CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

Implementation of the EPBD Republic of Latvia

Status in 2020

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1. Introduction

In Latvia, the implementation of the EPBD is the overall responsibility of the Ministry of Economics. The Ministry of Economics develops and implements the national energy efficiency policy, including the transposition of the EPBD. The necessary laws and regulations for transposing the EPBD were adopted at the end of 2014 and are currently all in force. This report presents an overview of the current status of the implementation of the EPBD in Latvia. It addresses requirements for the energy performance of buildings, for technical building systems, EPCs and inspections, and includes experiences with EPBD implementation as well as future plans.

The main legislative acts concerning the energy performance of buildings consist of:

- the Law on the Energy Performance of Buildings (*LEPB*) that was adopted in the Latvian Parliament *Saeima* and came into force on 9 January 2013[1];
- Cabinet Regulation No. 383 of 9 July 2013, '*Regulations regarding Energy certification of Buildings'* (Regulation No. 383)[2];
- Cabinet Regulation No. 348 of 25 June 2013, '*Building energy performance calculation method'* (Regulation No. 348)[3];
- Cabinet Regulation No. 382 of 9 July 2013, '*Regulations Regarding Independent Experts of Energy Performance of Buildings'* (Regulation No. 382)[4];
- Cabinet Regulation No. 339 of 30 June 2015, '*Regulations of Latvian Building Norm LBN 002-15 'Thermal requirements of the buildings envelopes'* (LBN 002-15)[5].

2. Current Status of Implementation of the EPBD

2.I. Energy performance requirements: NEW BUILDINGS

The minimum energy performance requirements for new buildings are laid out in LBN 002-15, which includes requirements for building envelope U-values, and in Regulation No. 383 including the minimum permissible level of energy performance of buildings.

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

Before 1980, building envelope characteristics were based on requirements for preventing moisture from forming on the inner surface of the outer walls, and for preventing freezing through the walls. For properly constructed buildings, the envelope heat transfer coefficient U-value was usually less than 1.3 W/(m^2 K). From 1980 onwards, buildings were built in accordance with a formal USSR Standard for the thermal resistance of the envelope, e.g., improving wall U-values to 1.1 W/(m^2 K). Significantly more demanding requirements were adopted by the Ministry of Architecture and Construction of the Republic of Latvia in September 1991. Since 2003, the LBN 002-15 (approved in 2001 and tightened in 2015 following cost-optimal studies) has been in force. Requirements for the minimum permissible level of energy consumption for heating (amendments in Regulation No. 383) were set in 2015.

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

The energy performance calculation methodology is applicable for new and reconstructed[6] or renovated[7] buildings, as well as for existing buildings. The energy performance calculation methodology is described in Regulation No. 348. The regulations have determined that the building energy performance calculation procedure shall include thermal comfort, indoor air quality, infiltration, thermal bridges and shading devices. The building energy performance class indicator corresponds to the value, which was established according to the energy consumption used to heat the building. The energy performance calculation methodology is based on the corresponding CEN Technical Report CEN/TR 15615:2009 and on Standard EN ISO 13790:2008 conditions and includes references to the 16 other CEN standards. The energy performance calculation methodology uses the primary energy factor for the non-renewable part. Primary energy factor values are shown in Table 1.

No.	Energy carrier or energy source		Primary energy factor of non-renewable part, *f*p.
1.	Fuels	Diesel fuel	1.1
2.		Natural gas	1.1
3.		LPG	1.1
4.		coal (anthracite)	1.1
5.		brown coal (lignite)	1.2
6.		biogas	0.5
7.		wood	0.2
8.	Central heating system, thermal energy produced in cogeneration*	fossil fuel	0.7
9.		renewable fuel	0.0
10.	Central heating system, thermal energy produced without cogeneration	fossil fuel	1.3
11.		renewable fuel	0.1
12.	Electricity	from electrical power networks	1.5
13.		from fossil resources	2.0
14.		from renewable energy sources, which is produced within the borders of the technical building systems	0.0
15.	Wind, solar, aerothermal, hydrothermal and sea energy, hydraulic energy		0.0

* The value corresponds to a heat supply system with 70% output from cogeneration.

Table 1. Primary energy factor values in Latvia.

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

The definition of NZEB was transposed into Regulation No. 383 in 2013. A cost-optimal study in 2014 showed that the defined level of NZEB (30 kWh/m^2 for heating) was difficult to achieve for almost all building types and the NZEB level was far from being cost-optimal, as the cost-optimal levels (for heating) were between 80-90 kWh/m^2. Based on this conclusion, the NZEB definition was revised in 2015. Currently, the NZEB definition (40 kWh/m^2 threshold for residential buildings and 45 kWh/m^2 threshold for non-residential buildings) is closer to the cost-optimal level. The amendments to Regulation No. 383 also included building class rescaling and a plan to reach the NZEB level for new buildings by 2021.

Currently, a building shall be classified as a NZEB if it meets all the following requirements:

- The building energy performance indicator corresponds to Class A by concurrently ensuring conformity of indoor climatic conditions with the requirements of the laws and regulations in the field of construction, hygiene and labour protection.
- The total primary energy consumption for heating, domestic hot water supply, mechanical ventilation, cooling and lighting accounts for no more than 95 kWh/m^2.year.
- High-efficiency systems are used in the building, which ensure:
    - recovery of no less than 75% of the ventilation heat loss during the heating season;
    - the, at least partial, use of RES (RES>0).
- There is no low efficiency fossil fuel heating equipment installed in the building[8].

Building classes are presented in Table 2 and a plan to reach the NZEB level for new buildings is given in Table 3.

