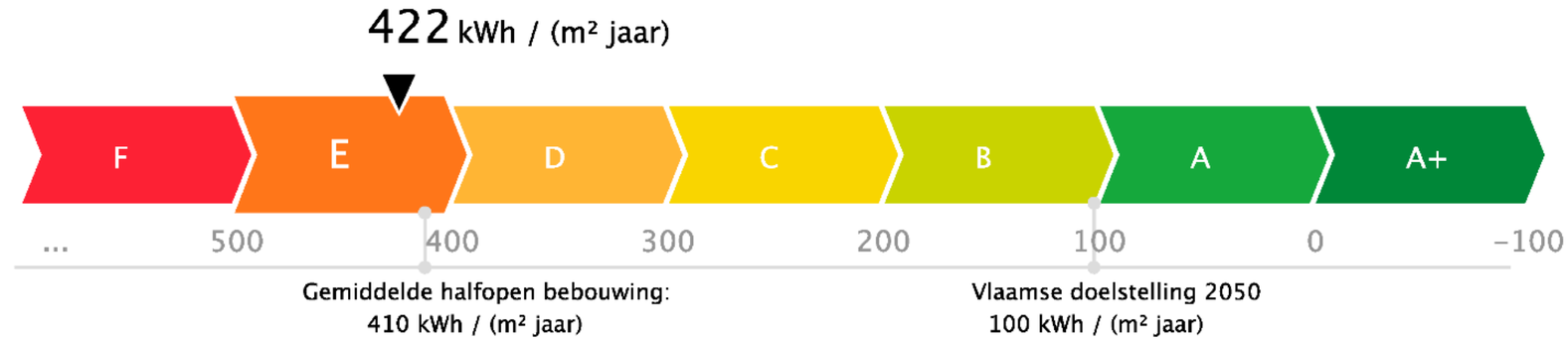
Adres van de woning

woning, halfopen bebouwing

certificaatnummer:

20190107-0002115146-RES-1

Energielabel



De energiescore en het energielabel van deze woning zijn bepaald via een theoretische berekening op basis van de bestaande toestand van het gebouw. Er wordt geen rekening gehouden met het gedrag en het werkelijke energieverbruik van de (vorige) bewoners. Hoe lager de energiescore, hoe beter.

Verklaring van de energiedeskundige

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

Datum: **07-01-2019**

Handtekening:

Naam Deskundige

EP0XXXX

Dit certificaat is geldig tot en met **7 januari 2029**

Types/variants of EPCs available and content:

6

1. **Existing buildings residential:** 1st page EPC label, comparison with the long-term goal, recommendations as ‘renovation road map’ with indication of performance and costs, general and detailed information per building component
2. **Existing buildings small non-residential**: same as 1
3. **Common parts apartment buildings**: 1st page with performance per building component / installation, general information, recommendations, detailed information
4. **Public buildings**: 1 page with indicator (kWh/m²) and building data
5. **Existing large non-residentials** (as of 2023): in development
6. **EPC ‘new built’**: 1st page with EPC label (based on E-level), complementary indicators (requirements)

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

BELGIUM

(Wallon region)

Residential building

CERTIFICAT PEB

Certificat de performance énergétique (PEB)
Bâtiment résidentiel
Demande de permis à partir du 1er mai 2010

Référence PEB : RWPEB-000968
Numéro : 20191209500188
Établi le : 09/12/2019
Validité maximale : 09/12/2029

Wallonie

Logement certifié

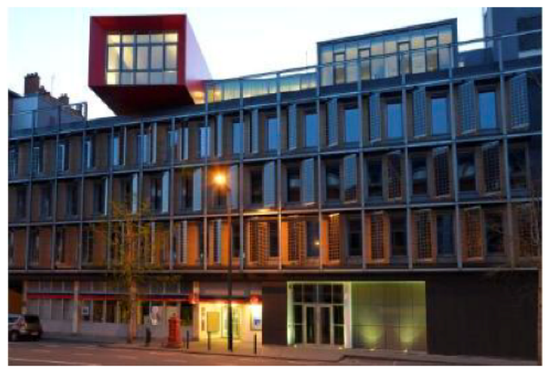
Nom Unité 1

Rue : Rue des Champs n° : 8 BP: -

CP : 5000 Localité : Namur

Certifié comme : **Maison unifamiliale**

Date de construction :2015

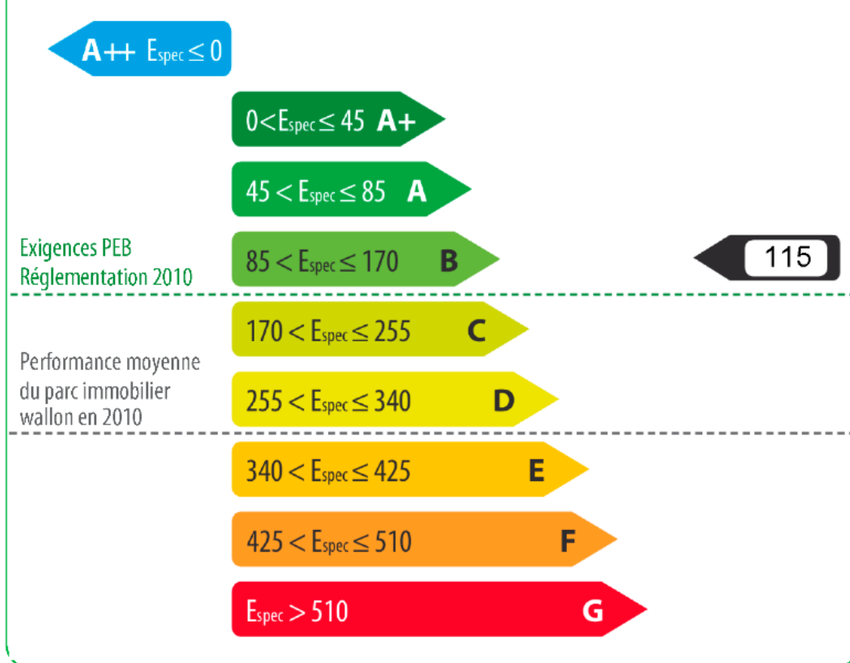


Performance énergétique

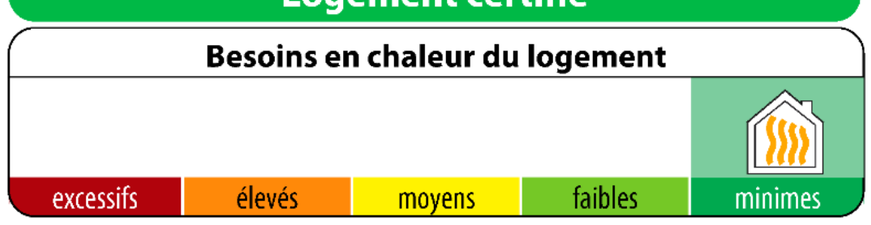
La consommation théorique totale d'énergie primaire de ce logement est de : **23.596 kWh/an**

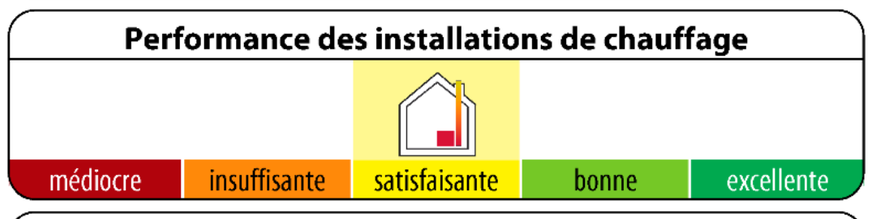
Surface de plancher chauffée : **207 m²**

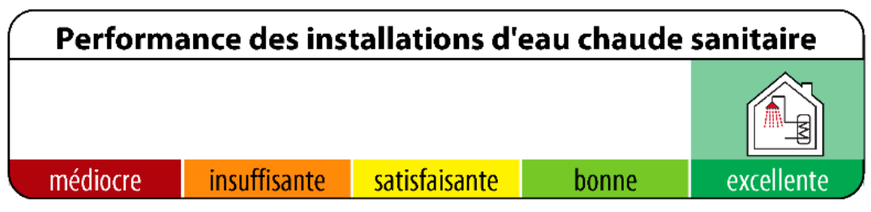
Consommation spécifique d'énergie primaire : **115 kWh/m².an**

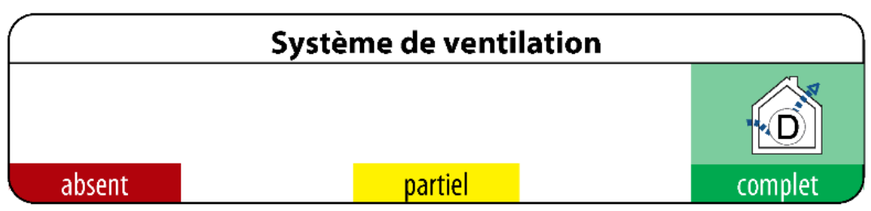


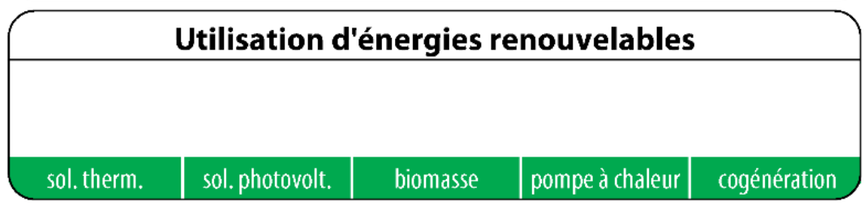
Logement certifié











Responsable PEB n° PEB-00000

Nom / Prénom : Dupond Elora
Adresse : Rue de la Tranquilité
n° : 9 Boîte :
CP : 7130 Localité : Binche
Pays : Belgique

Je déclare que toutes les données reprises dans ce certificat sont conformes à la Réglementation PEB en vigueur en Wallonie à la date du dépôt de la demande de permis (Période : Du 01/07/2019 au 31/12/2020). Version du logiciel de calcul v.10.5.1
Date : 09/12/2019
Signature :

Le certificat PEB est un document qui doit être réalisé à l'issue de la procédure PEB relative à la construction d'un bâtiment ou d'une unité PEB résidentielle. Il donne des informations sur la performance énergétique du bien et sur le respect des exigences imposées aux bâtiments neufs ou assimilés. Ce certificat PEB est établi par le responsable PEB du projet, sur base de la déclaration PEB finale conformément à l'article 33 du décret PEB du 28/11/13. Certains de ses indicateurs devront être mentionnés dans les publicités réalisées en vue de la vente ou la location ; la classe énergétique, la consommation théorique totale et la consommation spécifique d'énergie primaire. Ce certificat PEB devra également être communiqué à l'acquéreur ou au locataire avant la signature de la convention, qui mentionnera cette communication.
Pour de plus amples informations, consultez le Guichet de l'énergie de votre région ou le site portail de l'énergie *energie.wallonie.be*

Types/variants of EPCs available:

2

1. **Residential building** - New
2. **Residential building** - Existing

Content of EPC:

First page : identification of the accommodation (address, photo), label, specific primary energy consumption, secondary indicators (heating needs, heating performance, hot water performance, ventilation, renewable energies), identification of the certifier

Rest of document : summary of requirements (new only), detail of primary energy consumption, detail of each secondary indicator, information on envelope and systems, recommendations

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

BULGARY

Existing building

СЕРТИФИКАТ

за енергийни характеристики на сграда в експлоатация

Номер 309ДРН081

Валиден до: 28.03.2022г.

СГРАДА С БЛИЗКО ДО НУЛАТА ПОТРЕБЛЕНИЕ НА ЕНЕРГИЯ — ДА ☐ НЕ ☒

СГРАДА ВЪВЕДЕНА В ЕКСПЛОАТАЦИЯ ЗА ПЪРВИ ПЪТ ПРЕЗ: 1967г.

Част от сграда	**Адрес:** 1000 гр. София, ул. „Екзарх Йосиф" №37/ ул."Сердика" №11
Идентификатор	68134.401.266.1 (по смисъла на ЗКИР)

Разгъната застроена площ	1541,21	m^2
Отопляема площ	1541,21	m^2
Площ на охлаждания обем	X	m^2

EP_{min}, kWh/m²	EP_{max}, kWh/m²	Скала на енергопотребление по първична енергия kWh/m²	Преди ECM kWh/m²	След ECM kWh/m²
<	70	A+		
70	140	A		
141	280	B		227
281	340	C		
341	400	D	359	
401	500	E		
501	600	F		
>	600	G		

Енергийни характеристики на сградата

Специфичен разход на потребна енергия	164,28 kWh/m²
Специфичен разход на потребна енергия за отопление, вентилация и БГВ	104,03 kWh/m²
Общ годишен разход на първична енергия	553,484 MWh
Генерирани емисии CO_2	143,23 тона/год.

