CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

Implementation of the EPBD in Poland

Status in 2020

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NATIONAL WEBSITES
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1. Introduction

The Act on the Energy Performance of Buildings (published on 8 September 2014) entered into force on 9 March 2015, establishing the legal basis for further legislation regarding:

- the format of inspections of heating and AC systems protocols (17 February 2015);
- the scope and methodology of the verification of EPCs and heating and AC systems inspection reports (17 February 2015);
- the methodology for the energy assessment of buildings and their parts, as well as for EPCs (27 February 2015);
- the obligatory civil liability insurance of persons issuing EPCs (21 April 2015);
- the national action plan for increasing the number of NZEB (22 June 2015).

Moreover, the act further established a 'Central Register of the Energy Performance of Buildings'[1], which includes databases of:

1. persons authorised to produce EPCs;
2. persons entitled to inspect heating or AC systems;
3. EPCs;
4. protocols for heating or AC systems inspections;
5. buildings with a floor area exceeding 250 m^2 occupied by the judicial authorities, the prosecutor's office and public authorities that serve the public directly.

The databases mentioned under 1, 2 and 5 are made publicly available via the website[2], providing easy access to data of experts who draw up EPCs and perform inspections of heating and AC systems.

2. Current Status of Implementation of the EPBD

2.I. Energy performance requirements: NEW BUILDINGS

According to the regulation concerning the technical conditions that buildings must meet, the energy performance requirements for new buildings apply both to the fabric of the building itself and to its heating, ventilation and AC and domestic hot water systems, as well as, in the case of public, collective (buildings for temporary residence, e.g., hotel, dormitory, prison, etc.), industrial, storage and livestock buildings, to their built-in lighting systems. The buildings need to be designed and constructed so as to meet the following minimum requirements:

1.	A maximum energy performance index value [kWh/(m^2·year)], which determines the annual non-renewable energy demand for space heating, ventilation, cooling and domestic hot water and, for collective, industrial, storage and livestock buildings, also for built-in lighting. This energy performance index is to be calculated according to the regulation that applies to the calculation methodology for the energy performance of buildings and must be lower than the value calculated for the building using the formula in §329 p.1 or 3 of the regulation. The use of maximum values for parts of the energy performance index is mentioned in §329 p.2 for the space heating, ventilation, domestic hot water and space cooling as well as built-in lighting.	
	$EP = EP_{H+W} + \Delta EP_C + \Delta EP_L$; [kWh/(m^2·year)], [§ 329 p.1] $EP = \Sigma_i (EP_i \cdot A_{f,i}) / \Sigma_i A_{f,i}$; [kWh/(m^2·year)], [§ 329 p.3]	
	where:	EP_{H+W} – maximum values for parts of the energy performance index for heating, ventilation and domestic hot water ΔEP_C – maximum values for parts of the energy performance index for cooling ΔEP_L – maximum values for parts of the energy performance index for built-in lighting $A_{f,i}$ – floor area heated or cooled of i-part of unified utility function of the building
2.	Individual elements of the building envelope and technical building systems must at least meet the requirements of thermal insulation specified in Annex 2, and the window area corresponds to the requirements specified in §2.1. Annex 2.	

Buildings must be further designed and constructed in a way to avoid overheating during the summer period.

A detailed description of the regulation (as of March 2015) is given in Tables 1 – 5.

Building category	$EP_{H+W\ max}$	
	Obligatory from 1 January 2017	Obligatory from 1 January 2021* (NZEB level)
Residential building: - single-family house - multi-family house	95 85	70 65
Hotels and dormitory	85	75
Non-residential building: - health care building - other	290 60	190 45
Industrial, heated storage and livestock buildings	90	70
* In case of buildings occupied and owned by public authorities, obligatory from 1st January 2019		

Table 1. Maximum permissible values of primary energy for heating, ventilation and domestic hot water (EP_{H+W}) [kWh/(m^2·year)].

Building category	$\Delta EP_{C\ max}$	
	Obligatory from 1 January 2017	Obligatory from 1 January 2021* (NZEB level)
Residential building: - single-family house - multi-family house	$\Delta EP_C = 10 \cdot A_{f,C}/A_f$	$\Delta EP_C = 5 \cdot A_{f,C}/A_f$
Hotels and dormitories	$\Delta EP_C = 25 \cdot A_{f,C}/A_f$	$\Delta EP_C = 25 \cdot A_{f,C}/A_f$
Non-residential building: - health care building - other		
Industrial, heated storage and livestock buildings		
Where:	A_f – area of heated rooms in a building [m^2], $A_{f,C}$ – area of cooled rooms in a building [m^2]. * In case of buildings occupied and owned by public authorities, obligatory from 1 January 2019	

Table 2. Maximum permissible values of Δprimary energy for cooling (EP_C) [kWh/(m^2·year)].

Building category	$\Delta EP_{L\ max}$	
	Obligatory from 1 January 2017	Obligatory from 1 January 2021* (NZEB level)
Residential building: - single-family house - multi-family house	$\Delta EP_L = 0$	$\Delta EP_L = 0$
Hotels and dormitories	for $t_0 < 2{,}500$ $\Delta EP_C = 50$ for $t_0 \geq 2{,}500$ $\Delta EP_C = 100$	for $t_0 < 2{,}500$ $\Delta EP_C = 25$ for $t_0 \geq 2{,}500$ $\Delta EP_C = 50$
Non-residential building: - health care building - other		
Industrial, heated storage and livestock buildings		
Where: t_0 – operating time of built-in lighting installation [h/a]. * In case of buildings occupied and owned by public authorities obligatory from 1 January 2019		

Table 3. Maximum permissible values of Δprimary energy for lighting (EP_L) [kWh/(m^2·year)].

Fabric element and internal temperature in the room		Maximum U-value [W/(m²·K)]	
		Obligatory from 1 January 2017	Obligatory from 1 January 2021* (NZEB level)
External walls	a) $t_i \geq 16°C$ b) $8°C \leq t_i < 16°C$ c) $t_i < 8°C$	0.23 0.45 0.90	0.20 0.45 0.90
Internal walls	a) in case of $\Delta t_i \geq 8°C$ and separating heating rooms of corridors and staircases b) in case of $\Delta t_i < 8°C$ c) separating heated and unheated rooms	1.00 no requirements 0.30	
Walls adjacent to dilatation joints width	a) up to 5 cm b) more than 5 cm	1.00 0.70	
Walls of unheated underground rooms		no requirements	
Roofs, flat roofs and floors in contact with outdoor air	a) $t_i \geq 16°C$ b) $8°C \leq t_i < 16°C$ c) $t_i < 8°C$	0.18 0.30 0.70	0.15 0.30 0.70
Roofs on the ground	a) $t_i \geq 16°C$ b) $8°C \leq t_i < 16°C$ c) $t_i < 8°C$	0.30 1.20 1.50	
Floors over unheated and closed spaces	a) $t_i \geq 16°C$ b) $8°C \leq t_i < 16°C$ c) $t_i < 8°C$	0.25 0.30 1.00	
Floors over heated rooms	a) in case of $\Delta t_i \geq 8°C$ b) in case of $\Delta t_i < 8°C$ c) separating heated rooms from unheated	1.00 no requirements 0.25	

t_i – Room temperature heated in accordance with § 134 sec. 2 of the regulation

* In case of buildings occupied and owned by public authorities, obligatory from 1 January 2019

Table 4. Permissible values of thermal insulation for opaque building elements.