Class	comparative assessment scale (calculated energy rating for heating)	
	for residential buildings	for non-residential buildings
	kWh/m^2 per year	kWh/m^2 per year
A	Class A ≤ 40 kWh/m^2	Class A ≤ 45 kWh/m^2
B	40 kWh/m^2 < Class B ≤ 60 kWh/m^2	45 kWh/m^2 < Class B ≤ 65 kWh/m^2
C	60 kWh/m^2 < Class C ≤ 80 kWh/m^2	65 kWh/m^2 < Class C ≤ 90 kWh/m^2
D	80 kWh/m^2 < Class D ≤ 100 kWh/m^2	90 kWh/m^2 < Class D ≤ 110 kWh/m^2
E	100 kWh/m^2 < Class E ≤ 150 kWh/m^2	110 kWh/m^2 < Class E ≤ 150 kWh/m^2
F	150 kWh/m^2 < Class F	150 kWh/m^2 < Class F

Table 2. Building energy classes in Latvia.

No.	Time period of approval of a construction intention (building permit documentation)	Minimum permissible level of energy performance of buildings, energy performance assessment for heating of new buildings			
		for residential buildings		for non-residential buildings	
		multi-apartment buildings	one-apartment or two-apartment buildings	buildings which are owned by the State and in the possession of the authorities and where the State authorities are located	other non-residential buildings
1.	Until 31 December 2016	≤ 70 kWh/m^2 per year	≤ 80 kWh/m^2 per year	≤ 100 kWh/m^2 per year	≤ 100 kWh/m^2 per year
2.	From 1 January 2017 to 31 December 2017	≤ 60 kWh/m^2 per year	≤ 70 kWh/m^2 per year	≤ 90 kWh/m^2 per year	≤ 90 kWh/m^2 per year
3.	From 1 January 2018 to 31 December 2018	≤ 60 kWh/m^2 per year	≤ 70 kWh/m^2 per year	≤ 65 kWh/m^2 per year	≤ 90 kWh/m^2 per year
4.	From 1 January 2019 to 31 December 2020	≤ 50 kWh/m^2 per year	≤ 60 kWh/m^2 per year	NZEB	≤ 65 kWh/m^2 per year
5.	From 1 January 2021 and hereinafter	NZEB	NZEB	NZEB	NZEB

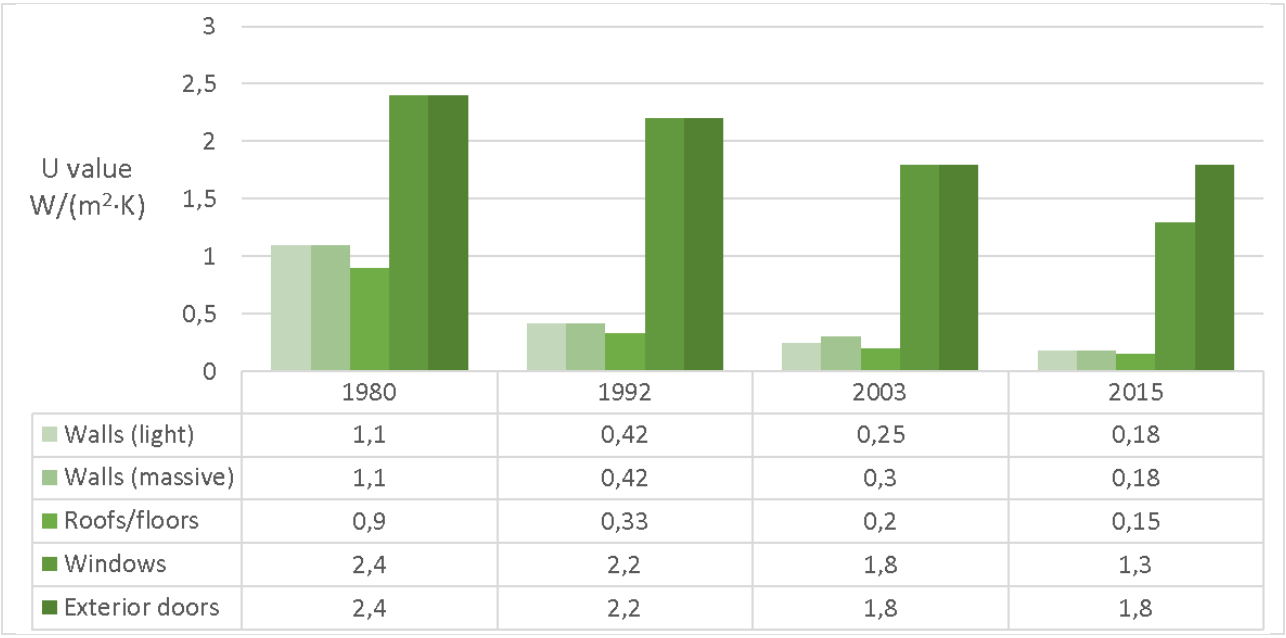
Table 3. Timeplan for reaching the NZEB level for new buildings.

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

Design requirements for heating systems concern the minimum permissible level of the energy performance of buildings (Regulation No. 383) and for the envelope values (LBN – 002-15). Design requirements for hot water, cooling, ventilation and lighting systems are based on construction laws and the related building codes, with references to applicable standards. The design requirements for the primary energy level are set for NZEB only. Changes for the requirements of the building envelopes for residential buildings are shown in Table 4 and Figure 1.