РАЗПРЕДЕЛЕНИЕ НА ГОДИШНИЯ РАЗХОД НА ПОТРЕБНА ЕНЕРГИЯ

Общ годишен разход на потребна енергия 253,19 MWh

Отопление	Вентилация	Охлаждане	Гореща вода	Осветление	Други	Дял на енергията от ВИ
62,40 %	X %	X %	0,93 %	5,25 %	31,43 %	0,46 %

Срок на освобождаване от данък сгради по ЗМДТ

от хх.хх.хххх г. до хх.хх.хххх г.

Издаден на 28.03.2018г.

Издаден от

„ДЖИ ЕР ЕН ПАУЪР БЪЛГАРИЯ" ООД (наименование на юридическото лице)

инж. Вяра Златева (име, фамилия на управителя)

Регистрационен номер

№ 00309 / 21.09.2016г.

Подпис, печат

Types/variants of EPCs available and content:

2

1. **New buildings**
2. **Existing buildings**

1st page: General information; EPC label; distribution of annual energy consumption by type of systems; Term of exemption from building tax.
2nd page: Energy performance of the building by type of building elements (before and after measures implementation).
3rd page: Current situation at the time of the audit - distribution of annual energy consumption by type of energy source and type of systems; recommendations; useful links.
4th page: Before and after ESM implementation diagrams for energy consumption baseline and annual distribution of specific energy consumption by type.
5th page: Detailed information about the ESMs and ESM packages; total final and primary energy consumption after the implementation of the selected ESM package.

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

CROATIA

ENERGETSKI CERTIFIKAT ZGRADE

prema *Pravilniku o energetskom pregledu zgrade i energetskom certificiranju (NN 88/17, 90/20, 01/21, 45/21)*

Klinički bolnički centar Zagreb
Naziv zgrade

Glavna zgrada i OP blok
Naziv samostalne uporabne cjeline zgrade

Nepoznata ulica 56	10000	ZAGREB
Ulica i kućni broj	*Poštanski broj*	*Mjesto*

PODACI O ZGRADI	☐ nova	☒ postojeća	☐ rekonstrukcija
Vrsta zgrade (prema Pravilniku)	Bolnice		
Vrsta zgrade prema složenosti tehničkih sustava	zgrada sa složenim tehničkim sustavom		
Vlasnik / investitor	Klinički bolnički centar Zagreb		
k.č.br.	5821, 5822	k.o.	Centar
Ploština korisne površine grijanog dijela zgrade A_K	12.719,05	Godina izgradnje / rekonstrukcije	1910
Građevinska (bruto) površina zgrade [m²]	15.286,77	Mjerodavna meteorološka postaja	ZAGREB MAKSIMIR
Faktor oblika f_0 [m⁻¹]	0,28	Referentna klima	Kontinentalna

ENERGETSKI RAZREDI ZGRADE	Specifična godišnja potrebna toplinska energija za grijanje $Q''_{H,nd}$ [kWh/(m²a)]	Specifična godišnja primarna energija E_{prim} [kWh/(m²a)]
A+ A B C D E F G	G 316,17	G 630,36
Upisati „nZEB“ ako zgrada zadovoljava zahtjeve za zgrade gotovo nulte energije propisane važećim TPRUETZZ	—	
Pojedinačno zaštić. kulturno dobro/unutar zaštić. kult.-povijes. cjeline	unutar zaštićene kulturno – povijesne cjeline	
Specifična godišnja emisija CO_2 [kg/(m²a)] [1]	120,55	0 25 50 75 100 125 150 175 >200

ROK VAŽENJA CERTIFIKATA / PODACI O OSOBI KOJA JE IZDALA ENERGETSKI CERTIFIKAT

Oznaka energetskog certifikata	P_23_2010_10XXX_NSZ3	Datum izdavanja	24.03.2021.	Datum važenja	24.03.2031.
Naziv ovlaštene pravne osobe	Tvrtka d.o.o.			Registarski broj	P-23/2010
Ime i prezime imenovane osobe u ovlaštenoj pravnoj osobi ili ime i prezime ovlaštene fizičke osobe / potpis	Ivana Babić, dipl.ing.stroj.				

PODACI O OSOBAMA KOJE SU SUDJELOVALE U IZRADI ENERGETSKOG CERTIFIKATA

Dio	Građevinski	Strojarski	Elektrotehnički
Ime i prezime ovlaštene osobe	Željko Željkić, dipl.ing.arh.	Ivana Babić, dipl.ing.stroj.	Ivan Horvat, dpil.ing.el.
Naziv pravne osobe	Tvrtka d.o.o.	Tvrtka d.o.o.	Tvrtka d.o.o.
Registarski broj	P-23/2010	P-23/2010	P-23/2010
Potpis			

[1] za stvarne klimatske podatke i Algoritmom propisan režim korištenja prostora i rada tehničkih sustava

Types/variants of EPCs available:

1

Content of EPC:

- **1st page** – Building and owner identification, EPC label, assessor identification
- **2nd page** – Building envelope information, technical systems information, energy demand, renewable energy sources
- **3rd page** – Building renovation measures
- **4th page** – EPC content explanation

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

CYPRUS

Εκδίδεται βάσει Κ.Δ.Π 164/2009 & Κ.Δ.Π 39/2014

MODECSOFT ECO-engine v.2 (SBEMcy v3.4.a)

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΝΕΡΓΕΙΑΚΗΣ ΑΠΟΔΟΣΗΣ ΚΤΙΡΙΟΥ

ABXX100280_07OCT2021_EMS NICOSIA
ΛΕΩΦΟΡΟΣ ΑΓΙΟΥ ΙΛΑΡΙΩΝΟΣ Δεν υπάρχει αριθμός

ΦΙΣΧ.: 21/47E1 **ΤΜΗΜΑ:** 06 **ΤΕΜΑΧΙΟ :**524

Ταχ.Κώδικας:	1426
Επαρχία:	Λευκωσία
Δήμος/Κοινότητα:	ΔΗΜΟΣ ΛΕΥΚΩΣΙΑΣ
Κατηγορία έργου:	Μη Κατοικία
Η πιστοποίηση έγινε:	Μετά την κατασκευή
Αριθμός Πιστοποιητικού:	32001002801008014201
Ημερομηνία έκδοσης:	18-11-2021
Ισχύς πιστοποιητικού μέχρι:	18-11-2031

Το παρόν πιστοποιητικό αποτελεί μια ένδειξη της Ενεργειακής Απόδοσης για το συγκεκριμένο κτίριο. Περιλαμβάνει την κατανάλωση ενέργειας για σκοπούς θέρμανσης και ψύξης του κτιρίου, για παραγωγή ζεστού νερού χρήσης, για εξαερισμό, για φωτισμό του κτιρίου, υπολογισμένα βάσει της συνήθους χρήσης του κτιρίου. Η Ενεργειακή Απόδοση του κτιρίου εκφράζεται ως η πρωτογενής ενέργεια που καταναλώνεται ανα τετραγωνικό μέτρο ωφέλιμης επιφάνειας πατώματος ανά έτος (kWh/m2/yr).

ΥΠΗΡΕΣΙΑ ΕΝΕΡΓΕΙΑΣ
ΥΠΟΥΡΓΕΙΟ ΕΝΕΡΓΕΙΑΣ ΕΜΠΟΡΙΟΥ ΚΑΙ ΒΙΟΜΗΧΑΝΙΑΣ

Στοιχεία Ειδικευμένου Εμπειρογνώμονα

Όνομα:	Αλέξανδρος Πάρπας
Αρ. Εγγραφής στο Μητρώο:	ABXX 100280

Ενεργειακή Απόδοση Κτιρίου kWh/m²/yr

Ψηλή Ενεργειακή Απόδοση - Χαμηλό Λειτουργικό Κόστος

A <= 0.5
B+ 0,51 - 0,75
B 0,76 - 1,0
Γ 1,01 - 1,50
Δ 1,51 - 2,00
E 2,01 - 2,50
Z 2,51 - 3,00
H > 3,00

B+
167 kWh/m²/yr
0.64

Χαμηλή Ενεργειακή Απόδοση - Ψηλό Λειτουργικό Κόστος

Εκπομπές Διοξειδίου του Άνθρακα CO2 $kgCO_2/m^2/yr$

Πολύ φιλικό προς το περιβάλλον

0

CO_2
48.81
$kgCO_2/m^2/yr$

>120

Καθόλου φιλικό προς το περιβάλλον

0 kWh/m²/yr — Συνολικές Ενεργειακές Ανάγκες kWh/m²/yr

Ανανεώσιμες Πηγές Ενέργειας — Συμβατικές Πηγές Ενέργειας

Σημείωση: Η συνολική ετήσια κατανάλωση πρωτογενούς ενέργειας στο κτίριο είναι: 184 kWh/m2/yr
Η κατανάλωση ενέργειας από συμβατικές πηγές ενέργειας είναι: 167 kWh/m2/yr
και από ΑΠΕ είναι: 17 kWh/m2/yr

Αρμόδια Αρχή για την τήρηση και διατήρηση του Μητρώου Πιστοποιητικών Ενεργειακής Απόδοσης Κτιρίων είναι η Υπηρεσία Ενέργειας του Υπουργείου Ενέργειας, Εμπορίου και Βιομηχανίας.

Types/variants of EPCs available:

1

Content of EPC:

1ST page: EPC label, building information (address),Co2 emission, total annual consumption

Remining pages (in a different file):

i. experts' information; ii. building data for example type of the building, floor area, iii. building components information, iv. Recommendations; v. information on other related topics for example financial incentives

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

CZECH REPUBLIC

PRŮKAZ ENERGETICKÉ NÁROČNOSTI BUDOVY

vydaný podle zákona č. 406/2000 Sb., o hospodaření energií, a vyhlášky č. 78/2013 Sb., o energetické náročnosti budov

Ulice, číslo:

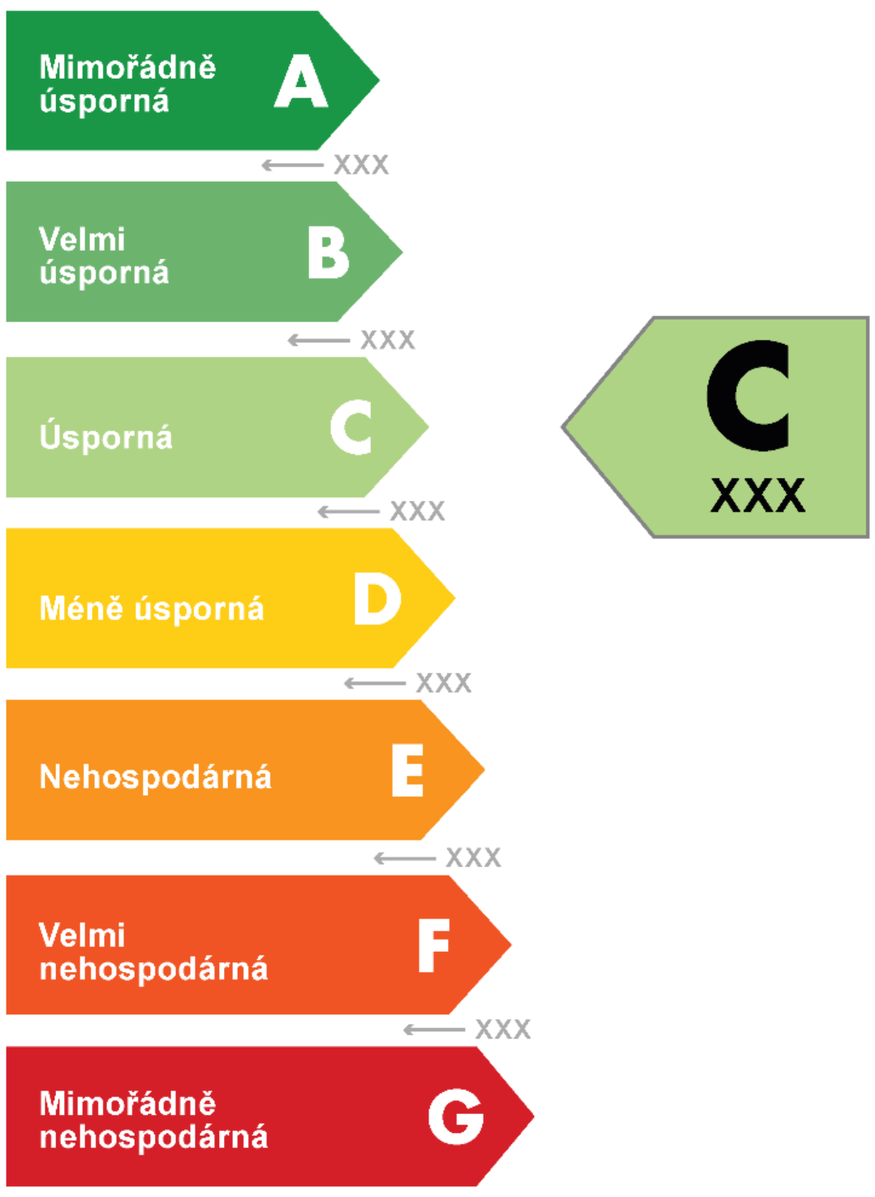
PSČ, místo:

Typ budovy:

Celková energeticky vztažná plocha: **m²**

FOTO

KLASIFIKAČNÍ TŘÍDA
Primární energie z neobnovitelných zdrojů
kWh/(m²·rok)



Požadavky pro výstavbu nové budovy po roce 2022

jsou SPLNĚNY

ROZDĚLENÍ DODANÉ ENERGIE
MWh/rok

UKAZATELE ENERGETICKÉ NÁROČNOSTI

	Průměrný součinitel prostupu tepla budovy	**XXX** W/(m²·K) C
	Měrná potřeba tepla na vytápění	**XXX** kWh/(m²·rok)
	Celková dodaná energie	**XXX** kWh/(m²·rok) B
	Vytápění	**XXX** kWh/(m²·rok) A
	Chlazení	**XXX** kWh/(m²·rok) C
	Nucené větrání	**XXX** kWh/(m²·rok) D
	Úprava vlhkosti	**XXX** kWh/(m²·rok) C
	Příprava teplé vody	**XXX** kWh/(m²·rok) C
	Osvětlení	**XXX** kWh/(m²·rok) F

Energetický specialista:

Kontakt:

Osvědčení č.:

Vyhotoveno dne:

Podpis:

Types/variants of EPCs available:

1

Content of EPC:

Visual part – EPC label; identification sheet; total delivered energy sheet; primary energy sheet; annual course of total delivered energy; heat flux balance sheet; building envelope sheet; TBS sheet; sheet with recommendations; sheet with all necessary requirements (met or not); other data (used calculation software, climatic data, building documentation, links etc.); sheet with info about EPC issuer

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

DENMARK

Existing building

Energistyrelsen

ENERGIMÆRKNINGSRAPPORT

ENERGIMÆRKE OG FORSLAG TIL ENERGIFORBEDRINGER

Fredericiavej 40
7100 Vejle

DIN BYGNING HAR ENERGIMÆRKE **E**

Du betaler hvert år 29.900 kr. mere, end du behøver i energiudgifter*

Skitsen illustrerer en generisk bygning, baseret på bygningens karaktertræk. Ikonforklaring kan ses under afsnittet IKONFORKLARING.

ENERGIKONSULENTENS BEDSTE ANBEFALINGER

1 Montage af nye solceller

Årlig besparelse:	4.500 kr.
Investering:	52.500 kr.

2 Isolering af skunkrum med 300 mm isolering ,

Årlig besparelse:	2.800 kr.
Investering:	19.300 kr.

3 Isolering af hule ydervægge af tegl med granulat, udvendig med 100 mm isolering

Årlig besparelse:	13.100 kr.
Investering:	218.000 kr.

BYGNINGENS ENERGIFORBRUG*

	I DAG	EFTER RENTABLE TILTAG	DU SPARER ÅRLIGT
Fjernvarme	40.500 kr.	17.100 kr.	23.400 kr.
El til andet	32.700 kr.	25.500 kr.	7.200 kr.
El fra solceller	0 kr.	700 kr.	-700 kr.
Samlet energiudgift	73.200 kr.	43.300 kr.	29.900 kr.
Samlet CO_2-udledning	5,94 ton	2,62 ton	3,32 ton

FORBEDRING AF ENERGIMÆRKET VED GENNEMFØRSEL AF ALLE RENTABLE FORSLAG:

* Tallene er baseret på en standardiseret brug af bygningen. Se siden: FORMÅLET MED ENERGIMÆRKNINGEN.

Adresse	Energimærkningsnummer	Gyldighedsperiode	Udarbejdet af
Fredericiavej 40 7100 Vejle	311590593	4. april 2022 - 4. april 2032	OBH Ingeniørservice A/S CVR-nr.: 66819116

Types/variants of EPCs available:

3

1. **Existing buildings**
2. **New buildings**
3. **New buildings single-family houses**

Content of EPC:

First page:
Building ID / EPC letter / 3 best energy improvements / Potential letter improvement by implementing all profitable improvements / "energy accounting" / validity period and company that issued the certificate

Extended version of layout

ESTONIA

Majandus- ja taristuministri 30.04.2015 määrus nr 36
„Nõuded energiamärgise andmisele ja energiamärgisele"
Lisa 1

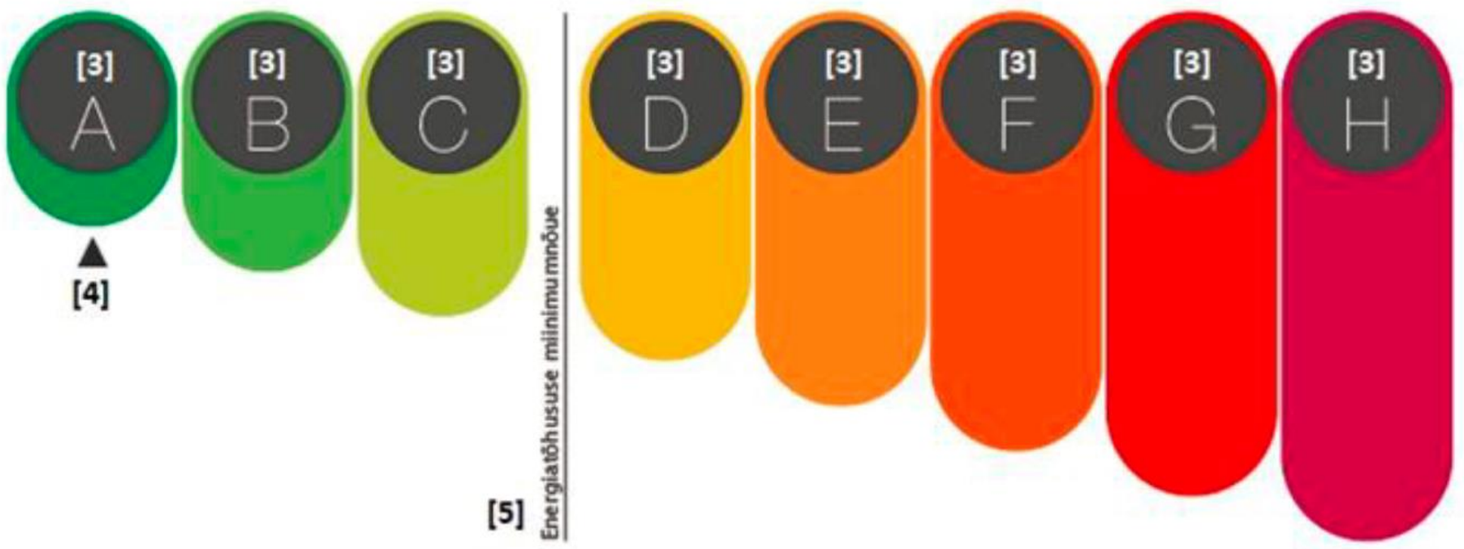
Hoone külastajate jaoks nähtavale kohale paigaldatava energiamärgise vorm

HOONE ENERGIAMÄRGIS

[1]

[2]

[3] kWh/m² · a



Energiamärgise nr: [6]
Aadress: [7]
Ehitisregistri kood (www.ehr.ee): [8]
Märgis kehtib kuni: [9]

Types/variants of EPCs available:

2

1. **EPC based on calculations**
2. **EPC based on measured energy consumption**

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

FINLAND

ENERGIATODISTUS 2018

Rakennuksen nimi ja osoite: Villa ARA
Mallikatu 1
15140, LAHTI

Pysyvä rakennustunnus: 101089527F
Rakennuksen valmistumisvuosi: 2005
Rakennuksen käyttötarkoitusluokka: Yhden asunnon talot

Todistustunnus: 1688

Energiatodistus on laadittu
☐ Uudelle rakennukselle rakennuslupaa haettaessa
☐ Uudelle rakennukselle käyttöönottovaiheessa
☒ Olemassa olevalle rakennukselle, havainnointikäynnin päivämäärä: 14.2.2018

	Energiatehokkuusluokka
A	
B	
C	C 2018
D	
E	
F	
G	

	$kWh_E/(m^2vuosi)$
Rakennuksen laskennallinen energiatehokkuuden vertailuluku eli E-luku	168
Uuden rakennuksen E-luvun vaatimustaso	≤ 140

Todistuksen laatija:
HST-PRÅVSTRÖM, TESTKORT3844

Yritys:
Yritys Oy
Yrittäjänkatu 1
15140, LAHTI

Sähköinen allekirjoitus:
HST-PRÅVSTRÖM, TESTKORT3844
15.2.2018 13:38:47

Todistuksen laatimispäivä:	Viimeinen voimassaolopäivä:
15.2.2018	15.2.2028

Types/variants of EPCs available and content:

1

- 1st page: building address and other details, building type category, EPC phase, energy class, E value and its requirement, Expert e-signature, date of production and validity.
- 2nd page: summary of EP of the building: calculated consumption of delivered energy and EP reference value (E value), EP class of the building, essential suggestions measures
- 3rd page: initial values of the calculation of the E value; 4th page: calculation of the E value
- 5th page: Actual energy consumption. 6th and 7th pages: Suggestions for measures to improve the E value, including recommendations for the use and maintenance of the building
- 8th page: Additional markings.

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

FRANCE

Residential buildings

Exemple de DPE, données fictives non représentatives

DPE **diagnostic de performance énergétique** (logement)

n° : 2D20210532
établi le : 12/07/2021
valable jusqu'au : 11/07/2031

Ce document vous permet de savoir si votre logement est économe en énergie et préserve le climat. Il vous donne également des pistes pour améliorer ses performances et réduire vos factures. *Pour en savoir plus : <url_gouv_guide_pédagogique>*

<photo du bien>

adresse : **42 avenue de la République, 59170 Roubaix / étage 3, porte 1**
type de bien : appartement
année de construction : 1910
surface habitable : **63m²**

propriétaire : Jean Dupont
adresse : 25 place de la Mairie, 59170 Roubaix

Performance énergétique et climatique

logement extrêmement performant

A
B
C
D

consommation (énergie primaire) | émissions

271 kWh/m²/an | **52*** kg CO₂/m²/an

E

passoire énergétique

F
G

logement extrêmement peu performant

Le niveau de consommation énergétique dépend de l'isolation du logement et de la performance des équipements.
Pour l'améliorer, voir pages 5 à 6.

*** Dont émissions de gaz à effet de serre**

peu d'émissions de CO₂

A
B
C
D
E — **52** kg CO₂/m²/an
F
G

émissions de CO₂ très importantes

Ce logement émet 3 276 kg de CO₂ par an, soit l'équivalent de 16 974 km parcourus en voiture.
Le niveau d'émissions dépend principalement des types d'énergies utilisées (bois, électricité, gaz, fioul, etc.).