Type of window or door	Maximum U-value [W/(m²·K)]	
	Obligatory from 1 January 2017	Obligatory from 1 January 2021* (NZEB level)
Vertical windows, balcony doors and transparent walls: 1. $t_i \geq 16°C$ 2. $t_i < 16°C$	 1.1 1.6	 0.9 1.4
Roof windows: 1. $t_i \geq 16°C$ 2. $t_i < 16°C$	 1.3 1.6	 1.1 1.4
Windows in internal walls: 1. in case of $\Delta t_i \geq 8°C$ 2. in case of $\Delta t_i < 8°C$ 3. separating heated rooms from unheated	 1.3 no requirements 1.3	 1.1 no requirements 1.1

t_i – Room temperature heated in accordance with § 134 sec. 2 of the regulation

* In case of buildings occupied and owned by public authorities, obligatory from 1 January 2019

Table 5. Permissible values of thermal insulation for transparent building elements.

2.I.i. Progress and current status of new buildings (regulation overall performance)

The energy performance requirements entered into force on 1 January 2014 and determined obligatory minimum requirements as follows:

- from 1 January 2017 for new buildings[3];
- from 1 January 2019 in the case of buildings occupied and owned by public authorities;
- from 1 January 2021 for all buildings (dates refer to building permit).

A detailed description of the regulation is given in the CA EPBD Book 2016 country report of Poland.

2.I.ii. Format of national transposition and implementation of existing regulations

A detailed description of the current regulation for new buildings is given in the CA EPBD Book 2016 country report of Poland.

The current methodology is described in the regulation on the methodology for the energy assessment of buildings and their parts, as well as for EPCs. The calculation leads to the determination of the index of annual non-renewable primary energy demand (EP) in kWh/(m^2·year), which is necessary to check minimum requirements. Non-renewable primary energy factors are given in the regulation (Table 6).

#	Energy supply source for buildings	Energy carrier	Non-renewable primary energy factors
1	Local energy production in building	Heating oil	1.10
2		Natural gas	
3		Liquid gas	
4		Coal	
5		Lignite	
6		Solar energy	0.00
7		Wind energy	
8		Geothermal energy	
9		Biomass	0.20
10		Biogas	0.50
11	District heating from cogeneration	Coal or natural gas	0.80
12		Biomass or biogas	0.15
13	District heating	Coal	1.30
14		Gas or heating oil	1.20
15	Grid electricity	Electricity	3.00

Table 6. Values of correction factors (Wi) for non-renewable energy demand, for production and transfer of energy carriers.

The methodology also includes other values describing the energy performance of buildings:

- the index of annual demand for final energy (EK) in kWh/(m^2year);
- the index of annual energy needs (EU) in kWh/(m^2year);
- the index of CO_2 emissions;
- the share of RES in the annual demand for final energy.

The general calculations of energy demand for heating, cooling and ventilation are based on CEN standards methods (e.g. EN ISO 13790 and other linked standards).

In January 2020, the Ministry of Development issued the 'Guide to Improve the Energy Performance of Buildings'[4] (Figure 1). The guide describes the evolution of energy performance regulations in Poland. On the basis of multiple examples, it shows how to improve the energy performance of buildings. Moreover, the guidebook reveals national and regional incentives which support energy performance actions.

Figure 1. Cover of the 'Guide to Improve the Energy Performance of Buildings'.

2.I.iii. Action plan for progression to NZEB for new buildings

The national plan for increasing the number of buildings with low energy consumption was adopted on 22 June 2015. This plan is still valid. The plan pays particular attention to the definition of NZEB and their specific characteristics, includes important information and tips for investors, designers and contractors, and describes the main and intermediate objectives related to improving the energy efficiency of buildings, including a timetable for achieving them in accordance to Article 9 §3 of the EPBD. The characteristic actions, mainly of governmental measures taken to promote buildings with low energy consumption, include the design, construction and reconstruction of buildings in a way that ensures their energy efficiency and increases the share of energy from RES in new and existing buildings. In addition, this document discusses the changes in regulations affecting the energy efficiency of buildings, making note of financial mechanisms addressed to different beneficiary groups, e.g., housing communities, individuals, local authorities, businesses and others.

The national plan:

- led to changes in technical conditions that new buildings must meet;
- led to changes in the act of 28 October 2020, amending the act on supporting thermo-modernisation and renovation;
- contributed to the development of the 2017 National Energy Efficiency Action Plan for Poland;
- led to changes in the Regulation of the Minister of Energy of 27 September 2018 on quality requirements for solid fuels;
- led to changes in the Regulation of the Minister of Development of 11 September 2020 on the detailed scope and form of a construction design.

The national plan also sets out plans for promoting the use of RES in buildings and the need to improve the technical conditions of the existing building stock. It identifies aspects of a comprehensive approach to energy efficiency, and its main objective is to achieve the provisions of Article 9 §1 of the EPBD. Following the aims of the directive, the goals are set as follows:

- from 31 December 2018, all new buildings occupied by public authorities or owned by the government should be NZEB;
- by 31 December 2020, all new buildings should be NZEB.

2.I.iv. Requirements for building components for new buildings

A detailed description of the current regulations for new buildings is given in the CA EPBD Book 2016 country report of Poland.

According to the regulation on the technical conditions that new buildings must meet, the main requirements include:

- maximum values of thermal transmittance of individual elements of the building envelope: walls, roofs, floors, windows, doors and other types of partitions;
- recommended airtightness of envelope and threshold values for the air leakage of windows and balcony doors;
- the maximum area of transparent parts of the building envelope with a thermal transmittance ≥ 0.9 $W/m^2.K$;

2.I.v. Enforcement systems new buildings

Control of the construction process is carried out by authorised bodies: architectural and building administration and building supervision. Both bodies operate within the combined public administration, with construction supervision authorities organised in the form of separate inspectorates at the county and voivodship level (regional level).

This division of public administration in construction is being supervised by The Chief Inspector of Building Supervision according to Art. 84 section 1 of the Construction Law. The tasks of building supervision authorities include:

- control of compliance with and application of the provisions of the Construction Law;
- control of architectural and building administration bodies;
- research into the causes of construction disasters;
- cooperation with national control bodies.