Building components		1980	1992	2003	2015
Roofs and floors in contact with the outdoor air	W/ (m^2·K)	0.90	0.25 - 0.40	0.2 k*	0.15 k
Floors on the ground		-	0.5	0.25 k	0.15 k
The outer wall of a mass of less than 100 kg / m^2		1.1	0.33 - 0.50	0.25 k	0.18 k
The outer wall of a mass of less than 100 kg / m^2				0.3 k	
Windows		2.4	1.9 - 2.4	1.8 k	1.30 k
Building exterior doors		2.4	1.9 - 2.4	1.8 k	1.80 k
Thermal bridges		-	-		
* Temperature factor **k** = 19/($T_{ind.}$ - T_{outd}), depending on climate zones **k** for residental buildings is from 0,95 (Liepāja) to 1,09 (Alūksne)					
Approximate energy consumption for heating	kWh/m^2 per year	150 - 200	100 - 130	70 - 90	60 - 85

Table 4. Changes for the requirements of the building envelopes for residential buildings.



	1980	1992	2003	2015
Walls (light)	1,1	0,42	0,25	0,18
Walls (massive)	1,1	0,42	0,3	0,18
Roofs/floors	0,9	0,33	0,2	0,15
Windows	2,4	2,2	1,8	1,3
Exterior doors	2,4	2,2	1,8	1,8

Figure 1. Changes for the requirements of the building envelopes for residential buildings.

2.I.v. Enforcement systems new buildings

According to the Construction Law (Section 12, Paragraph 3, Clause 1), the Construction Board, in accordance with its competence, controls the construction process and its compliance with the requirements of this Law and other construction regulatory enactments. Moreover, the Construction Law (Section 19, Paragraph 6) provides that the construction supervisor shall be responsible for the supervision of the entire construction process and shall control each construction stage as is specified in the construction supervision plan. Such control shall be performed on the construction site within the time limits provided for in the relevant plan. The supervisor shall also ensure that the construction, or part thereof, fulfils the requirements set by the initiator, the Construction Law and any other relevant regulatory enactments. Construction supervisors are civilly liable for infringements, and their professional practice is supervised by the accredited national institution.

In addition, input data values (values of building codes) used in the process of building certification are supervised through energy performance of buildings independent experts.

2.II. Energy performance requirements: EXISTING BUILDINGS

The energy performance calculation methodology for existing buildings is the same as for new buildings. Also, the requirements for the individual parts of the building envelopes are the same for renovations and for new buildings. The minimum permissible level of the energy performance of buildings is however different for existing buildings, with requirements as shown in Table 5. An exemption to the minimum energy performance requirements applies to buildings under reconstruction or renovation, if the application of these requirements is not technically, functionally or economically feasible. In the latter case (economic feasibility), Regulation No. 348 provides calculations according to Standard EN 15459:2008.

Minimum permissible level of energy performance of buildings, energy performance assessment for heating of existing buildings undergoing renovation Since 21 November 2015			
for residential buildings		for non-residential buildings	
multi-apartment buildings	one-apartment or two-apartment buildings	buildings which are owned by the State and in the possession of the authorities and where the State authorities are located	other non-residential buildings
≤ 90 kWh/m^2 per year	≤ 100 kWh/m^2 per year	≤ 110 kWh/m^2 per year	≤ 110 kWh/m^2 per year

Table 5. Minimum permissible level of the energy performance of buildings.

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

As determined in Cabinet Regulation No. 907 of 28 September 2010, '*Regulations Regarding the Survey, Technical Servicing, Current Repairs and Minimal Requirements for Energy Efficiency of the Residential House*'[9], if the minimum energy performance requirements for existing residential buildings are exceeded, the building owner is obligated to undertake measures for the improvement of the energy performance. Regulation No. 907 states that the administrator of a multi-family residential building shall plan measures for improving the energy efficiency, including the renovation of the building, if the average thermal energy consumption (heating and domestic hot water) within the last three calendar years has exceeded 200 kWh/m^2 per year, or 150 kWh/m^2 per year if the heat is used for space heating only.

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

Design requirements concern a minimum permissible level of the energy performance of buildings, requirements for the heating system (Regulation No. 383), and envelope values (LBN – 002-15). Projecting requirements for domestic hot water, cooling, ventilation and lighting systems are based on construction laws and the related building codes, with references to applicable standards. The projecting requirement for the primary energy level is set for NZEB only.

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

In 2012, the Ministry of Environmental Protection and Regional Development started a project called '*Low Energy Buildings*' (*LEB*) within the Latvian governmental programme of '*Climate Change Financial Instrument* (*CCFI*)'[10]. The *LEB* project supported the construction of new buildings and the reconstruction of existing ones to achieve target values. Within the project, 14 different pilot projects were carried out for different building types. However, the projects were not cost-efficient for the owners without an external source of financing (grants). Based on these results, minimum energy performance requirements are based on cost-optimal values only, which means that the NZEB level for existing buildings is not mandatory.

In the future, Latvia must contribute to common EU targets, e.g., a long-term 2050 goal of reducing greenhouse gas emissions by 80-95% compared to 1990. According to the '*Clean Energy for all Europeans*' package of amendments to the EPBD, Latvia will indicate a target to decarbonise its national building stock. This target will be included in Latvia's next Long-Term Renovation Strategy (the next update of the strategy will be made in 2020).

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

According to EPBD Article 2a the national Long-Term Renovation Strategy must be updated with some new requirements. The main additions in the Strategy will include obstacles, which hinder improve energy performance by building renovation, e.g., economic feasibility of projects, insufficient funding from public and private sectors, lack of awareness by end-users, etc.