Estimation des coûts annuels d'énergie du logement

Les coûts sont estimés en fonction des caractéristiques de votre logement et pour une utilisation standard sur 5 usages (chauffage, eau chaude sanitaire, climatisation, éclairage, auxiliaires). En cas de système collectif, les montants facturés peuvent différer en fonction des règles de répartition des charges. Voir p.3 les détails par poste.

entre **1430€** et **1980€** par an

Prix moyens des énergies indexés au 1er janvier 2021 (abonnements compris)

Comment réduire ma facture d'énergie ?
voir p.3

Informations diagnostiqueur

PM Diagnostics
12 rue de la Liberté,
59170 Roubaix
diagnostiqueur : Pierre Martin

tel : 03 88 22 33 09
email : Pierre@pm-diagnostics.fr
n° de certification : FR410230 49
organisme de certification : CERTIF 311

LOGO

Types/variants of EPCs available:

2

1. **Residential building**
2. **Non-residential building**
   + a different version in some overseas territory

Content of EPC:

First page:
- EPC labels and estimation of the annual cost of energy,

Other pages:
- Information on energy losses, overall isolation performance, summer thermal comfort, renewable energies in place, individual building components information, recommendations for use and work recommendations

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

GERMANY

ENERGIEAUSWEIS für Nichtwohngebäude

gemäß den §§ 79 ff. Gebäudeenergiegesetz (GEG) vom [1]

Gültig bis: **Registriernummer:** **Aushang**

Gebäude

Hauptnutzung / Gebäudekategorie		**Gebäudefoto (freiwillig)**
Adresse		
Gebäudeteil		
Baujahr Gebäude		
Nettogrundfläche		
Wesentliche Energieträger für Heizung		
Wesentliche Energieträger für Warmwasser		
Art der Lüftung	☐ Fensterlüftung ☐ Schachtlüftung	☐ Lüftungsanlage mit Wärmerückgewinnung ☐ Lüftungsanlage ohne Wärmerückgewinnung
Art der Kühlung	☐ Passive Kühlung ☐ Gelieferte Kälte	☐ Kühlung aus Strom ☐ Kühlung aus Wärme
Erneuerbare Energien	Art:	Verwendung:

Primärenergiebedarf

Treibhausgasemissionen kg CO_2-Äquivalent /(m^2·a)

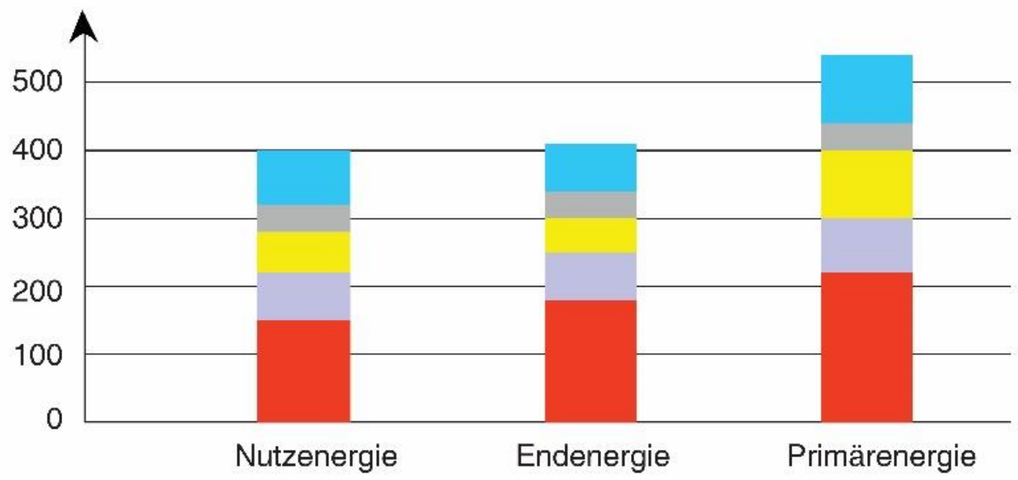
Primärenergiebedarf dieses Gebäudes
kWh/(m^2·a)

0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | ≥1000

Anforderungswert GEG Neubau (Vergleichswert)

Anforderungswert GEG modernisierter Altbau (Vergleichswert)

Aufteilung Energiebedarf



Aussteller (mit Anschrift und Berufsbezeichnung)

Unterschrift des Ausstellers

Ausstellungsdatum

[1] Datum des angewendeten GEG, gegebenenfalls des angewendeten Änderungsgesetzes zum GEG

Types/variants of EPCs available:

3

1. **Residential;**
2. **Non-Residential;**
3. **Display EPC**

Content of EPC:

- 1st page: general information of the building (address, type of building, year of construction, size, energy source for cooling, heating, domestic hot water)
- 2nd page: EPC label for energy demand, use of renewable energy
- 3rd page: EPC label for energy consumption,
- 4th page: recommendation, individual building components information
- 5th page: explanation

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

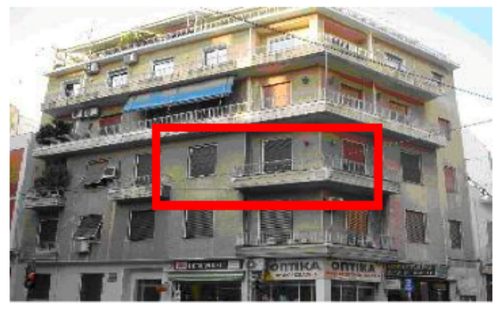
GREECE

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΝΕΡΓΕΙΑΚΗΣ ΑΠΟΔΟΣΗΣ (ΠΕΑ)
ΣΤΑΔΙΟΥ 101 11132, ΑΘΗΝΑ

Αρ. Πρωτοκόλλου:	123456/2021	**Αρ. Ασφαλείας:**	TF1BC-J1GHJ-UUOBS-3
Ημερομηνία Έκδοσης:	10/02/2021	**Ημερομηνία Ισχύος:**	10/02/2031

• Ελέγξτε την εγκυρότητα του ΠΕΑ: https://www.buildingcert.gr/checkCert.view

Τίτλος Κτηριακής Μονάδας: "**Β-3**"	
Χρήση:	Πολυκατοικία
Κλιματική Ζώνη:	Β
Συνολική Επιφάνεια:	75.5
Ωφέλιμη Επιφάνεια:	75.5



Ενεργειακή κατηγορία:	**Υφιστάμενη**	**Δυνητική**
Μηδενικής Ενεργειακής Κατανάλωσης:		
EP ≤ 0,33 R_R (A+)		
0,33 R_R < EP ≤ 0,50 R_R (A)		
0,50 R_R < EP ≤ 0,75 R_R (B+)		
0,75 R_R < EP ≤ 1,00 R_R (B)		Β
1,00 R_R < EP ≤ 1,41 R_R (Γ)	Γ	
1,41 R_R < EP ≤ 1,82 R_R (Δ)		
1,82 R_R < EP ≤ 2,27 R_R (E)		
2,27 R_R < EP ≤ 2,73 R_R (Z)		
2,73 R_R < EP (H)		

• Μετά την εφαρμογή των παρεμβάσεων ενεργειακής αναβάθμισης σύμφωνα με τη βέλτιστη (1η) σύσταση

Υπολογιζόμενη ετήσια κατανάλωση πρωτογενούς ενέργειας*	
Κτηρίου αναφοράς [kWh/m²]:	78.5
Επιθεωρούμενου κτηρίου [kWh/m²]:	102.5

Πραγματική Ετήσια Κατανάλωση Επιθεωρούμενου Κτιρίου:	
Ηλεκτρικής ενέργειας [kWh/m²]:	----
Θερμικής ενέργειας (καύσιμα) [kWh/m²]:	----
Συνολική ετήσια κατανάλωση πρωτογενούς ενέργειας [kWh/m²]:	----

Ετήσιες εκπομπές CO2 επιθεωρούμενου κτηρίου	
Υπολογιζόμενες ετήσιες εκπομπές CO2 [kg /m²]:	28.0
Πραγματικές ετήσιες εκπομπές CO2 [kg /m²]:	----

Θερμική άνεση ☑	Οπτική άνεση ☑	Ακουστική άνεση ☑	Ποιότητα εσωτερικού αέρα ☑

• Η ενεργειακή απόδοση ενός κτηρίου προσδιορίζεται βάσει της υπολογιζόμενης ετήσιας κατανάλωσης ενέργειας για την κάλυψη των αναγκών που συνδέονται με τη χρήση του ώστε να επιτυγχάνονται συνθήκες θερμικής και οπτικής άνεσης.

Types/variants of EPCs available:

1

Content of EPC:

Front page:

- Classification, potential classification; Primary energy consumption (also for the Reference building); CO2 emissions

Back page:

- Primary energy consumption per type of final use (Heating, Cooling, Lighting (only in tertiary buildings), Hot Sanitary Water); Short description of proposed measures; Energy Saving Potential of proposed measures;

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

HUNGARY

LECHNER TUDÁSKÖZPONT

HITELES ENERGETIKAI TANÚSÍTVÁNY

ÖSSZESÍTŐ LAP HET-11111111

Épület (önálló rendeltetési egység)

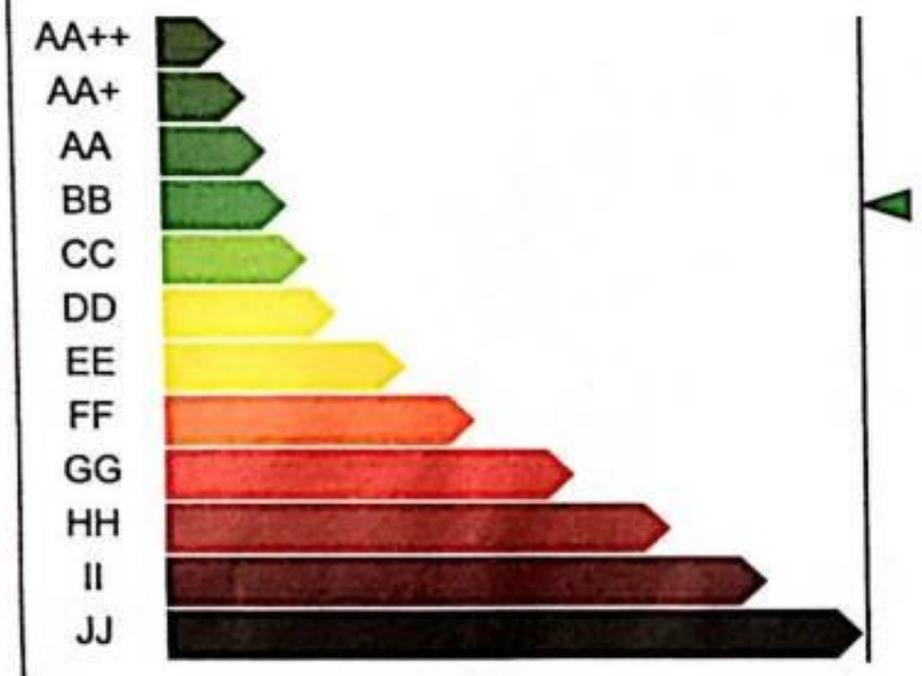
Rendeltetés: Lakó- és szállásjellegű
Cím: MINTA

HRSZ: MINTA
Az épület védettsége: Nem védett

Megrendelő

Név: MINTA
Cím: MINTA

Energetikai minőség szerinti besorolás: BB



Közel nulla energiaigényre vonatkozó követelményeknek megfelelő

Energetikai adatok

Fűtött alapterület: 153,64 m²
Összesített energetikai jellemző:
-méretezett érték: 61,04 kWh/m²a
-követelményérték: 100 kWh/m²a
-a követelményérték százalékában: 61,04%
Fajlagos hőveszteségtényező:
-méretezett érték: 0,18 W/m³K
-a követelményérték százalékában: 70,43%
Megújuló energia részarány (a méretezett összesített energetikai jellemző százalékában): 123.3%

Tanúsító szakember adatai

Név: MINTA
Cím: MINTA

Telefon: MINTA
Email: MINTA

Jogosultsági szám:
Alátámasztó munkarész:
-kelte: MINTA
-készítő szoftver megnevezése:
MINTA
-azonosítója a tanúsítónál:
MINTA

Hiteles kiállítás dátuma: MINTA

Korszerűsítési javaslat

Az épület energiahatékonyságának költséghatékony növelésére nincs ésszerű lehetőség.

A javaslattal elérhető besorolás: -

Megjegyzés

Tanúsítás módszere: Teljes épület, számítással

A tanúsítvány kiállításának oka:
használatbavételhez

Aláírás *(Pecsét helye)*

ORSZÁGOS ÉPÍTÉSÜGYI NYILVÁNTARTÁS, E-TANÚSÍTÁS - ET adatlap verzió 2.4.2 https://entan.e-epites.hu

Types/variants of EPCs available:

1

Content of EPC:

- Cover page with EPC label,
- Recommendations,
- Complementary indicators

Layout of EPC

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

IRELAND

DEAP Version X,Y

Building Energy Rating (BER)

BER for the building detailed below is: **C1**

Name of House,
Street Name One, Street Name Two,
Town name One, Town Name Two,
County name One, County name Two,

BER Number:	XXXXXXXXXX
Date of Issue:	Day Month Year
Valid Until:	Day Month Year
BER Assessor No.:	XXXX
Assessor Company No.:	XXXX

The Building Energy Rating (BER) is an indication of the energy performance of this dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m²/yr).