In accordance with Art. 84a section 2 of the Construction Law, construction supervision authorities are also authorised to examine the correctness of administrative proceedings conducted by architectural and construction administration authorities and their issued decisions. In accordance with Art. 84a section 2 point 2 of the Construction Law, construction supervision authorities also check the fulfilment of obligations arising from decisions issued on the basis of the provisions of the Construction Law, both by these authorities, as well as by architectural and building administration authorities.

The Chief Inspector of Building Supervision can control both the district head (county) and the voivode (local council). In turn, the voivodship construction supervision inspector only has control over the staroste (the local council), which is dictated by the fact that the voivode is the superior authority over the voivodship construction supervision inspector as part of fusing government administration in the voivodship.

2.II. Energy performance requirements: EXISTING BUILDINGS

2.II.i. Progress and current status of existing buildings (regulation overall performance)

From research carried out as part of the research work 'Developing a methodology and conducting a survey on the scale of thermal modernisation activities of multi-apartment residential buildings in order to improve their energy consumption, and assessing the needs and planned activities in this direction' by the Central Statistical Office, in which respondents (owners or building managers) participated, owning or managing 189,289 buildings, it appears that:

- 60.7% of buildings do not require thermal modernisation: 29.7% due to thermal modernisation works carried out prior to 2016, and 31.0% having no thermal modernisation needs (e.g., construction already using energy-saving technologies);
- 39.3% of buildings require thermal modernisation to meet current energy performance standards: for 9.4% of those, thermal modernisation is implemented or planned between 2017 and 2020, and for 29.9% it is not planned.

For 2020, it is estimated that:

- for 14% of residential and public buildings, energy performance is in the 340-450 kWh/m^2 range;
- for 24% of residential and public buildings, energy performance is in the 230-390 kWh/m^2 range;
- for 31% of residential and public buildings, energy performance is in the 150-200 kWh/m^2 range;

- for 24% of residential and public buildings, energy performance is in the 90-150 kWh/m^2 range;
- for 4% of residential and public buildings, energy performance is in the 50-90 kWh/m^2 range;
- for 1% of residential and public buildings, energy performance is below 50 kWh/m^2.

Assuming that the obtained test results are also representative of the 64.6% of unexamined buildings, by extrapolating the above results to the entire stock of multi-family buildings in Poland, it can be assumed that approximately 210,000 multi-family buildings still require thermo-modernisation works.

2.II.ii. Regulation on individual parts, distinct from whole building performance

Article 1 of the regulations on technical requirements for building works specifies that minimum requirements for renovation of existing buildings are fulfilled when walls and technical building systems comply with the requirements for thermal insulation specified in Annex 2 of the regulation, and the window thermal characteristics comply with the requirements specified in §2.1 of Annex 2 (section 2.I. - Tables 1 - 5).

2.II.iii. Initiatives/plans to improve the existing building stock

The national plan sets out actions for promoting the use of RES in buildings and the need to improve the technical condition of the existing building stock. It identifies aspects of a comprehensive approach to energy efficiency, and its main objective is to achieve the provisions of EPBD Article 9, §1.

The national plan includes, among other topics, the definition of buildings with low energy consumption and their specific characteristics, as well as governmental actions to promote buildings with low energy consumption. It focuses on the design, construction and reconstruction of buildings to ensure energy efficiency and to increase the share of energy from RES in both new and existing buildings (combined with programmes for thermal modernisation and the promotion of a low-emission economy). The national plan sets a timeline for achieving these goals, which corresponds to EPBD Article 9, §3.

Support initiatives include:

- projects implemented from European Funds in Poland under the Multi-annual Financial Framework 2014-2020;
- projects implemented in 2013-2019 through the European Economic Area Financial Mechanism and the Norwegian Financial Mechanism;
- the Thermo-modernisation Fund and Maintenance programme;
- the Thermo-modernisation bonus (based on preliminary information on the scale of the reduction supplemented with estimates on the structure of supported investments based on other support programmes);
- support programmes for low-emission investments in the construction sector implemented by the National Fund for Environmental Protection and Water Management (*NFOŚiGW*), including Clean Air.

Increasing the scale and depth of the renovation of buildings in Poland will also require the additional mobilisation of funds. In 2014-2019, approximately PLN 14.7 billion public funds allowed for the implementation of investments worth approximately PLN 22.8 billion. For most of the period, the key area

of financing concerned investments in public buildings supported by EU funds, complemented by projects for the renovation of multi-family buildings financed from both national and EU funds. In 2019, however, thanks to the introduction of the thermo-modernisation bonus and the launch of the 'Clean Air' Programme, there was a rapid increase in support for investments in the modernisation of single-family buildings. Efforts to further increase the mobilisation of private funds should be enhanced in the coming years, possibly supported by activities promoting the use of the Energy Service Companies / Private Public Partnership formula, implementing the concept of one-stop shops and activities enabling the aggregation of projects.

2.II.iv. Long Term Renovation Strategies, status

The Polish Long-Term Renovation Strategy was submitted for public consultation at the beginning of 2021 and is planned for submission to the European Commission by the end of March.

2.II.v. Financial instruments and incentives for existing buildings

The main measures to support investment in the energy efficiency of existing buildings include:

- The Act[5] introduces financial support called 'Stop Smog' programme[6] for single-family homes owned by people who cannot afford a good quality boiler or home insulation in terms of thermo-modernisation of buildings and replacement of heating devices. Co-financing will cover 'low-emission projects', i.e., replacement of high-emission heating sources with devices that meet emission standards, or connection to a heating or gas network, while simultaneously implementing a thermal-modernisation of the building. These investments can even be 100% covered by public funds, i.e., without the financial participation of energy-poor households[7]. The act provides for the cooperation of the government with local authorities, where 30% of the contribution is provided by the commune, and the remaining part of the programme (70%) is financed from the state budget through the thermo-modernisation and renovation fund. Eligible for this incentive are municipalities experiencing problems with air pollution, families owning/using single-family houses in such municipalities, and modest-income households (income and other criteria set by the municipality);

- The 'Clean air' comprehensive programme, funded by the state and addressed to individuals, which aims to improve energy efficiency and reduce or avoid the emission of dust and other pollutants by single-family homes;

- The Fund for Thermo-modernisation and Renovations[8]. The eligibility criteria for this fund are set out in the Act on supporting thermo-modernisation and renovations. The programme for renovation and thermo-modernisation of residential buildings is aimed at improving the technical condition of the existing housing stock, in particular for common areas of multi-family buildings. The main goal is to provide financial assistance to investors who carry out thermo-modernisation or renovation projects of existing single-family buildings with the participation of commercial bank loans. This aid, also known as 'thermo-modernisation bonus', 'renovation bonus', and/or 'compensation bonus', is the repayment of part of the loan received for the implementation of the project or renovation.