The strategy will include a roadmap for the decarbonisation of the building stock until 2050, considering, among others, initiatives for funds which are necessary for this to be achieved. . For this, it is important to improve private & public partnerships and decrease obstacles which hinder energy efficiency in the building renovation process (for example complexity of project implementation, the risk of applying financial corrections).

Nevertheless, it is important to note that Latvia has already initiated actions towards achieving its 2050 climate targets. Among others, this includes plans to reduce energy poverty risks with new social housing, support young families who, encouraged by attractive financial instruments, choose to live in a highly energy-efficient housing, and initiate a new private house support programme as well as energy efficient solutions for standard-type buildings.

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

Funding activities for buildings during the period 2014 – 2020 include:

- activities to promote the efficient use of energy resources, reducing energy consumption and transitioning to RES in the manufacturing sector[11] (grant programme for industrial and commercial sector building renovations;
- activities to promote energy efficiency in residential buildings[12] (grant programme for multi-residential sector building renovations;
- activities to promote energy efficiency in state buildings[13] (renovation programme to ensure the fulfilment of Directive 2012/27/EU for central government buildings);
- activities to promote energy efficiency in local municipality buildings[14] (renovation programme to ensure the target fulfilment of Directive 2012/27/EU for local government buildings);
- an emission allowances trading tool[15] comprising
    - greenhouse gas emissions reduction – activities for low-energy buildings (programme to promote NZEB and the exemplary role of public buildings);
    - greenhouse gas emissions reduction of national significance for protected architectural monuments (specific programme for renovations of architectural monuments);
- other activities which include building renovations[16].

2.II.vi. Information campaigns / complementary policies

A campaign named *'Living warmer'*[17] for promoting the energy performance of buildings in Latvia (Figure 2) has been running since 2010. The key objective of the *Living warmer* campaign is to inform households about the existence and the conditions of support programmes in the EU 2007-2013 and EU 2014-2020 planning periods. More than 200 informative events have been held throughout Latvia, which included a

variety of public debates, seminars, conferences and exhibitions, involving more than 8,500 participants in total. The campaign has been running successfully for ten years and informative events – seminars, conferences, exhibitions – have been regularly held throughout the country. Some of the seminars were also web-streamed; videos can be found at www.youtube.com/siltinam. The measures have covered different themes, e.g.: the need to improve the technical condition of your home, how to pass decisions at general meetings of apartment owners, how to carry out high-quality renovation of housing, sharing experiences related to already renovated houses, etc. The implementation of such measures has clearly increased public awareness and knowledge of the need for energy efficiency measures and has triggered cooperation between clients and service providers, which has thereby resulted in an increase of the number of buildings being renovated throughout Latvia.

Figure 2. 'Living warmer' campaign.

Since 2011, the annual competition '*Energy efficient buildings in Latvia*'[18] has been held to promote the good practice of implementing energy efficiency in the building sector, as well as implementing energy-efficient building construction, renovation and reconstruction.

The Energy Efficiency Center[19] of the public energy generation company *JSC Latvenergo and Zemgales* Regional Energy Agency[20] advises the public and private sectors about ways to energy efficiently use electricity and heating.
The Energy Efficiency Information Center of Riga's municipality agency organises seminars on the quality of renovations and provides information and advice about energy efficiency, including free advice about preparing applications for renovations and energy audits.

2.III. Energy performance certificate requirements

In Latvia, an EPC is issued in the following cases:

- for a building to be constructed, reconstructed or renovated, in order to accept it for service or to sell;
- for an existing building or building unit, in order to sell, rent or lease it, if the certification of the energy performance is requested by the purchaser, tenant or lessee;
- for an existing public building in the state or local government ownership, the heating area of which exceeds 250 m^2;
- upon request by the building owner.

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

Latvia is currently amending the *LEPB*, which includes improved requirements for EPC issuing and sanctions.

2.III.ii. Quality Assurance of EPCs

The *Building Information System* (*BIS*), which is an electronic system that brings together all the information about the construction process and the parties involved in a project, has been implemented since 2016. BIS includes a *Register of Independent Experts in the Field of Energy Performance of Buildings and a Register of Certificates of Energy Performance of Buildings*. The *State Construction Control Office* periodically selects documents of independent experts for random testing purposes and inspects the selected documents. Also, for every project supported by European Community funding, energy performance compliance is required. In any other building, if a complaint is received, the certification body must check the EPC, energy audit or inspection report received by the qualified experts. In case of a violation, the certification body can apply penalty points.

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

The obligation to issue an EPC for public and large buildings visited by the public is only mandatory if the building owner is the central or local government. State building certifications are still in process. The delay in implementation is due to the fact that the activity to promote energy efficiency in state buildings[13] had only started at the end of 2016, with the EPC being one of the requested documents. Issuing an EPC is rational and cost-efficient when the building is participating in the aforementioned programme.

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

According to the *LEPB*, advertisements for the sale, rent or lease of any building or building unit should display the energy performance indicators of the building or building unit if an EPC has already been issued for that building in accordance with the procedures specified in this law. This requirement is not fully effective, as there is no penalty system. Latvia has been developing a more ambitious penalty system since 2017.

2.IV. Smart buildings and building systems

Inspection requirements are included in the *LEPB* and in Regulation No. 383. Latvia has implemented an inspection scheme based on the requirements in EPBD Article 14 and Article 15, points 1, 2, and 3.

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

Latvia is continuing to improve the *LEPB* for the purpose of requirements for smart buildings.

2.IV.ii. Regulation of system performance

For NZEB, high-efficiency ventilation systems must be used in the building, which ensure recovery of no less than 75% of the ventilation heat loss during the heating season.