'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

Building Energy Rating kWh/m²/yr
MOST EFFICIENT

- ≤25 A1
- >25 A2
- >50 A3
- >75 B1
- >100 B2
- >125 B3
- >150 C1
- >175 C2
- >200 C3
- >225 D1
- >260 D2
- >300 E1
- >340 E2
- >380 F
- >450 G

LEAST EFFICIENT

C1
XXX kWh/m²/yr

Carbon Dioxide (CO_2) Emissions Indicator kgCO_2/m²/yr

BEST
0

Calculated annual CO_2 emissions
XXX kgCO_2/m²/yr

WORST
>120

The less CO_2 produced, the less the dwelling contributes to global warming.

IMPORTANT: This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted above. A future BER assigned to this dwelling may be different, as a result of changes to the dwelling or to the assessment software.

Types/variants of EPCs available:

1

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

ITALY

Deliver EPC

Appendice B - Format di Attestato di Prestazione Energetica (APE)

Logo Regione

ATTESTATO DI PRESTAZIONE ENERGETICA DEGLI EDIFICI
CODICE IDENTIFICATIVO: VALIDO FINO AL:

APE 2015

DATI GENERALI

Destinazione d'uso
- ☐ Residenziale
- ☐ Non residenziale

Classificazione D.P.R. 412/93: _____

Oggetto dell'attestato
- ☐ Intero edificio
- ☐ Unità immobiliare
- ☐ Gruppo di unità immobiliari

Numero di unità immobiliari di cui è composto l'edificio: _____

- ☐ Nuova costruzione
- ☐ Passaggio di proprietà
- ☐ Locazione
- ☐ Ristrutturazione importante
- ☐ Riqualificazione energetica
- ☐ Altro: _____

Dati identificativi

FOTO EDIFICIO

Regione :
Comune :
Indirizzo :
Piano :
Interno :
Coordinate GIS :

Zona climatica :
Anno di costruzione :
Superficie utile riscaldata (m^2) :
Superficie utile raffrescata (m^2) :
Volume lordo riscaldato (m^3) :
Volume lordo raffrescato (m^3) :

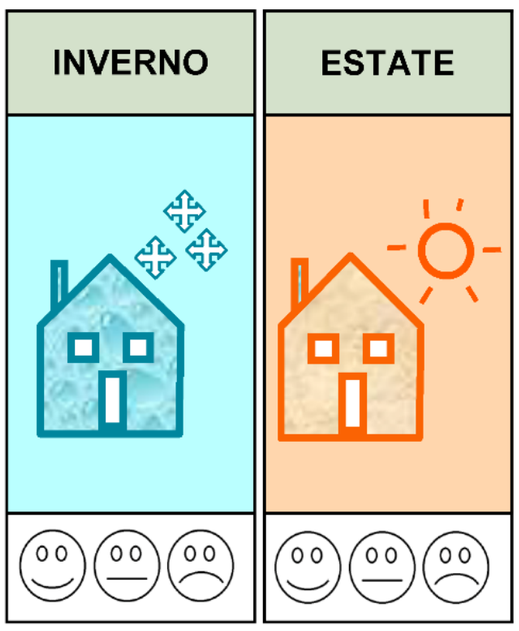
Comune catastale									Sezione		Foglio				Particella			
Subalterni	da		a			da		a			da		a			da		a		
Altri subalterni																				

Servizi energetici presenti
- ☐ Climatizzazione invernale
- ☐ Climatizzazione estiva
- ☐ Ventilazione meccanica
- ☐ Prod. acqua calda sanitaria
- ☐ Illuminazione
- ☐ Trasporto di persone o cose

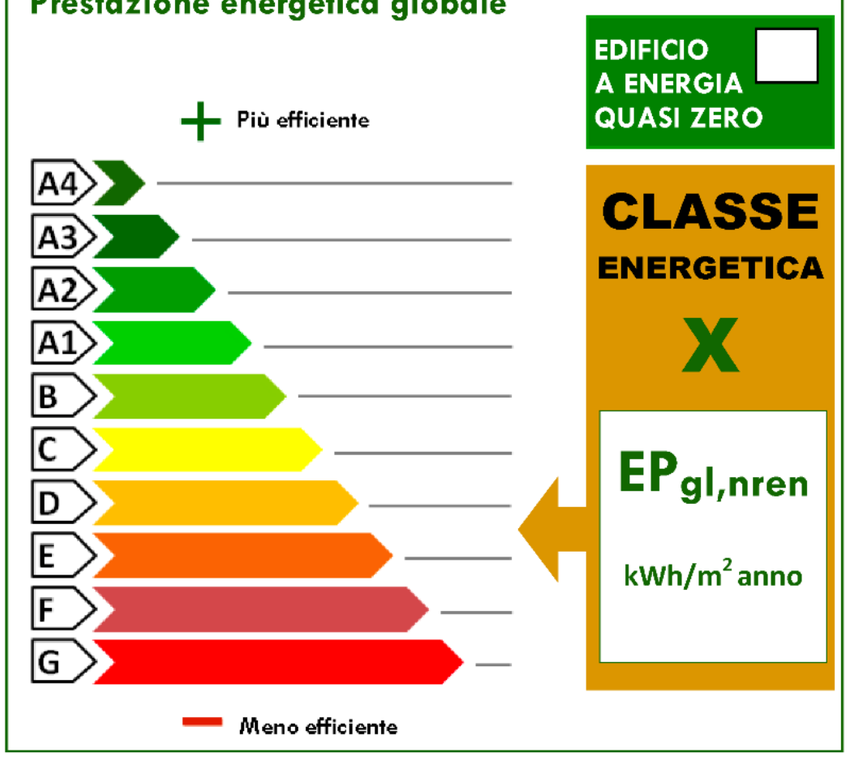
PRESTAZIONE ENERGETICA GLOBALE E DEL FABBRICATO

La sezione riporta l'indice di prestazione energetica globale non rinnovabile in funzione del fabbricato e dei servizi energetici presenti, nonché la prestazione energetica del fabbricato, al netto del rendimento degli impianti presenti.

Prestazione energetica del fabbricato



Prestazione energetica globale



Riferimenti

Gli immobili simili avrebbero in media la seguente classificazione:

Se nuovi:
Y (EPgl,nren)

Se esistenti:
Z (EPgl,nren)

Pag. 1

Types/variants of EPCs available:

2

1. **Deliver EPC**
2. **Display EPC**

Content of EPC:

1st page: General information and EPC label (corresponding to the non-renewable global PE performance, building envelope quality for heating and cooling)
2nd page: EP of TBS, their calculated consumption and related CO_2 emissions, and recommendations
3rd page: Quantity of energy produced in situ and exported annually, its energy carrier, more detailed building data used for the calculation of EP indexes and more detailed technical building systems data
4th page: Informative data about the assessor and the software used

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

LATVIA

Measured and calculated energy EPC

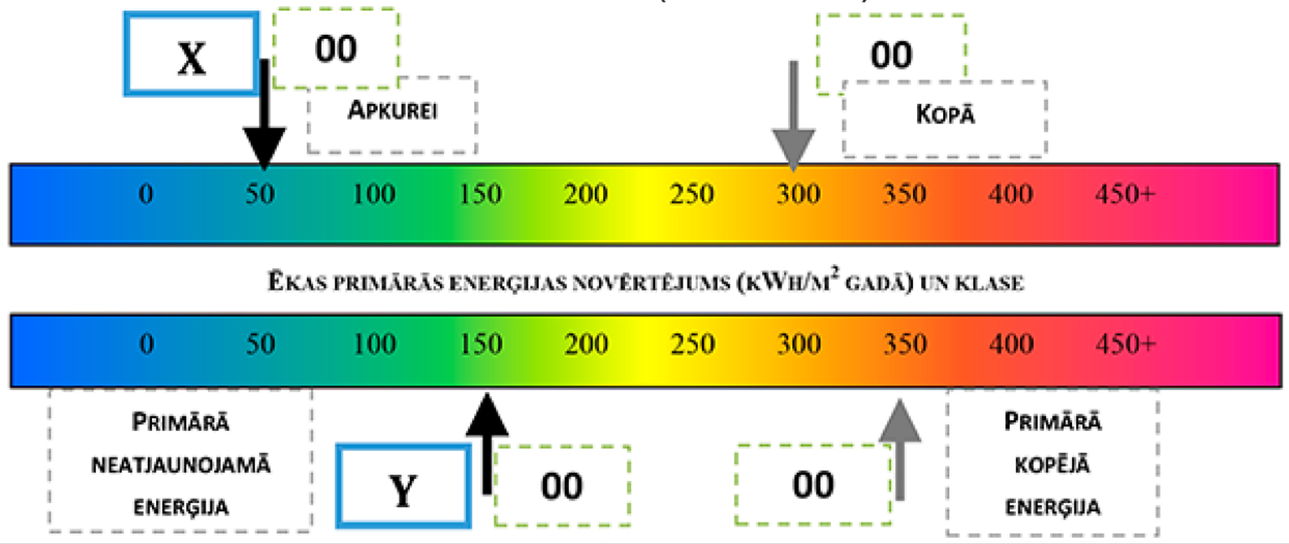
5. pielikums
Ministru kabineta
2021. gada 8. aprīļa
noteikumiem Nr. 222

Ēkas energosertifikāta veidlapas paraugs

ĒKAS ENERGOSERTIFIKĀTS REĢISTRĀCIJAS NUMURS _____ [1] DERĪGS LĪDZ _____ [2]	[Vieta attēlam]

ĒKAS ENERGOSERTIFIKĀTA VEIDS	[3]		
OBJEKTA VEIDS	[4]		
ĒKAS VEIDS	[5]		
ADRESE	[6]		
ĒKAS DAĻA	[7]		
KADASTRA APZĪMĒJUMS	[8]		
ĒKAS RAKSTUROJUMS			
Būves gads [9]	Pārbūves gads [10]		
Stāvu skaits	___ virszemes, ___ pazemes, [ ] mansards, [ ] jumta stāvs		
Kopējā platība	_____ m^2	References platība [11]	_____ m^2
References tilpums [12]	_____ m^3	Vidējais iekštelpu augstums	_____ m
ĒKAS ENERGOSERTIFIKĀTA PIELIETOJUMA VEIDS(-I)	[13]		
ENERGOEFEKTIVITĀTES NOVĒRTĒJUMA VEIDS	[14]		
ĒKAS ENERGOSERTIFICĒŠANAS NOLŪKS	[15]		

ĒKAS ENERGOEFEKTIVITĀTES NOVĒRTĒJUMS (kWh/m^2 GADĀ) UN KLASE [16]



ĒKAS ENERGOEFEKTIVITĀTES RĀDĪTĀJI [17] **kWh/m^2 GADĀ**			**VĒRTĒJUMS PAR ĒKAS ATBILSTĪBU NORMATĪVO AKTU PRASĪBĀM**	
APKUREI		[18]	**ĒKAS ATBILSTĪBA GANDRĪZ NULLES ENERĢIJAS ĒKAS PRASĪBĀM**	**JĀ / NĒ**
KARSTĀ ŪDENS SAGATAVOŠANAI			**PASKAIDROJUMI PAR ATBILSTĪBU NORMATĪVO AKTU PRASĪBĀM**	
MEHĀNISKAJAI VENTILĀCIJAI				
APGAISMOJUMAM [19]				
DZESĒŠANAI			**Oglekļa dioksīda emisijas novērtējums, t CO_2 gadā**	
KOPĀ			**Oglekļa dioksīda emisijas novērtējums, kg CO_2/m^2 gadā**	

ĒKAS ENERGOSERTIFIKĀTA IZDEVĒJS	**EKSPERTS** [20]	PARAKSTS
	EKSPERTA SERTIFIKĀTA NUMURS [21]	
	DATUMS [22]	

Types/variants of EPCs available:

3

1. Temporary energy certificate
2. Energy efficiency certificate for measured and calculated energy
3. Energy efficiency certificated for measured energy

Content of EPC (temporary energy certificate):

- **1st page:** information about the building (real estate identification data), energy efficiency class, energy efficiency indicators for hot water preparation, mechanical ventilation, lighting, cooling, estimation of CO_2, compliance with the regulative requirements in energy efficiency, compliance with the NZEB status, expert data
- **2nd page:** indoor temperature during the heating and cooling season, PEF and CO_2 factors used, energy accounting and distribution in heating and hot water systems, explanations on the energy produced in the building and its volume, attachments, independent expert acknowledgements, signature, data.