2.II.vi. Information campaigns / complementary policies

Activities promoting energy efficiency in buildings in Poland include:

- The 'Clean Air - A Healthy Choice!'[9] campaign conducted by the Ministry of Climate is not only aiming to investigate the causes of the smog phenomenon, but above all to encourage individuals and groups to take actions that reduce the emission of harmful pollutants into the air.
- Actions by educational faculties to increase research capacity in the scope of environmental technologies;
- The 'House Without Bills'[10] social campaign, conducted by the Polish Organisation for the Development of Heat Pump Technology 'PORT PC' under the auspices of the Ministry of Development addresses people who intend to build a house in the near future. The goal of the 'House Without Bills' campaign is to promote the construction of single-family buildings equipped with a heat pump and a solar farm to achieve a high energy standard for the building;
- The 'Guide to Improve the Energy Performance of Buildings'[11], developed in January 2020 by the Ministry of Development. The guide is aimed at a wide range of customers, including owners and users of buildings or their parts, investors, building managers, local government units, building contractors, architects, engineers, people authorised to draw up EPCs and to inspect heating and AC systems, and energy auditors.

In addition, there are many other organisations, associations, institutions, etc., that provide services of information and consultancy to promote energy conservation issues.

2.III. Energy performance certificate requirements

2.III.i. Progress and current status on EPCs at sale or rental of buildings

Overview and administration system

The energy performance certification system is governed and administered by the Ministry of Development.

On the basis of the Act on Energy Performance of Buildings, there is a central register for the energy performance of buildings[1]. This register contains five databases, mentioned in the introduction to this document.

Every EPC in Poland has to be prepared/submitted with the use of this register. EPCs should be issued every time the building or building unit is sold or offered for rent.

Format and content of the EPC

The ordinance of 27 February 2015 specifies the basic requirements, the calculation methodology and the format of the EPCs (Figure 2), as described in the CA EPBD Book 2016 country report for Poland.

WZÓR ŚWIADECTWA CHARAKTERYSTYKI ENERGETYCZNEJ BUDYNKU

ŚWIADECTWO CHARAKTERYSTYKI ENERGETYCZNEJ BUDYNKU	
Numer świadectwa[1)]	

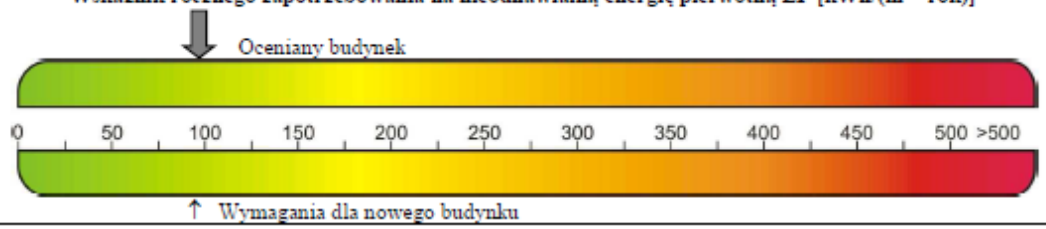
Oceniany budynek		
Rodzaj budynku[2)]		Zdjęcie budynku
Przeznaczenie budynku[3)]		
Adres budynku		
Budynek, o którym mowa w art. 3 ust. 2 ustawy[4)]		
Rok oddania do użytkowania budynku[5)]		
Metoda wyznaczania charakterystyki energetycznej[6)]		
Powierzchnia pomieszczeń o regulowanej temperaturze powietrza (powierzchnia ogrzewana lub chłodzona) A_f [m^2][7)]		
Powierzchnia użytkowa [m^2]		

Ważne do (rrrr-mm-dd)[8)]	

Stacja meteorologiczna, według której danych jest wyznaczana charakterystyka energetyczna[9)]	

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 = ... kWh/(m^2 · rok)	
Wskaźnik rocznego zapotrzebowania na energię końcową[11)]	EK = ... kWh/(m^2 · rok)	
Wskaźnik rocznego zapotrzebowania na nieodnawialną energię pierwotną[11)]	EP = ... kWh/(m^2 · rok)	EP = ... kWh/(m^2 · rok)
Jednostkowa wielkość emisji CO_2	E_{CO_2} = ... t CO_2/(m^2 · rok)	
Udział odnawialnych źródeł energii w rocznym zapotrzebowaniu na energię końcową	U_{ore} = ... %	

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)**
Ogrzewania	1)		
	n)		
Przygotowania ciepłej wody użytkowej	1)		
	n)		
Chłodzenia	1)		
	n)		
Wbudowanej instalacji oświetlenia[11)]	1)		
	n)		

Sporządzający świadectwo:	
Imię i nazwisko: Nr wpisu do wykazu[13)]: Data wystawienia świadectwa:	Podpis i pieczątka

Figure 2. Template of EPC.

EPC activity levels

According to the data of the General Office of Building Control, in the period between 1 January 2009 and 8 March 2015, a total of 541,193 new buildings were completed and handed over to occupants, each of which would have had an EPC. All would still be valid.

Moreover, in the same period, there were 26,114 multi-family buildings put into use. This number represents an additional several hundred thousand EPCs for the associated individual houses.

As mentioned, every EPC in Poland has to be prepared with the use of the national register. At the beginning of 2020, around 330,000 EPCs had been issued since 9 March 2015.

Typical EPC costs

The price of the EPC is fully market driven. The lowest prices offered in the publicly available transaction service are 40 €, whereas the highest price offer for buildings of a complicated structure exceeds 1,300 €. The typical price for an EPC for an apartment or a single-family building ranges between 50 € and 150 €. For a multi-occupancy apartment building, the typical price ranges between 200 € and 500 €.

Assessor corps

According to the Act on the Energy Performance of Buildings, an EPC may be issued only by a qualified expert.

Since 9 March 2015, every qualified expert has to be registered in the relevant database of the central register for the energy performance of buildings. On 25 March 2020, there were 15,660 registered qualified experts.

Compliance levels by sector

The EPC and its compliance with the energy performance levels is checked on the basis of data from the central register. According to this data, new and renovated buildings comply with the minimum levels enforced by Polish law. Values of annual primary energy consumption from registered EPCs are shown in Tables 7 and 8.

Type of building		Year of putting the building into use	Median value of energy performance [kWh/(m^2·year)]
Residential building	Single-family building	<1994	272.21
		1994-1998	178.31
		1999-2008	140.57
		2009-2013	118.98
		2014-2016	111.83
		2017-2018	99.15
		2019-2020	90.59
	Multi-family building	<1994	260.69
		1994-1998	139.01
		1999-2008	123.59
		2009-2013	143.72
		2014-2016	97.54
		2017-2018	90.61
		2019-2020	84.91

Table 7. Value of the annual primary energy consumption of single- and multi-family buildings, depending on the year in which the building was put into use.