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

For the purpose of BACs the relevant regulation is planned to be amended and new regulation to be issued in 2020.

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

In 2015, Latvia amended Cabinet Regulation No. 876 of 21 October 2008, '*Regulations Regarding the Supply and Use of Thermal Energy*'. The amendments state that in multi-family apartment buildings and non-

residential buildings in which owners of apartments have to mutually divide the bill for the consumed thermal energy (the bill presents an overall consumption of the whole building), the authorised person shall divide the amount of consumed thermal energy using measuring devices installed in each apartment. If the use of such measuring devices is not technically possible or profitable, heat-cost allocators shall be used. This requirement has been in force for buildings that received their building permit after 1 January 2016 and whose thermal energy is provided from a central source.

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

Cabinet Regulation No. 383 determines that the inspection of boilers and heating systems is mandatory for heating systems with a boiler with an effective rated output of over 20 kW, as well as for AC systems with an effective rated output of over 12 kW. The inspection of boilers must be done in accordance with Standard LVS EN 15378:2009 L, '*Energy performance of buildings: Inspection of boilers and heating systems*'[21]. The inspection of AC systems must be done in accordance with Standard LVS EN 15240:2009 L, '*Ventilation for Buildings -Energy performance of buildings: Guidelines for the inspection of air-conditioning systems*'[22].

There are 23 registered inspection reports in the *BIS* (data 2019). This indicates that the current inspection scheme is an ineffective tool, which requires improvement. One possible reason for this insufficiency is a lack of control mechanisms. The Ministry of Economics aims to revise the current inspection scheme before the new EPBD transposition deadline.

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

The Ministry of Economics aims to revise the current inspection scheme before the new EPBD transposition deadline.

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

The Ministry of Economics aims to revise the current inspection scheme before the new EPBD transposition deadline.

3. A success story in EPBD implementation

With the aim to digitalise all documentation related to the entire construction process, Latvia has introduced the *BIS* which also offers public access to the *Register of Independent Experts in the Field of Energy Performance of Buildings* and the *Register of Certificates of Energy Performance of Buildings*. This digitalisation process lessens the administrative and paperwork burden for the certification of qualified experts, as any new information is always available online for anyone to check. Implementing the *BIS* will give access to better statistical data and lead to a better understanding of how requirements work in practice.

As explained in section 2.II.i. of this report, Regulation No. 907 determines which energy performance level a building must not exceed, and obliged the owner to undertake measures for its improvement if those levels are exceeded. SO far, owners of buildings that exceed this level are receiving informative letters. This is not intended as a punishable clause and therefore, no penalties have been applied so far. This process is set in order to give the administrator of a multi-apartment residential building the possibility to take mandatory actions without having to go through the usual voting procedure required of apartment owners. This, however, is only possible in cases where the average thermal energy consumption of the residential house within the last three calendar years has exceeded 200 kWh/m^2 per year, or 150 kWh/m^2 if the heat is

only used for residential building heating. In some cases, this requirement can trigger the need for complex renovations; in other cases, it will only trigger a single measure, for example, a simple change to the attic insulation. Still, this does not allow a multi-family building administrator to start a large-scale renovation that would have significant financial implications without the owners' consent. The consent through the owner voting procedure remains necessary if the improvement of the energy performance system would require a building permit from a building authority.

This mechanism is very effective for multi-family buildings where small-scale energy performance improvements are required and it is difficult to get all owners' consent. Also, it is an effective tool for encouraging the building administrator to start actively informing apartment owners about the benefits of energy performance and the need to improve it, as well as to trigger the owner voting procedure for large-scale renovation works, especially in cases where the administrator only does the bare minimum.

4. Conclusions, future plans

Latvia will develop further policies and take additional measures to improve the existing legal framework for the energy performance of buildings.

Latvian short-term plans are:

- to plan a revision of the qualified expert monitoring scheme (during 2020);
- to improve legislative acts regarding building automation and control systems (in 2020);
- to revise the current energy performance calculation method and energy certification of buildings (in 2020-2021);
- to revise the LEPB (in 2020);

Latvian mid- and long-term plans are:

- to take measures to increase the number of NZEB, as well as to consider possible changes to definitions and requirements;
- to implement EU's *Clean energy for all Europeans* package (amendments to the EPBD);
- to define targets for the decarbonisation of the national building stock and integrate them in the next long-term renovation strategy.

Endnotes

1. https://likumi.lv/doc.php?id=253635
2. http://vvc.gov.lv/image/catalog/dokumenti/Cab.%20Reg.%20No.%20383%20-%20Regulations%20Regarding%20Energy%20Certification%20of%20Buildings.docx
3. http://vvc.gov.lv/export/sites/default/docs/LRTA/MK_Noteikumi/Cab._Reg._No._348_-_Calculating_the_Energy_Performance_of_a_Building.pdf
4. http://vvc.gov.lv/export/sites/default/docs/LRTA/MK_Noteikumi/Cab._Reg._No._382_-_Independent_Experts_of_Energy_Performance_of_Buildings.doc

5. https://likumi.lv/ta/id/275015-noteikumi-par-latvijas-buvnormativu-lbn-002-15-eku-norobezojoso-konstrukciju-siltumtehnika-

6. Reconstruction or construction work as a result of changes to the dimension of a structure or a part of a structure, or as a result of the strengthening of the load-bearing elements with or without changing the type of use.

7. Renovation or construction work as a result of changes to the load-bearing elements of a structure, or if functional or technical improvements have been performed without changing the dimension of the structure or the load-bearing capacity of the elements.