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

LUXEMBOURG

Residential building

Energiepass

« Planungsphase »

Ausweis über die Gesamtenergieeffizienz eines Wohngebäudes 1/5

Passnummer	*Nr. Aussteller*	*Erstellt am*	*Gültig bis*
P.20210707.1234.56.1.1	XX1111	07/07/2021	07/07/2031

Energieeffizienzklasse

geringer Energiebedarf

Neubau-Typisch

A+
A
B — ENERGIE-EFFIZIENZ-KLASSE
C
D
E
F
G
H
I

Altbau-Typisch

hoher Energiebedarf

Wärmeschutzklasse

B

Energieeffizienzklasse
Die Einstufung in die **Energieeffizienzklasse** erfolgt nach dem sogenannten ***Primärenergiebedarf***. Dieser berücksichtigt neben dem ***Wärmeschutz*** des Gebäudes auch die verwendete ***Anlagentechnik,*** sowie die ***Umweltverträglichkeit*** der eingesetzten Energieträger in einer Gesamtbetrachtung.

Wärmeschutzklasse
Die Einstufung in die **Wärmeschutzklasse** erfolgt nach dem sogenannten ***Heizwärmebedarf***. Dieser berücksichtigt die Qualität der verwendeten ***Wärmedämmung*** in Wänden, Dach, Boden und Fenstern, die ***Bauweise*** und ***Bauausführung*** (Dichtigkeit) und die ***Orientierung.***

Klassen
Die Klasseneinteilung erfolgt von A+ (beste Klasse) bis I (schlechteste Klasse).

Angaben zum Gebäude

Nutzungsart/Gebäudetyp	Wohnen EFH
Anzahl der Wohneinheiten	1
Nachweisart	Neubau (Bauantrag)
Adresse (Straße)	Adresse Objekt, 56
Adresse (PLZ-Ort/Stadt)	1234, Ort Objekt
Baujahr Gebäude	2021
Baujahr Heizungsanlage	2021
Energiebezugsfläche	200,0 m²

Aussteller

Firma Aussteller
Name Aussteller
Adresse Aussteller
PLZ Aussteller
Tel. Telefon Aussteller

Unterschrift Aussteller *Ort, Datum*

Types/variants of EPCs available:

2

1. Residential EPC
2. Non-residential EPC

Content of EPC:

- **1st page:**
  - Energy performance class (primary energy demand)
  - Thermal insulation class (heating demand)
  - Building details
  - Details about the issuer of the EPC
  - Explanations

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

NETHERLANDS

Residential EPC

Energielabel woningen

Registratienummer	Datum registratie	Geldig tot	Status
171252998	19-07-2021	16-07-2031	Definitief

Deze woning heeft energielabel C

G F E D **C** B A ++++

Isolatie

1	**Gevels**		**+/-**	+	++
2	**Gevelpanelen**	**n.v.t.**			
3	**Daken**		**+/-**	+	++
4	**Vloeren**		**+/-**	+	++
5	**Ramen**		**+/-**	+	++
6	**Buitendeuren**	**-**	+/-	+	++

Installaties

		Hoofdsysteem	Verbetering aanbevolen?	
7	**Verwarming**	HR-107 ketel	nee	**ja**
8	**Warm water**	Combiketel	nee	**ja**
9	**Zonneboiler**	Niet aanwezig	nee	**ja**
10	**Ventilatie**	Natuurlijke toevoer met mechanische afzuiging	nee	**ja**
11	**Koeling**	Niet aanwezig	**nee**	n.t.b.
12	**Zonnepanelen**	Niet aanwezig	nee	**ja**

Deze woning wordt verwarmd via een aardgasaansluiting

Warmtebehoefte in de wintermaanden

Laag | **Gemiddeld** | Hoog

Risico op hoge binnentemperaturen in de zomermaanden

Laag | **Hoog**

Aandeel hernieuwbare energie

0,0 %

Toelichtingen en aanbevelingen vindt u op pagina 2 en verder

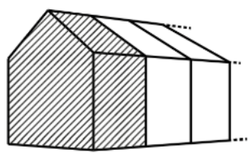
Over deze woning

Adres
Voorbeeldstraat 18
1234 AB Voorbeeldstad
BAG-ID: 1728010000084575

Detailaanduiding

Woningtype Hoekwoning

Bouwjaar	1990
Compactheid	1,99
Vloeroppervlakte	93 m²



Opnamedetails

Naam
Pieter Hendrik van Leeuwwardingen

Examennummer
99999

Certificaathouder
Janssen-De Vries Energielabelcertificaten B.V.

Inschrijfnummer
123.45.678

KvK-nummer
12345678

Certificerende instelling
Energielabelcertificerende instelling b.v.

Soort opname
Basisopname

Types/variants of EPCs available:

2

1. **Residential EPC**
2. **Non-residential EPC**

Content of EPC (1st page):

- Label letter and scale/range
- Qualitative indication of insulation level of the thermal envelope divided into 6 parameters (roof, walls, wall-panels, floors, windows, doors)
- Recommendations to improve the main installations by indicating yes/no for heating system, domestic hot water system, solar heat system, ventilation, cooling system, PV-system.
- Building heated by a connection to the gas grid: yes/no, Heat demand in winter season: low – average – high; Overheating in summer: low – high
- Share of renewable energy; Building related information; Expert; Type of building inspection: basic / detailed

Extended version of layout

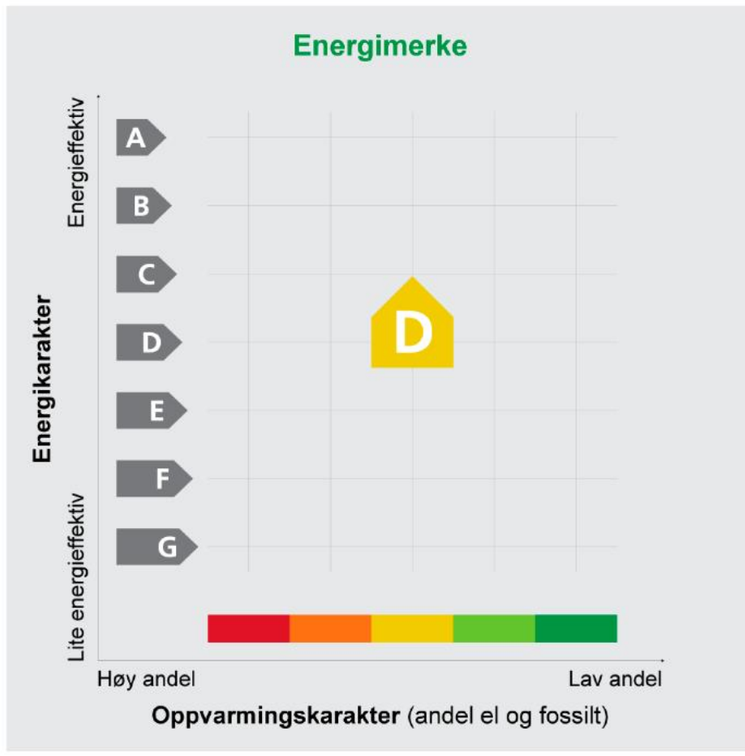
CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

NORWAY

ENOVA

ENERGIATTEST

Adresse	Testveien 10
Postnr	8310
Sted	Kabelvåg
Andels-/leilighetsnr.	/
Gnr.	9
Bnr.	15
Seksjonsnr.	
Festenr.	
Bygn. nr.	
Bolignr.	
Merkenr.	A2019-1040011
Dato	20.08.2019



Innmeldt av	Stig Allan Stokvik

Energiattesten er bekreftet og offisiell. Bygningens identitet er ikke bekreftet fra Matrikkelen

Energimerket angir boligens energistandard. Energimerket består av en energikarakter og en oppvarmingskarakter, se i figuren. Energimerket symboliseres med et hus, hvor fargen viser oppvarmingskarakter, og bokstaven viser energikarakter.

Energikarakteren angir hvor energieffektiv boligen er, inkludert oppvarmingsanlegget. Energikarakteren er beregnet ut fra den typiske energibruken for boligtypen. Beregningene er gjort ut fra normal bruk ved et gjennomsnittlig klima. Det er boligens energimessige standard og ikke bruken som bestemmer energikarakteren.
A betyr at boligen er energieffektiv, mens G betyr at boligen er lite energieffektiv. En bolig bygget etter byggeforskriftene vedtatt i 2010 vil normalt få C.

Oppvarmingskarakteren forteller hvor stor andel av oppvarmingsbehovet (romoppvarming og varmtvann) som dekkes av elektrisitet, olje eller gass.
Grønn farge betyr lav andel el, olje og gass, mens rød farge betyr høy andel el, olje og gass.
Oppvarmingskarakteren skal stimulere til økt bruk av varmepumper, solenergi, biobrensel og fjernvarme.

Om bakgrunnen for beregningene, se **www.energimerking.no**

Målt energibruk

Brukeren har valgt å ikke oppgi målt energibruk.

Types/variants of EPCs available:

1

Content of EPC:

- **1st page**: EPC label (two dimensional), individual building identification, date, registered by, measured energy consumption, information about the EPC label,
- **2nd page**: Information about calculated vs measured energy, advices for energy habits, how to improve energy performance (brief).
- **3rd page**: Summarised input data.
- **4th page**: about the EPC and the EPC-scheme, information on where to get more information about the EPC and energy use.
- **5th and 6th page**: Measures to improve EPC and to reduce energy consumption.

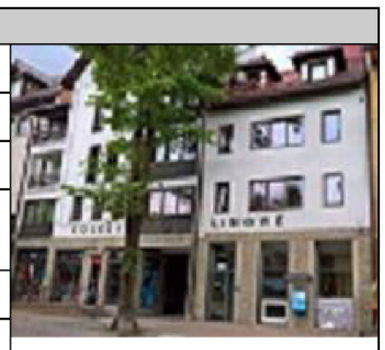
Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

POLAND

EPC for the building

ŚWIADECTWO CHARAKTERYSTYKI ENERGETYCZNEJ BUDYNKU	
Numer świadectwa[1)]	SCIIE/10835/1/2018

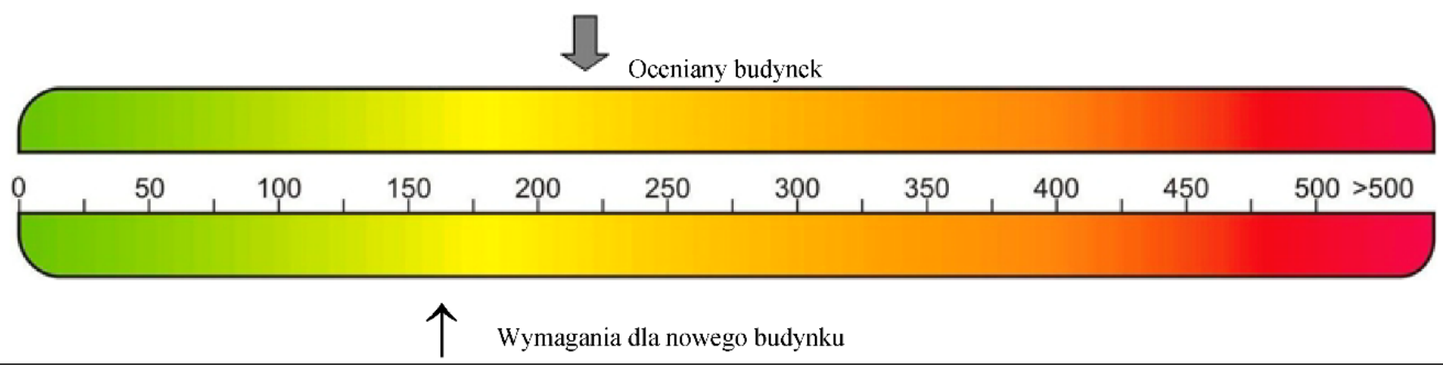
Oceniany budynek		
Rodzaj budynku[2)]	budynek użyteczności publicznej	
Przeznaczenie budynku[3)]	biurowy	
Adres budynku	[redacted]	
Budynek, o którym mowa w art. 3 ust. 2 ustawy[4)]	nie	
Rok oddania do użytkowania budynku[5)]	1992	
Metoda wyznaczania charakterystyki energetycznej[6)]	metoda obliczeniowa	
Powierzchnia pomieszczeń o regulowanej temperaturze powietrza (powierzchnia ogrzewana lub chłodzona) A_f [m^2] [7)]	1019,73	
Powierzchnia użytkowa [m^2]	992,83	