Type of building		Year of putting the building into use	Median value of energy performance [kWh/(m^2·year)]
Non-residential building	Office	<1994	243.66
		1994-1998	242.50
		1999-2008	191.11
		2009-2013	180.98
		2014-2016	152.96
		2017-2018	150.59
		2019-2020	149.20
	Public building	<1994	228.99
		1994-1998	225.47
		1999-2008	217.60
		2009-2013	185.13
		2014-2016	180.45
		2017-2018	178.09
		2019-2020	155.80
	Culture building	<1994	184.11
		1999-2008	181.43
		2009-2013	180.78
		2014-2016	170.68
		2017-2018	169.22
		2019-2020	166.04
	Healthcare	<1994	408.41
		1994-1998	442.87
		1999-2008	397.20
		2009-2013	387.90
		2014-2016	376.42
		2017-2018	358.90
		2019-2020	301.24
	Sport building	<1994	370.40
		1994-1998	214.83
		1999-2008	232.06
		2009-2013	165.90
		2014-2016	164.21
		2017-2018	132.78
		2019-2020	132.31
	Justice building	<1994	267.21
		1994-1998	181.70
		1999-2008	217.26
		2009-2013	180.49
		2014-2016	186.61
		2017-2018	171.42
		2019-2020	165.88
	Education building	<1994	234.86
		1994-1998	218.35
		1999-2008	164.65
		2009-2013	141.06
		2014-2016	136.94
		2017-2018	122.56
		2019-2020	104.10

Table 8. Value of the annual primary energy consumption of public buildings, depending on the use of the building and the year in which it was put into use.

Enforcement with building owners and real estate actor

An EPC is required in every instance where the property is subject to a change of ownership, is sold or rented.

In the case of sale or rent, according to the Act on Energy Performance of Buildings, the owner should hand over the EPC to the buyer or tenant. If the EPC is not transferred, the buyer or tenant has the right to call on the owner to fulfil their obligations and may request the EPC at the expense of the owner. The buyer or tenant may not waive these rights. The owner and the buyer are informed about their rights by a notary while signing the notary deed.

2.III.ii. Quality Assurance of EPCs

Since March 2015, there is a direct mechanism of quality assurance of EPCs in Poland, which is based upon the central register for the energy performance of buildings. EPCs are quality controlled *ex officio* or by request. So far, less than 20 EPCs have been controlled upon a request. The number of EPCs controlled *ex officio* in the period 2015 - 2020 is 550. Following these controls, 30 qualified experts lost their authorisation. Comparatively, before 2015, three (3) qualified experts had lost their authorisation.

During control, checks are made, among other factors, on:

- calculation results;
- efficiency of technical building systems and U-values compared with requirements concerning thermal insulation of the building envelope components;
- energy demand indicators, energy consumption and categories of cost-effective recommendations, correctness of description, etc.

There are no penalties foreseen for minor faults. Fault tolerance may reach up to 10%, depending on where the error was made.

In cases of intentional adoption of incorrect technical assumptions (e.g., improving the indicators of energy demand) there is no tolerance of errors.

There are also penalties for drawing up EPCs without the necessary qualifications, or without liability insurance for damages caused in connection with the preparation of an EPC.

Moreover, according to the Act on the Energy Performance of Buildings as well as the civil law, an EPC containing false data on energy use is considered a product with a physical failure. Potential conflicts between the qualified expert and the client in this matter will be settled in court.

Proposals to improve the central register of EPCs are currently being prepared. Following their introduction, it will be possible to check the correctness of EPCs more quickly and easily.

2.III.iii. Progress and current status of EPCs on public and large buildings visited by the public

The certification process for public buildings, or for large buildings visited by the public, falls under the same regulations as for other buildings. According to the Act on the Energy Performance of Buildings, the EPC shall be visible to the public in the case of buildings (> 250 m^2) used by justice authorities, the prosecutor's office, or for public buildings to which the public have access.

The template of the EPC for these buildings is the same as the one used for other buildings. EPCs for these buildings are issued by the same group of experts as EPCs for buildings that are being sold. Also, the provisions on quality assurance are the same as those described above.

The EPC data collected within the public central register provides information about the building stock, e.g. energy performance, share of RES, CO_2 emissions, etc.

2.III.iv. Implementation of mandatory advertising requirement – status

The Act on the Energy Performance of Buildings transposed the mandatory advertising requirements derived from the EPBD into Polish law. According to these rules, the energy performance indicator from the EPC has to be included in both sale and rental advertisements (for every type of building).

The Polish legal framework requires the publication of selected EPC information (the value of final energy is obligatory); however, the advertisements sometimes provide additional information, e.g., about numerical values of CO_2 emissions, the share of RES, or the heat transfer coefficient. This is more common for the sale of new single-family houses.

At the same time, there is still a relatively low level of interest from consumers and building owners in the EPC and energy data. The main criteria for choosing a house or apartment is not the level of energy performance of the building, but location and price.

2.IV. Smart buildings and building systems

2.IV.i. Status and plans on smart buildings

No legal framework supporting smart buildings has yet been adopted. The commercial construction sector is becoming 'smart' by introducing smart technologies into its investments. The first legal step has been made with the Act on electromobility and alternative fuels[12], with Art. 12 setting the obligation to provide adequate power connection with charging points with a power of not less than 3.7 kW in new public buildings and multi-family buildings.

2.IV.ii. Regulation of system performance

The minimum requirements for technical installations include:

- minimal thermal insulation of pipes and components in space heating and cooling, as well as in domestic hot water systems;
- the maximum values of specific fan power of fans used in AC and mechanical ventilation systems.

In general, heating, domestic hot water, lighting, ventilation and AC equipment used in the systems shall fulfil requirements set by separate national regulations which implement other European directives, e.g., eco-design, etc.

With regard to certain elements of heating, domestic hot water and cooling systems, one of the key areas covered by the regulation is the limitation of heat loss from pipes, which has to be kept below a reasonable maximum level. Specific minimum technical requirements for thermal insulation of pipes and components are given in Table 9.

	Size of pipes	Minimum requirements for thickness of insulation (material λ = 0.035 W/m.K) [mm]
1	d_i < 22 mm	20
2	22 ≤ d_i< 35 mm	30
3	35 ≤ d_i< 100 mm	equal to the diameter d_i
4	100 ≤ d_i	100
5	Pipes passing through walls or ceilings, cross of pipes	50% of the thickness given in rows 1 - 4
6	Pipes in heating systems in the walls separating different uses	50% of the thickness given in rows 1 - 4
7	Pipes according to row 6 embedded in the floor	6
8	Pipes of air heating (inside of the heated area of the building)	40
9	Pipes of air heating (outside of the heated area of the building)	80
10	Pipes of chilled water cooling (inside the building)	50% of the thickness given in rows 1 - 4
11	Pipes of chilled water cooling (outside the building)	As given in rows 1 - 4

Table 9. Requirements for thermal insulation of pipes and components in heating, domestic hot water and cooling systems.