8. Control-checking decisions are left to qualified experts. Usually, the existing building equipment parameters are compared with new equipment parameters available in the market. If the installed equipment is significantly less efficient than what is available in the market, the requirement is not fulfilled and the building is classified as Class A level but is not considered an NZEB building.

9. http://vvc.gov.lv/image/catalog/dokumenti/Cab.%20Reg.%20No.%20907%20-%20Survey%20of%20the%20Residential%20House.docx

10. www.varam.gov.lv/lat/darbibas_veidi/KPFI/projekti/?doc=11775

11. http://cfla.gov.lv/lv/es-fondi-2014-2020/izsludinatas-atlases/4-1-1

12. www.altum.lv/lv/pakalpojumi/energoefektivitate/

13. www.cfla.gov.lv/lv/es-fondi-2014-2020/izsludinatas-atlases/4-2-1-2-k-1

14. www.varam.gov.lv/lat/likumdosana/normativo_aktu_projekti/2014__2020_gada_eiropas_savienibas_fondi/?doc=21705

15. http://varam.gov.lv/lat/fondi/ekii/projekti/

16. www.esfondi.lv/sakums

17. https://em.gov.lv/lv/es_fondi/dzivo_siltak/ievads/

18. www.energoefektivakaeka.lv

19. www.latvenergo.lv/lat/klientiem/EEC/

20. www.zrea.lv/

21. www.lvs.lv/lv/products/26634

22. www.lvs.lv/lv/products/26646

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)	Buildings that are occupied and owned by public authorities, i.e.: owned by the State and in the possession of the authorities and where the State authorities are located	Transposed in Cabinet Regulation No. 383 of 9 July 2013 'Regulations regarding Energy certification of Buildings' (Regulation No. 383) Annex 5 for Minimum Permissible Level of Energy Performance of Buildings for New Buildings
01.02	Definition of public buildings used by the public (according to article 13)	Buildings frequently visited by the public – public buildings Public Structure – any building, where more than 50% of its total area concerns public spaces or spaces for ensuring public functions, or an engineering structure intended for public use (such as stadiums or bandstands)	Transposed in the Law on the Energy Performance of Buildings (*LEPB*) Article 13 first part point 3 The public building definition is determined in the Latvian Building Code LBN 208-15 'Public structures'
01.03	Number of residential buildings	363,991 (91.08x106 m^2)	Information from the National Real Estate Cadastre Information System (1 January 2019)
01.04	Number of non-residential buildings	1,006,847 (115.50 x106 m^2)	Information from the National Real Estate Cadastre Information System (1 January 2019)
01.05	If possible, share of public buildings included in the number given in 01.04	32,825 (27.29 x106 m^2)	Information from the National Real Estate Cadastre Information System (1 January 2017) There are no separate statistics for public buildings and commercial buildings.
01.06	If possible, share of commercial buildings included in the number given in 01.04	32,825 (27.29 x106 m^2)	Information from the National Real Estate Cadastre Information System (1 January 2017) There are no separate statistics for public buildings and commercial buildings.
01.07	Number of buildings constructed per year (estimate)	New residential buildings built (x103 m2 total area) 2018 – 455 2019 – 539.5	Central Statistical Bureau
01.08	If possible, share of residential buildings constructed per year (estimate, included in the number given in 01.07)	Data is not available	
01.09	If possible, share of non-residential buildings constructed per year (estimate, included in the number given in 01.07)		

no	Key Implementation Decisions – General Background	Description / value / response	Comments
01.10	Useful floor area of buildings constructed per year in million square meters (estimate)	2019 – 1,236 M m^2	New buildings together, e.g., one-apartment houses, two- or more-apartment houses, dwellings of various social groups, hotels and similar buildings, office buildings, wholesale and retail buildings, traffic and communication buildings, industrial production buildings and warehouses, entertainment, educational or healthcare buildings, other non-residential buildings

Key Indicators & Decisions – New Buildings

no	Key Implementation Decision – New Buildings	Description / value / response	Comments
02.01	Are building codes set as overall value, primary energy, environment (CO_2), reference building or other		
02.02	Requirements for energy performance of residential buildings in current building code	Minimum permissible level of energy performance of buildings, energy performance assessment for heating of new buildings: **For multi-apartment buildings**≤ 60 kWh/m^2 per year **For one-apartment or two-apartment buildings**≤ 70 kWh/m^2 per year Minimum energy performance requirements (building heat transfer coefficient and U values) (normative / maximal): **For residential buildings + hospitals + kindergartens + homes for elderly**: Roofs – 0.15 k / 0.20 k Floors – 0.15 k / 0.20 k Walls – 0.18 k / 0.23 k Windows – 1.30 k / 1.80 k Doors – 1.80 k / 2.30 k Thermal bridges – 0.10 k / 0.15 k	Minimum permissible level of energy performance of buildings is set in Regulation No. 383 Annex 5 which provides a timeframe for requirements to achieve nearly zero-energy level as minimum energy performance level for all new buildings since 2021. Minimum energy performance requirements for heat transfer coefficient and for U values are set in Cabinet Regulation No. 339 of 30 June 2015 'Regulations of Latvian Building Code LBN 002-15 - Thermal requirements of the buildings envelopes' (LBN 002-15). LBN 002-15 requirements for new buildings are the same as for renovations. k – temperature factor U values (normative / maximum)
02.03	Requirements for energy performance of non-residential commercial buildings in current building code	Minimum permissible level of energy performance of buildings, energy performance assessment for heating of new buildings: **For non-residential buildings**≤ 90 kWh/m^2 per year Minimum energy performance requirements (building heat transfer coefficient and U values) (normative / maximum):	Minimum permissible level of energy performance of buildings is set in Regulation No. 383 Annex 5 which provides a timeframe for requirements to achieve nearly zero-energy level as minimum energy performance level for all new buildings since 2021. Minimum energy performance requirements for heat transfer coefficient and for U values are set in Cabinet Regulation No. 339 of 30 June 2015 'Regulations of Latvian Building Code LBN 002-15 - Thermal requirements of the buildings envelopes' (LBN 002-15). LBN 002-15 requirements for new buildings are the same as for renovations. k – temperature factor U values (normative / maximum)