Ważne do (rrrr-mm-dd) [8)]	2028-06-12
Stacja meteorologiczna, według której danych obliczana jest charakterystyka energetyczna[9)]	Zakopane

Ocena charakterystyki energetycznej budynku[10)]

Wskaźniki charakterystyki energetycznej	Oceniany budynek	Wymagania dla nowego budynku według przepisów techniczno-budowlanych
Wskaźnik rocznego zapotrzebowania na energię użytkową	EU = 99,20 kWh/(m^2 · rok)	
Wskaźnik rocznego zapotrzebowania na energię końcową[11)]	EK = 174,54 kWh/(m^2 · rok)	
Wskaźnik rocznego zapotrzebowania na nieodnawialną energię pierwotną[11)]	EP = 218,22 kWh/(m^2 · rok)	EP = 164,78 kWh/(m^2 · rok)
Jednostkowa wielkość emisji CO_2	E_{CO_2} = 0,10 t CO_2/(m^2 · rok)	
Udział odnawialnych źródeł energii w rocznym zapotrzebowaniu na energię końcową	U_{oze} = 0,90 %	

Wskaźnik rocznego zapotrzebowania na nieodnawialną energię pierwotną EP [kWh/(m^2·rok)]



Obliczeniowa roczna ilość zużywanego nośnika energii lub energii przez budynek[12)]

System techniczny	Rodzaj nośnika energii lub energii	Ilość nośnika energii lub energii	Jednostka/(m^2 · rok)
Ogrzewczy	1) Energia elektryczna	2,62	kWh
	2) Energia cieplna z sieci ciepłowniczej.	114,81	kWh
Przygotowania ciepłej wody użytkowej	1) Energia elektryczna	4,78	kWh
Chłodzenia	1) Energia elektryczna	2,33	kWh
Wbudowanej instalacji oświetlenia[11)]	1) Energia elektryczna	50,00	kWh

Sporządzający świadectwo:	
Imię i nazwisko: [redacted] Nr wpisu do wykaz[redacted] Data wystawienia świadectwa[redacted]	Podpis i pieczątka

Wydruk z Centralnego Rejestru Charakterystyki Energetycznej Budynków wykonany dnia 13-04-2022

Types/variants of EPCs available:

2

1. **EPC for the building**
2. **EPC for parts of the building**

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

PORTUGAL

(Mainland and Madeira)

Residential EPC

Certificar é Valorizar
CERTIFICAÇÃO ENERGÉTICA DOS EDIFÍCIOS

Certificado Energético

Edifício de Habitação

SCE1234567890
Válido até 19-01-2015
Atualizado a 07-10-2015

IDENTIFICAÇÃO POSTAL

Morada AVª FONTES PEREIRA DE MELO, 51 A 51-G, 8º ESQ
Localidade LISBOA
Freguesia AVENIDAS NOVAS
Concelho LISBOA — GPS 39.700000, -8.000000

IDENTIFICAÇÃO PREDIAL/FISCAL

5 ª Conservatória do Registo Predial de LISBOA
Nº de Inscrição na Conservatória 816
Artigo Matricial nº 898 — Fração Autónoma K

INFORMAÇÃO ADICIONAL

Área útil de Pavimento 170,00 m²

Este certificado apresenta a classificação energética deste edifício ou fração. Esta classificação é calculada comparando o desempenho energético deste edifício nas condições atuais, com o desempenho que este obteria nas condições mínimas (com base em valores de referência ou requisitos aplicáveis para o ano assinalado) a que estão obrigados os edifícios novos. Saiba mais no site da ADENE em www.adene.pt.

INDICADORES DE DESEMPENHO

Determinam a classe energética do edifício e a eficiência na utilização de energia, incluindo o contributo de fontes renováveis. São apresentados comparativamente a um valor de referência e calculados em condições padrão.

Aquecimento Ambiente

Referência:	16 kWh/m².ano
Edifício:	18 kWh/m².ano
Renovável	- %

12% MENOS eficiente que a referência

Arrefecimento Ambiente

Referência:	8,0 kWh/m².ano
Edifício:	5,0 kWh/m².ano
Renovável	- %

38% MAIS eficiente que a referência

Água Quente Sanitária

Referência:	18 kWh/m².ano
Edifício:	20 kWh/m².ano
Renovável	- %

11% MENOS eficiente que a referência

CLASSE ENERGÉTICA

Mais eficiente

Julho 2006 | Dezembro 2013 | Jan. 2016

A+ 0% a 25%
A 26% a 50%
B 51% a 75%
B- 76% a 100%
C 101% a 150%
D 151% a 200%
E 201% a 250%
F Mais de 251%

Mínimo: Edifícios Novos — C
Mínimo: Grandes Intervenções — 103%

ENERGIA RENOVÁVEL

Contributo de energia renovável no consumo de energia deste edifício.

0%

EMISSÕES DE CO_2

Emissões de CO_2 estimadas devido ao consumo de energia.

0,80 toneladas/ano

Entidade Gestora
adene
Agência para a Energia

Entidade Fiscalizadora
Direção Geral de Energia e Geologia

1 de 9

Types of EPCs available and content:

4

1. **Residential:** first page with EPC label, complementary indicators, recommendations, individual building components information
2. **Non-Residential:** first page with EPC label, complementary indicators, recommendations, individual building components information
3. **Display EPC:** small 1 page with EPC label
4. **Vacant/Ruin:** 1 page with building ID and disclaimer for not having the EPC label

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

SLOVAKIA

Energetický certifikát

vydaný podľa zákona č. 555/2005 Z. z. o energetickej hospodárnosti budov
a o zmene a doplnení niektorých zákonov v znení neskorších predpisov a v znení zákona č. 300/2012 Z. z.
č. 096839/2016/22/000112007/EC

Názov budovy: **Hĺbkovo obnovený bytový dom**
Ulica, číslo: **Pavla Horova 17, 19**
Obec: **Bratislava - Devínska Nová Ves**
Okres: **Bratislava IV**
Účel spracovania: **Významná obnova**

Parc. č.: **2149/16, 2149/17**
Katastrálne územie: **Devínska Nová Ves**
Podiel celkovej podlahovej plochy:
2 - bytový dom 100,0%

Celková podlahová plocha v m²: **3786,3**

Rok kolaudácie budovy: **1988**

Posledná významná obnova: **2016**

ENERGETICKÁ HOSPODÁRNOSŤ BUDOVY

Kategória budovy: **2 - bytový dom**	Celková potreba energie	Primárna energia
Globálny ukazovateľ: Primárna energia	**18** kWh/(m².a)	**50** kWh/(m².a)
Nízka potreba energie A0 / A1 / A	**A**	**A1**
B (R_r)		
C		
D (R_s)		
E		
F		
G		
Vysoká potreba energie		
Normalizované hodnotenie:	√	
Prevádzkové hodnotenie:		
Minimálna požiadavka 0,5 R_r :	40	63
Typická budova R_s :	158	252

Hodnotenie jednotlivých miest spotreby

Potreba energie na vykurovanie:	A
Potreba energie na prípravu teplej vody:	A
Potreba energie na chladenie a vetranie:	
Potreba energie na osvetlenie:	

Nameraná spotreba energie na vykurovanie v kWh/(m².a)

Rok	2015	2014	2013	Priemer
Spotreba energie na vykurovanie v kWh/(m².a)	**90**	**94**	**79**	**87,67**

Podiel energie z obnoviteľných zdrojov: **63,8 %**

Obnoviteľný zdroj pre výrobu tepla na vykurovanie: TČ + PV 55,0 %
Obnoviteľný zdroj pre ohrev teplej vody: TČ + PV 71,6 %
Rekuperácia tepla: áno
Spôsob výroby elektriny z obnoviteľného zdroja: fotovoltické panely na streche
Exportovaná energia z obnoviteľného zdroja (druh) v kWh/(m².a): nie

Emisie CO_2 v kg/(m².a): **5,09**

0 10 20 30 40 50 60 70 80 90 100 >110

Návrh opatrení na zlepšenie energetickej hospodárnosti budovy:

Obvodový plášť: zateplenie stien strojovne výťahov na streche
Strecha: 0
Podlaha: 0
Otvorové konštrukcie: 0
Vykurovanie:
Príprava teplej vody:
Chladenie/vetranie:
Osvetlenie:
Obnoviteľné zdroje energie: zvýšenie akumulácie elektrickej energie z PV
Iné: senzorové riadiace jednotky v spoločných komunikáciach; obnova výťahov

Dátum vyhotovenia: 5. 10. 2016 **Platnosť najviac do: 5. 10. 2026**

Meno a priezvisko oprávnenej osoby: **prof. Ing. Zuzana Sternová PhD.**
Obchodné meno a sídlo: **Technický a skúšobný ústav stavebný, n.o., Studená 3, 821 04 Bratislava - Ružinov**
IČO: 31821987 DIČ: 2021691881
Kontakt: **0249228100, sternova@tsus.sk** Podpis a pečiatka:

Types of EPCs available and content:

1

- **1st page:** identification of the EPC, the building and the assessor, the EP and CO_2 emissions classification and summary of the recommendations;
- **2nd page:** classification and assessment of individual end uses/systems, total energy demand and primary energy;
- **3rd page:** data, description and assessment of building structures and related recommendations;
- **4th to 7th pages:** data, description and assessment of heating system/domestic hot water preparation/cooling and ventilation/lighting and related recommendations;
- **8th page:** Summarization of energy savings potential

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

SLOVENIA

Calculated EPC

ENERGETSKA IZKAZNICA STAVBE

Podatki o stavbi

Št. izkaznice: 2015-71-89-5417 Velja do: 19.01.2025

Identifikacijska oznaka stavbe,
posameznega dela ali delov stavbe: katastrska občina 2680
številka stavbe 1010
del stavbe 2

Klasifikacija stavbe: 1121001
Leto izgradnje: 2008
Naslov stavbe: Stara slovenska ulica 7A, Ljubljana

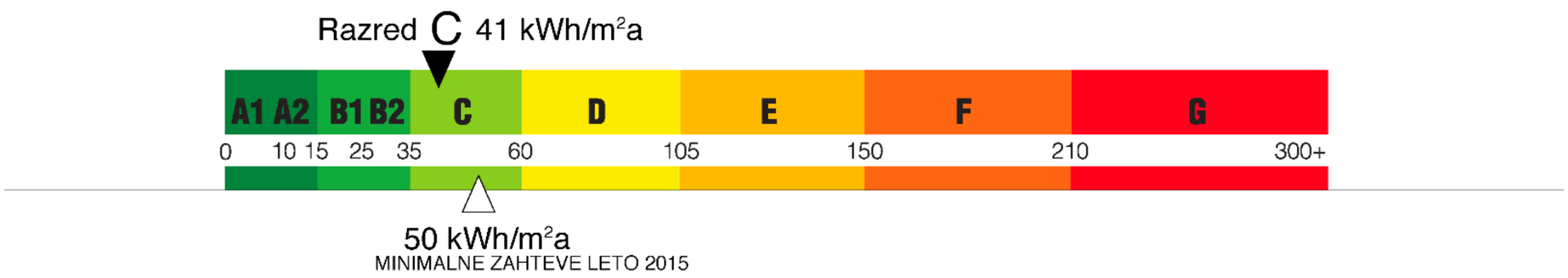
Kondicionirana površina stavbe A_k (m^2): 144
Parcelna št.: 1743/7
Katastrska občina: NOVE JARŠE