The ordinance also provides performance requirements for the maximum level of specific fan power of fans used in AC and mechanical ventilation systems, as shown in Table 10. The specific fan power can be increased when certain elements are used in the system (Table 11). Generally, heating, domestic hot water, lighting, ventilation and AC equipment used in the systems shall further fulfil requirements set by separate national regulations which implement other European directives, e.g., eco-design, etc. The provisions of the ordinance are applicable to related technical building systems in both the design of new buildings and the renovation of existing buildings.

	Type and application of the fan	Specific Fan Power SFP [kW/(m^3/s)]
1	Supply fan: a) AC system or supply and exhaust ventilation with heat recovery b) supply and exhaust ventilation without heat recovery and supply ventilation	 1.60 1.25
2	Exhaust fan: a) AC system or supply and exhaust ventilation with heat recovery b) supply and exhaust ventilation without heat recovery and supply ventilation	 1.00 1.00

Table 10. Performance requirements for the maximum level of specific fan power (SFP) of fans used in AC and mechanical ventilation systems.

	Additional element of ventilation or AC system	Additional Specific Fan Power SFP [kW/(m^3/s)]
1	Additional filtration level	0.3
2	Additional filtration level with filter class H10 or higher	0.6
3	Gaseous contaminants filters	0.3
4	High efficiency heat recovery device (temperature effectiveness higher than 90%)	0.3

Table 11. Elements of the systems that allow to increase the specific fan power (SFP).

2.IV.iii. Building Automation and Controls (BACs)

There is currently no information available for specific requirements for Building Automation and Controls. As part of the transformation of the power grid into a smart grid, the current activities focus on co-financing investments related mainly to the construction, modernisation or reconstruction of power grids, power stations, enabling the connection of energy generating units from RES and installing intelligent smart meters and network automation.

2.IV.iv. Status and encouragement of intelligent metering

The amendment to the Energy Law published on 9 November 2018 introduced the obligation for energy companies to install smart remote meters for 80% of electricity consumers in Poland by the end of 2026.

As of 2018, smart meters were installed by approximately 8.4% of recipients (European average of 34.2%), most of them in northern Poland. In order to accelerate the transformation of the power grid, a draft act amending the Energy Act was submitted to the legislative work of the Council of Ministers. The draft act specifies the schedule of smart meter installation by the electricity distribution system operator for end customers connected to the grid, with a voltage of no more than 1 kV and within the following periods: by the end of 2023 at least 15%, by the end of 2025 at least 35 %, by the end of 2027 at least 65%, and by the end of 2028 at least 80% of end users. The draft also requires the installation of remote reading meters at power stations, reforming the average voltage to low by the end of 2025. The draft act is currently being considered by the Committee for European Affairs. The obligation to equip by 1 January 2027 heat and water meters with a function enabling remote reading in premises of multi-apartment buildings is imposed by the draft amendment to the Energy Efficiency Act (number from the UC41 list), which was submitted for public consultation on 20 August 2020.

2.IV.v. Progress and current status on heating systems (Inspection / Equivalence)

Poland adopted the regular inspection of heating and AC systems. Regulations and requirements are specified in the Construction Act and in the Act on the Energy Performance of Buildings. These laws state that building owners or managers are obliged to carry out a periodic inspection of the technical condition of a building's heating and AC system and their power adjustment concerning heating or cooling needs.

Reports issued after 9 March 2015 must be registered in the relevant database of the central register (until now 7,500 reports for heating systems and 2,500 reports for AC systems have been submitted) and are randomly chosen for verification.

According to the Act on the Energy Performance of Buildings currently in force, periodic inspections must be performed:

- at least every two (2) years for boilers of an effective rated output over 100 kW using liquids or solid fuels;
- at least every four (4) years for boilers of an effective rated output over 100 kW using gas;
- at least every five (5) years for boilers of an effective rated output between 20 kW and 100 kW.

Inspections of the heating system include an assessment of the efficiency of these systems and their adaptation to the demands of the building and its users.

There shall be no control of heating systems where no changes that would affect their energy efficiency were made after the previous inspection.

Inspections of heating and AC systems in buildings can be performed by a person who has:

- building qualifications in installation, or;
- the qualifications required for supervision during the operation of equipment which produce, process, transform and consume heat as well as other power equipment.

2.IV.vi. Progress and current status on AC systems (Inspection / Equivalence)

According to the Act on the Energy Performance of Buildings, AC systems with a rated output of over 12 kW should be inspected periodically and at least once every five (5) years.

Inspections of the AC system include an assessment of the efficiency of these systems and their adaptation to the demands of the building and its users.

Requirements for inspectors of AC systems are similar to those for heating systems described under IV.ii. The persons entitled to do periodical inspections must be included in the relevant database of the central register (Figure 3).

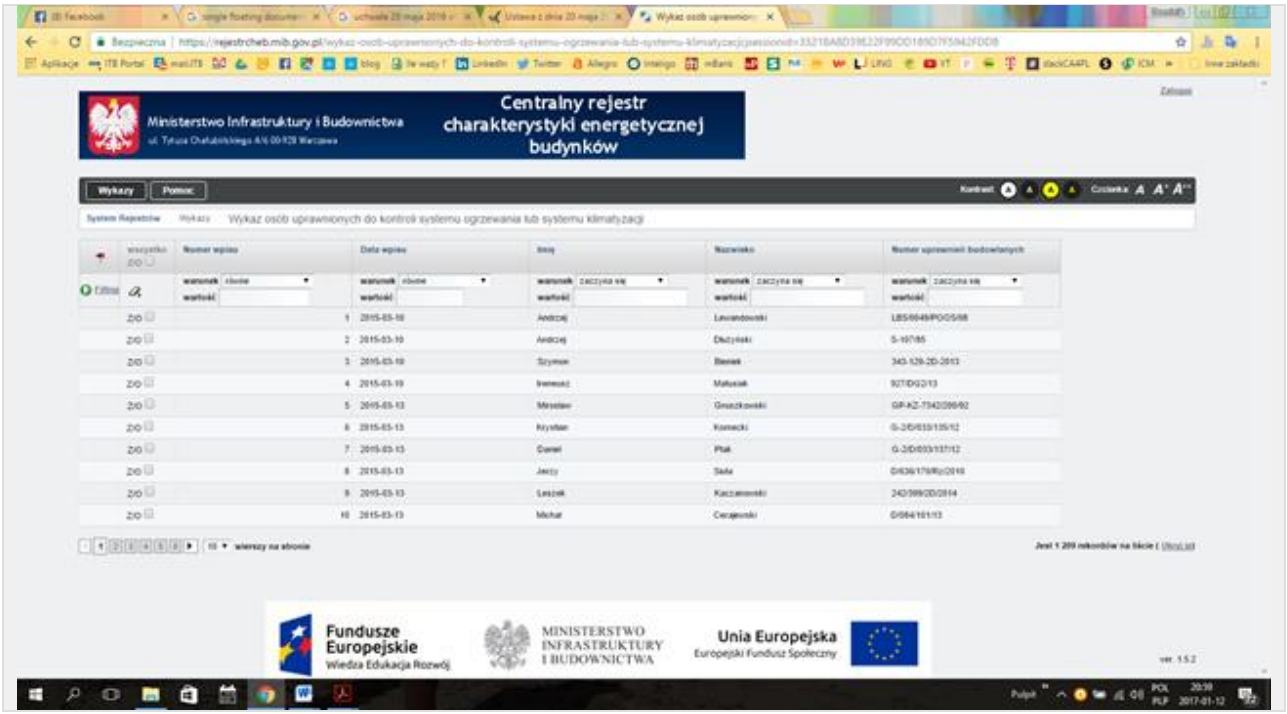


Figure 3. Central registry of the Ministry of Development.