no	Key Implementation Decision – New Buildings	Description / value / response	Comments
		For non-residential buildings - hospitals - kindergartens - homes for elderly: Roofs – 0.20 k / 0.25 k Floors – 0.20 k / 0.25 k Walls – 0.20 k / 0.25 k Windows – 1.40 k / 1.80 k Doors – 2.00 k / 2.50 k Thermal bridges – 0.15 k / 0.20 k **For industrial buildings:** Roofs – 0.25 k / 0.35 k Floors – 0.30 k / 0.40 k Walls – 0.25 k / 0.30 k Windows – 1.60 k / 1.80 k Doors – 2.20 k / 2.70 k Thermal bridges – 0.30 k / 0.35 k	
02.04	Requirements for energy performance of non-residential public buildings in current building code		
02.05	Is the performance level of nearly zero energy (NZEB) for new buildings defined in national legislation?	Yes	(Regulations No.383, point 17., requirements for NZEB) 17. A building shall be classified as a nearly-zero energy building, if it meets all of the following requirements: 17.1. building energy performance indicator corresponds to Class A by concurrently ensuring conformity of indoor climatic conditions with the requirements of the laws and regulations in the field of construction, hygiene and labour protection; 17.2. the total primary energy consumption for heating, hot water supply, mechanical ventilation, cooling, lighting accounts for no more than 95 kWh per square meter per year; 17.3. high-efficiency systems are used in the building, which: 17.3.1 ensure recovery of no less than 75% of the ventilation heat loss during the heating season; 17.3.2. ensure at least partial use of renewable energy; 17.4. there is no fossil fuel heating equipment installed in the building.
02.06	Nearly zero energy (NZEB) level for residential buildings (level for building code)	Performance class for heating ≤ 40 kWh/m^2 per year	(For residential buildings, building energy performance class for heating ≤ 40 kWh/m^2 per year, based on Class A.)
02.07	Year / date for nearly zero energy (NZEB) as level for residential buildings (as indicated in 02.04)	2021	From 1 January 2021 and hereinafter

no	Key Implementation Decision – New Buildings	Description / value / response	Comments
02.08	Nearly zero energy (NZEB) level for all non-residential buildings (level for building code)	Performance class for heating ≤ 45 kWh/m^2 per year	(For non-residential buildings, building energy performance class for heating ≤ 45 kWh/m^2 per year, based on Class A.)
02.09	Year / date for nearly zero energy (NZEB) as level for non-residential buildings (as indicated in 02.06)	2019/2021	From 1 January 2019 and hereinafter for buildings which are owned by the State and in the possession of the authorities and where the State authorities are located From 1 January 2021 and hereinafter for all buildings
02.10	Are nearly zero energy buildings (NZEB) defined using a carbon or environment indicator?	No	However, this information should be expressed and there is need for them to be included in EPCs.
02.11	Is renewable energy a part of the overall or an additional requirement?	Partly	For NZEB at least partially the use of renewable energy is ensured
02.12	If renewable energy is an additional requirement to NZEB, please indicate level	See 02.11.	See 02.11.
02.13	Specific comfort criteria for new buildings, provide specific parameters for instance for airtightness, minimum ventilation rates		

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?	Yes	(Regulations No.383, point 17., requirements for NZEB) 17. A building shall be classified as a nearly-zero energy building, if it meets all of the following requirements: 17.1. building energy performance indicator corresponds to Class A by concurrently ensuring conformity of indoor climatic conditions with the requirements of the laws and regulations in the field of construction, hygiene and labour protection; 17.2. the total primary energy consumption for heating, hot water supply, mechanical ventilation, cooling, lighting accounts for no more than 95 kWh per square meter per year; 17.3. high-efficiency systems are used in the building, which: 17.3.1 ensure recovery of no less than 75% of the ventilation heat loss during the heating season; 17.3.2. ensure at least partial use of renewable energy; 17.4. there is no fossil fuel heating equipment installed in the building.
03.02	Is the level of nearly zero energy (NZEB) for existing buildings similar to the level for new buildings?	Yes, it is the same	
03.03	Definition of nearly zero energy (NZEB) for existing residential buildings (if different from new buildings)	It is the same as for new buildings	
03.04	Definition of nearly zero energy (NZEB) for existing non-residential buildings (if different from new buildings)	-	
03.05	Overall minimum requirements in case of major-renovation		Requirements for U values are the same as for new buildings (see 2.1. and 2.2.)
03.06	Minimum requirements for individual building parts in case of renovation	15.^{2} Minimum permissible level of energy performance of buildings for buildings to be reconstructed or renovated: 15.^{2} 1. for multi-apartment residential house – energy performance indicator for heating does not exceed 90 kWh per square meter per year;	Requirements for major renovation are set in Regulation No.383 point 15.^{2}.