Vrsta izkaznice: računska

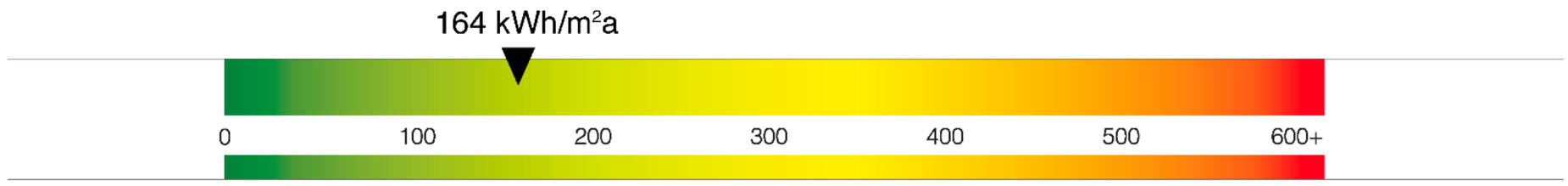
Vrsta stavbe: stanovanjska

Naziv stavbe: Stara slovenska ulica 7A

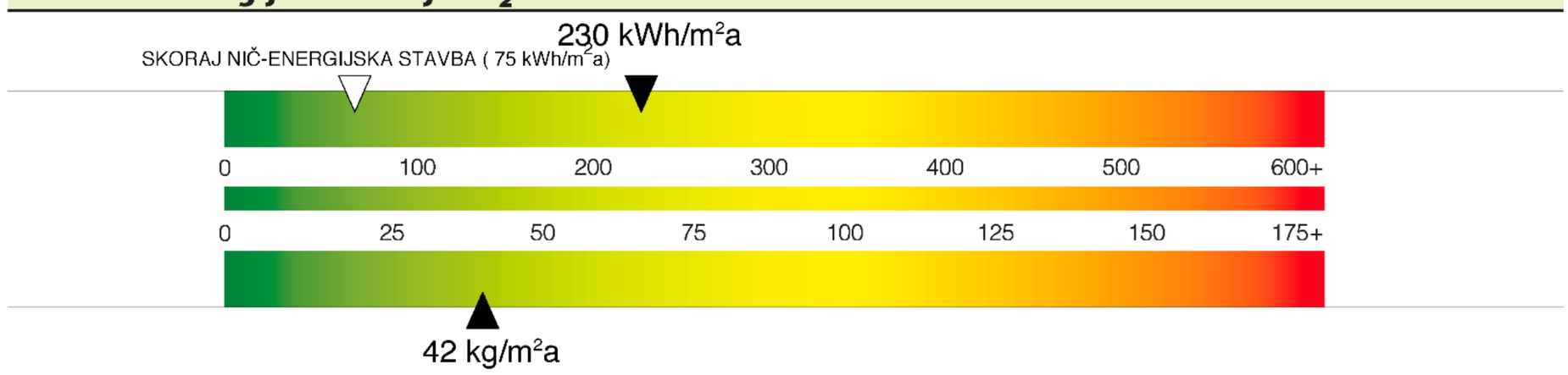
Potrebna toplota za ogrevanje



Dovedena energija za delovanje stavbe



Primarna energija in Emisije CO_2



Izdajatelj

Gradbeni inštitut ZRMK d. o. o. (71)
Ime in podpis odgovorne osebe: Igor Janežič
Opcija: elektronski podpis,
Datum izdaje: 20.01.2015

Izdelovalec

Marjana Šijanec Zavrl (89)
Ime in podpis: Marjana Šijanec Zavrl
Opcija: elektronski podpis,
Datum izdaje: 20.01.2015

Izdelovalec te energetske izkaznice s podpisom potrjujem, da ne obstaja katera od okoliščin iz Energetskega zakona (Ur.l. RS 17/14 - uradno preč. besedilo s spremembami), ki bi mi preprečevala izdelavo energetske izkaznice.

Energetska izkaznica stavbe je izdana v skladu s Pravilnikom o metodologiji izdelave in izdaji energetske izkaznice stavbe in z Energetskim zakonom (Ur.l. RS 17/14 - uradno preč. besedilo s spremembami). list 1/4

Types/variants of EPCs available:

2

1. **Calculated EPC**
2. **Measured EPC**

Content of EPC:

- **1st page**: EP indicators (energy need, delivered energy, PE and operational CO_2), individual building information, photo, EPC serial number, validity, signatures
- **2nd page**: individual building & climatic data, energy use per various TBSs, RES share, energy use graph
- **3rd page**: recommendations /
- **4th page**: detailed description of building and systems, boundary conditions, minimum requirements for energy efficiency, information on incentives and link to one-stop-shop

Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

SPAIN

CERTIFICADO DE EFICIENCIA ENERGÉTICA DE EDIFICIOS

IDENTIFICACIÓN DEL EDIFICIO O DE LA PARTE QUE SE CERTIFICA:

Nombre del edificio	Sede IDAE		
Dirección	C/ Madera 8, 28008. Madrid		
Municipio	Madrid	**Código Postal**	28002
Provincia	Madrid	**Comunidad Autónoma**	Comunidad de Madrid
Zona climática	D3	**Año construcción**	1990
Normativa vigente (construcción / rehabilitación)	NBE-CT-79		
Referencia/s catastral/es	0251702VK4705A0001RZ		

Tipo de edificio o parte del edificio que se certifica:	
○ Edificio de nueva construcción	● Edificio Existente
○ Vivienda ○ Unifamiliar ○ Bloque ○ Bloque completo ○ Vivienda individual	● Terciario ● Edificio completo ○ Local

DATOS DEL TÉCNICO CERTIFICADOR:

Nombre y Apellidos	XXXXXXXXXXXXXXX	**NIF(NIE)**	-
Razón social	IKXXXXXXXXXros	**NIF**	XXXXXXXX
Domicilio	c/ XXXXXXXXXXXXXXXX		
Municipio	Madrid	**Código Postal**	280XX
Provincia	Madrid	**Comunidad Autónoma**	Comunidad de Madrid
e-mail:	ingeXXXX@iXXX.es	**Teléfono**	91 XXXXX 89
Titulación habilitante según normativa vigente	Ingeniero Superior		
Procedimiento reconocido de calificación energética utilizado y versión:	CEXv2.3		

CALIFICACIÓN ENERGÉTICA OBTENIDA:

CONSUMO DE ENERGÍA PRIMARIA NO RENOVABLE [kWh/m² año]		EMISIONES DE DIÓXIDO DE CARBONO [kgCO2/ m² año]	
< 99.7 A 99.7-162.0 B 162.0-249.3 C 249.3-324.1 D 324.1-398.9 E 398.9-498.6 F ≥ 498.6 G	159.6 B	< 19.5 A 19.5-31.8 B 31.8-48.9 C 48.9-63.5 D 63.5-78.2 E 78.2-97.7 F ≥ 97.7 G	27.0 B

El técnico abajo firmante declara responsablemente que ha realizado la certificación energética del edificio o de la parte que se certifica de acuerdo con el procedimiento establecido por la normativa vigente y que son ciertos los datos que figuran en el presente documento, y sus anexos:

Fecha: 06/06/2018

Firma del técnico certificador

Anexo I. *Descripción de las características energéticas del edificio.*
Anexo II. *Calificación energética del edificio.*
Anexo III. *Recomendaciones para la mejora de la eficiencia energética.*
Anexo IV. *Pruebas, comprobaciones e inspecciones realizadas por el técnico certificador.*

Registro del Órgano Territorial Competente:

Fecha 11/06/2018
Ref. Catastral 0251702VK4705A0001RZ Página 1 de 11

Types/variants of EPCs available:

1

Content of EPC:

- **1st page:** Building identification; Data of the certifying technician; Qualification obtained; Signature of the certifying technician
- **Section 2**: Description of the energy characteristics of the building; Area and location; Surround; Installations; Operating and occupancy conditions; Energies
- **Section 3:** Total and partial indicators of the building
- **Section 4:** Recommended improvement measures for the certified building
- **Section 5:** Tests, checks and inspections carried out by the certifying technician

Label + Extended version of layout

CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

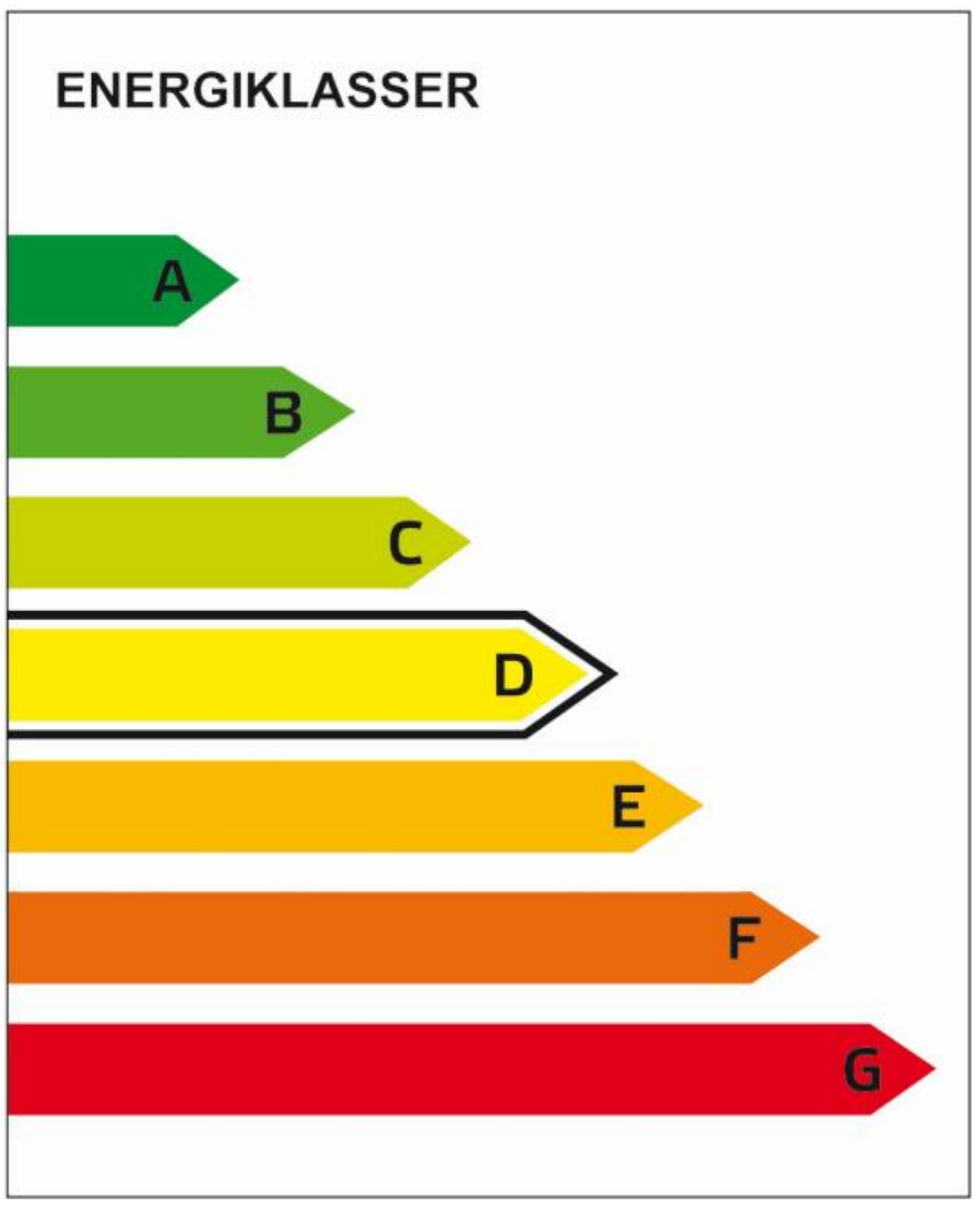
SWEDEN

sammanfattning av

ENERGIDEKLARATION

Kol Gata 9A, 654 57 Karlstad
Karlstads kommun

Nybyggnadsår: 2017
Energideklarations-ID: 1



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DENNA BYGGNADS ENERGIKLASS

Energiprestanda, primärenergital:
83 kWh/m² och år

Krav vid uppförande av ny byggnad, primärenergital:
Energiklass C, 75 kWh/m² och år

Specifik energianvändning (tidigare energiprestanda):
49 kWh/m² och år

Uppvärmningssystem:
El (vattenburen) och värmepump-frånluft (el)

Radonmätning:
Inte utförd

Ventilationskontroll (OVK):
Utförd

Åtgärdsförslag:
Har lämnats

Energideklarationen i sin helhet finns hos byggnadens ägare.

För mer information:
www.boverket.se

Sammanfattningen är upprättad enligt Boverkets föreskrifter och allmänna råd (2007:4) om energideklaration för byggnader.

Energideklarationen är utförd av:

Energideklarationen är giltig till:
2032-04-27

Types/variants of EPCs available:

1

EPC layout

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