2.IV.vii. Enforcement and impact assessment of inspections

Enforcement and penalties

Failure to carry out an inspection may result in a fine for the owner or manager of the building, in accordance with Article 93 point 8 of the Construction Act. Currently, there is no data concerning penalties issued by construction supervision authorities. Judgement on the issues shall be made on the basis of the provisions of the code of conduct in misdemeanour cases. The fine is up to PLN 500 (around 120 €) and is imposed by construction supervision authorities.

From 9 March 2015, in accordance with the Act on the Energy Performance of Buildings, failing to perform an inspection process or carrying out the inspection without qualifications will result in a fine for the

owner, the manager of the building, or the expert. The verification of inspection outcomes is made *ex officio* or by request of the building owner/manager.

Quality control of inspection reports

An ordinance of the Minister of Infrastructure and Development, dated 17 February 2015, on the model protocols of inspection of a heating or AC system specifies that inspections:

- apply not just to the technical condition and energy efficiency of boilers, but to the whole heating system;
- must contain more than a statement concerning proper functioning.

There is a fixed detailed audit scope, including measurements as well as testing and control, which concludes with a five (5)-page inspection report.

The protocols of the inspection of a heating or AC system shall be submitted using the communication system, which is in the central register of the energy performance of buildings.

The person conducting the inspection shall provide a printed report with a reference number given by the ICT system to the person ordering the control.

Impact assessment, costs and benefits

The price for inspection is not fixed. The cost depends on the area of the building, where 1 m^2 corresponds to around PLN 1 (about 0.22 €).

In accordance with the Construction Act, the protocol of inspections of heating and AC systems should be included in the construction site book, both for existing and new buildings. The authority in charge of the database with inspection protocols is the Ministry of Development.

The reports are registered in the relevant database of the central register and they are randomly drawn for verification.

3. A success story in EPBD implementation

The introduction of coherent energy efficiency regulations in line with the EPBD succeeded in increasing the number of energy efficient buildings in Poland and in raising public awareness.

A mandatory review of regulations concerning the minimum requirements in the field of the energy performance of buildings was made for EU Member States. The most important changes in this area translated into amendments to technical and building regulations regarding thermal protection and energy consumption in buildings. The currently applicable requirements for the energy performance of buildings can be found in the regulation on technical conditions to be met by buildings and their location.

In 2016, energy poverty affected 12.2% of Poland's inhabitants, i.e., 4.6 million people or 1.3 million households. According to data available at the institute for structural research (http://ibs.org.pl/publications/jakograniczyc-skale-ubostwa-energetycznego-w-polsce), energy poverty previously affected 14.4%, 13.9%, 13.7% and 13.3% of the population respectively in the years 2012, 2013, 2014 and 2015. Energy poverty thus decreased during the period 2012-2016 by 2.2%. The improvement in the situation of households was largely the result of an increase in income. The 'Guide to Improve the Energy Performance of Buildings' released in January 2020 by the Ministry of Development is a publicly

available guidebook which offers significant support and advice in energy efficient construction to a wide range of customers, including building owners, users and many others. The publication describes the evolution of energy performance regulations in Poland and, on the basis of multiple case studies, shows how to improve the energy performance of new and existing buildings. Moreover, the guidebook reveals national and regional incentives which support energy performance actions.

Some steps in implementing advanced metering infrastructure (AMI) have already been taken; however, they do not have a systematic nature, as these are the activities of individual energy companies and relate to pilot programmes involving the installation of remote meter reading in some Polish cities.

4. Conclusions, future plans

Since adoption of the amendments of EPBD in 2018, Poland has introduced rules and regulations aiming to improve the energy efficiency of buildings. Inter-ministerial activities are mainly focused on increasing energy efficiency. In the construction sector this can be achieved both by reducing energy consumption of new buildings (in particular by increasing the number of nearly-zero energy buildings) and successful renovation of existing buildings with increased energy efficiency, as well as by installing renewable energy sources. Therefore, work is currently ongoing to develop a new long-term strategy for the renovation of national stocks of residential and non-residential buildings, public and private, in accordance with the EPBD as amended by Directive 2018/844/EU.

Poland's National Energy and Climate Plan for the years 2021-2030 presents the objectives, targets, policies and measures in five dimensions of the Energy Union: decarbonisation; energy efficiency; energy security; internal energy market; research, innovation and competitiveness. The greatest impact of this plan is expected from the construction sector. Currently, there are works undertaken on updating the methodology for the assessment of energy performance of buildings and their parts.

Endnotes

1. https://rejestrcheb.mib.gov.pl/wykazy
2. https://rejestrcheb.mib.gov.pl/wykazy. The website is administered by the Ministry of Development (http://mib.gov.pl/)
3. With a building permit issued after these dates.
4. http://mib.gov.pl/files/0/1797054/poradnik.pdf
5. *Ustawa o zmianie ustawy o wspieraniu termomodernizacji i remontów oraz niektórych innych ustaw* (U. 2019 r. poz. 51)
6. https://www.gov.pl/web/rozwoj/stop-smog
7. Energy poverty - https://en.wikipedia.org/wiki/Energy_poverty
8. bgk.pl/osoby-fizyczne/fundusz-termomodernizacji-i-remontow/
9. http://powietrze.mos.gov.pl/
10. https://dombezrachunkow.com/
11. https://www.gov.pl/web/rozwoj/poradnik-w-zakresie-efektywnosci-energetycznej-budynkow
12. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180000317