no	Key Implementation Decision – Existing Buildings	Description / value / response	Comment
		15.[2] 2. for one-apartment and two-apartment residential buildings of different types – energy performance indicator for heating does not exceed 100 kWh per square meter per year; 15.[2] 3. for non-residential buildings – energy performance indicator for heating does not exceed 110 kWh per square meter per year.	
03.07	National targets for renovation in connection to Long Term Renovation Strategy (number or percentage of buildings)		
03.08	National targets for renovation in connection to Long Term Renovation Strategy (expected reductions and relevant years)		

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)	3,561	Average of the last 3 years (2017 to 2019)
04.02	Number of EPCs since start of scheme	~ 14,000	
04.03	Number of EPCs for different building types		
04.04	Number of assessors	In total 93 experts with the following competences: To issue an EPC – 93 experts To issue a temporary EPC – 93 experts To issue inspections – 8 experts	Information based on register of independent experts.
04.05	Basic education requirements for assessors	**Education requirements for experts to issue EPCs** An acquired vocational or academic higher education of the first or second level, provided that the educational programme provides knowledge on the following: - heat engineering of building envelopes; - technical building systems (heating, cooling, ventilation, air-conditioning, water supply, lighting); - building climatology and the indoor climate; - energy performance assessment and calculation methodology. **Education requirements for experts to issue inspections**: An acquired vocational or academic higher education of the first or second level, provided the study programme provides knowledge of the following: - heating installations and systems; - air-conditioning equipment and systems; -cooling units and systems; - measurements and control of the equipment.	Requirements for independent experts are set in Cabinet Regulation No. 531 of 21 August 2018 ‘Regulations Regarding Independent Experts of Energy Performance of Buildings’ (Regulation No. 531).

no	Key Implementation Decision – Energy Performance Certificates	Description / value / response	Comment
		Requirements for building specialists: A construction specialist who has a valid certificate in the field of designing building constructions or in the field of designing heating, ventilation, and air-conditioning systems, or who has an architect's practice certificate and who has passed the competence test in accordance with Paragraph 11 of the Regulation No.531, is entitled to determine the planned energy performance of a building or building unit to be designed, reconstructed, or renovated, and is entitled to issue a temporary energy performance certificate of the building. A construction specialist who has a valid certificate in the field of managing the construction works on heating, ventilation, and air-conditioning systems or in the field of supervising the construction works on heating, ventilation, and air-conditioning systems and who has passed the competence test in accordance with Paragraph 12 of the Regulation No.531 is entitled to perform the inspection of heating systems and air-conditioning systems.	
04.06	Additional training demands for assessors	**Requirements for experts to issue EPCs:** - at least two years of practical work experience in assessing the energy performance of buildings, by working under the supervision of an independent expert with a certified competence in assessing the energy performance of an existing building or its unit and authorised to issuing EPCs, as well as a certified competence in assessing the planned energy performance of new, to be designed,	Requirements for independent experts are set in Regulation No. 382.

no	Key Implementation Decision – Energy Performance Certificates	Description / value / response	Comment
		buildings, buildings or their units to be reconstructed or renovated, and authorised to issuing a temporary EPC; - successful passing of the competence test in accordance with Paragraph 9 of the Regulation No.531. **Requirements for experts to perform inspections:** - at least six months of practical work experience in the field of inspecting heating and air-conditioning systems, by working under the supervision of an independent expert with a certified competence in inspecting heating and air-conditioning systems, and issuing inspection reports; - successful passing of the competence test in accordance with Paragraph 10 of the Regulation No.531.	
04.07	Quality assurance system	- An authority examining the competence of independent experts shall ensure that, within a period of five years, every independent expert is checked, through an assessment of their professional activity and the EPCs, temporary EPCs and heating and air-conditioning inspection reports issued, checking the correctness of other documents, as well as the objectivity and veracity of the provided assessment. - The State Construction Control Bureau shall randomly select documents drawn up by independent experts to be inspected, and will assign the relevant authority to examine the competence to carry out document inspection. - If the State Construction Control Bureau or the Ministry of Economics has received an application or other information on a violation of a professional activity of an independent	Requirements for Quality assurance system are set in Regulation No. 382.

no	Key Implementation Decision – Energy Performance Certificates	Description / value / response	Comment
		expert whose certificate has been issued by the authority examining the competence the operations of which have been terminated, the State Construction Control Bureau shall send the documents referred to in Paragraph 22 of the Regulation No.531 for inspection to another authority examining the competence. - After receipt of the information referred to in Paragraphs 22 and 23 of the Regulation No.531, and if it receives an application or other information on a violation of a professional activity of an independent expert, the authority examining the competence shall assess the operations of this independent expert.	
04.08	National database for EPCs	Yes	Limited access for documents, public access for publicly available information (class, energy performance indicators => EPCs first page). https://bis.gov.lv/bisp/lv/epc_documents
04.09	Link to national information on EPCs / Database		

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)?		
05.04	Are there current requirements for automatics (for instance in building codes)?		
05.05	Chosen option A or B for heating systems (inspection or other measures)		
05.06	Number of heating inspections; reports per year (if option A)		
05.07	Chosen option A or B for cooling systems (inspection or other measures)		
05.08	Number of air-conditioning / cooling system inspections; reports per year (if option A)		
05.09	Is there a national database for heating inspections?	Yes	Limited access https://bis.gov.lv/bisp/lv/epc_documents
05.10	Is there a national database for cooling / air-conditioning inspections?	Yes	Limited access https://bis.gov.lv/bisp/lv/epc_documents
05.11	Are inspection databases combined with EPC databases for registration of EPCs and inspection reports?	Yes	In the same register with possibility to link inspections to EPCs.
05.12	Link to national information on Inspection / Database		

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement № 820497.