Annexes -Key Indicators & Decisions

Key Indicators & Decisions – General Background

no	Key Implementation Decisions – General Background	Description / value / response	Comments
01.01	Definition of public buildings (according to article 9 b)	There is no adequate definition of public buildings according to EPBD Article 9b in Poland.	
01.02	Definition of public buildings used by the public (according to article 13)	The owner or manager of the building, whose usable area that is occupied by the judiciary, the prosecutor's office and/or public administration bodies exceeds 250 m^2, and in which customer service is carried out, ensures that an EPC for this building is drawn up.	The Act on the Energy Performance of Buildings (published on 8 September 2014
01.03	Number of residential buildings	7,156,982	Source: Main Office of Geodesy and Cartography
01.04	Number of non-residential buildings	575,460	Source: Main Office of Geodesy and Cartography
01.05	If possible, share of public buildings included in the number given in 01.04	Not available	
01.06	If possible, share of commercial buildings included in the number given in 01.04	Not available	
01.07	Number of buildings constructed per year (estimate)	Data from 2018: 102,796	Source: Central Statistical Office
01.08	If possible, share of residential buildings constructed per year (estimate, included in the number given in 01.07)	Data from 2018: 79,295	Source: Central Statistical Office
01.09	If possible, share of non-residential buildings constructed per year (estimate, included in the number given in 01.07)	Data from 2018: 23,501	Source: Central Statistical Office
01.10	Useful floor area of buildings constructed per year in million square meters (estimate)	Data from 2019: • residential – 18.37 Mm^2 • non-residential – 16.33 Mm^2 TOTAL – 34.70 Mm^2	

Key Indicators & Decisions – New Buildings

no	Key Implementation Decision – New Buildings	Description / value / response	Comment
02.01	Are building codes set as overall value, primary energy, environment (CO_2), reference building or other	Energy performance requirements	
02.02	Requirements for energy performance of residential buildings in current building code	See Tables 1, 2 and 3.	
02.03	Requirements for energy performance of non-residential commercial buildings in current building code	See Tables 1, 2 and 3.	
02.04	Requirements for energy performance of non-residential public buildings in current building code	See Tables 1, 2 and 3.	
02.05	Is the performance level of nearly zero energy (NZEB) for new buildings defined in national legislation?	Given in Journal of Orders 75, item 690 dated 7 June 2019. Regulation of Minister of Infrastructure regarding the technical conditions for the buildings and its location, as amended. Available online: http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20190001065 (accessed on 25 December 2019)	
02.06	Nearly zero energy (NZEB) level for residential buildings (level for building code)	See Tables 1, 2 and 3.	
02.07	Year / date for nearly zero energy (NZEB) as level for residential buildings (as indicated in 02.04)	2021	
02.08	Nearly zero energy (NZEB) level for all non-residential buildings (level for building code)	See Tables 1- 5.	
02.09	Year / date for nearly zero energy (NZEB) as level for non-residential buildings (as indicated in 02.06)	2021	
02.10	Are nearly zero energy buildings (NZEB) defined using a carbon or environment indicator?	No	
02.11	Is renewable energy a part of the overall or an additional requirement?	No	
02.12	If renewable energy is an additional requirement to NZEB, please indicate level	-	
02.13	Specific comfort criteria for new buildings, provide specific parameters for instance for airtightness, minimum ventilation rates	The recommended airtightness of buildings is: 1) in buildings with gravity ventilation or hybrid ventilation - n50 <3.0 1 / h; 2) in buildings with mechanical ventilation or air conditioning - n50 <1.5 1 / h. The installation of hybrid ventilation, mechanical exhaust ventilation and supply-exhaust ventilation should have fan regulation ensuring adjustment of their air efficiency to utility needs.	

Key Implementation Decision – Existing Buildings

no	Key Implementation Decision – Existing Buildings	Description / value / response	Comment
03.01	Is the level of nearly zero energy (NZEB) for existing buildings set in national legislation?	No	
03.02	Is the level of nearly zero energy (NZEB) for existing buildings similar to the level for new buildings?	Not specified	
03.03	Definition of nearly zero energy (NZEB) for existing residential buildings (if different from new buildings)	Not specified	
03.04	Definition of nearly zero energy (NZEB) for existing non-residential buildings (if different from new buildings)	Not specified	
03.05	Overall minimum requirements in case of major-renovation	Not specified	
03.06	Minimum requirements for individual building parts in case of renovation	Minimum requirements for renovated buildings are fulfilled when walls and technical building systems comply with the requirements for thermal insulation specified in Annex 2 of the regulation, and the window thermal characteristics comply with the requirements specified in §2.1 of Annex 2 (section 2.I. -Tables 1 - 5).	
03.07	National targets for renovation in connection to Long Term Renovation Strategy (number or percentage of buildings)	According to the recommended scenario, by 2050 66% of buildings will be brought to a passive standard (up to 50 kWh/(m^2.year)), and 21% to an energy-saving standard (50-90 kWh/(m^2.year). The remaining 13% of buildings, which for technical or economic reasons cannot be thoroughly modernised, will be in the efficiency range of 90-150 kWh/(m^2.year).	
03.08	National targets for renovation in connection to Long Term Renovation Strategy (expected reductions and relevant years)	Generally, the final energy saving potential is expected to total over 155,000 GWh. As a result, it will be possible to reduce over 46 million tonnes of CO_2 and almost 90 thousand tons of dust. The estimated cumulative number of renovations will amount to 2.34 million by 2030, 4.98 million by 2040, and 7.21 million by 2050.	

Key Implementation Decision – Energy Performance Certificates

no	Key Implementation Decision – Energy Performance Certificates	Description / value / response	Comment
04.01	Number of energy performance certificates per year (for instance average or values for of 3-5 years)	65,000	
04.02	Number of EPCs since start of scheme	330,000	
04.03	Number of EPCs for different building types		
04.04	Number of assessors	16,000	
04.05	Basic education requirements for assessors	Diploma of higher education completed with the title of professional engineer, architect engineer, landscape architect engineer, fire engineer, master engineer architect, master engineer landscape architect, master fire engineer or master engineer.	
04.06	Additional training demands for assessors	There are no additional demands	
04.07	Quality assurance system		
04.08	National database for EPCs	Yes	
04.09	Link to national information on EPCs / Database	https://rejestrcheb.miir.gov.pl	

Key Indicators & Decisions – Smart Buildings and Building Systems

no	Key Implementation Decision – Smart Buildings and Building Systems	Description / value / response	Comment
05.01	Is there a national definition of smart buildings?	No	
05.02	Are there current support systems for smart buildings?	No	
05.03	Are there currently specific requirements for technical building systems (for instance in building codes)?	No	
05.04	Are there current requirements for automatics (for instance in building codes)?	No	
05.05	Chosen option A or B for heating systems (inspection or other measures)	Inspection	
05.06	Number of heating inspections; reports per year (if option A)	1,500 reports per year	
05.07	Chosen option A or B for cooling systems (inspection or other measures)	Inspection	
05.08	Number of air-conditioning / cooling system inspections; reports per year (if option A)	500 reports per year	
05.09	Is there a national database for heating inspections?	Yes	
05.10	Is there a national database for cooling / air-conditioning inspections?	Yes	
05.11	Are inspection databases combined with EPC databases for registration of EPCs and inspection reports?	There is no direct connection	
05.12	Link to national information on Inspection / Database	https://rejestrcheb.miir.gov.pl	

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