1. Introduction

The implementation of the Directive 2002/91/EC on the Energy Performance of Buildings (EPBD) in Latvia is the overall responsibility of the Ministry of Economics. The Ministry of Economics develops and implements energy efficiency policy including the transposition of the EPBD.

All laws and regulations for the transposition of the EPBD were adopted in 2009 and are still in force at the end of 2012. The necessary laws and regulations for transposition of the recast EPBD (2010/31/EC) are under development and adoption: the new Law on the Energy Performance of Buildings (LEPB) was drafted by the Ministry of Economics and adopted in the Saeima (Latvian Parliament) on the 6th of December 2012. The Law provides norms for transposition of the recast EPBD as well as some new approaches for certification of building parts and inspection of heating and air-conditioning systems. The transposition is expected to be in place by the 30th of June 2013 and the cost-optimal requirements by the end of 2013.

This report presents an overview of the current status of transposition and implementation of the EPBD in Latvia. It addresses Energy Performance (EP) requirements, energy performance certification requirements and inspection of heating and air-conditioning system requirements, as well as future plans.

2. Energy performance requirements

With regard to new building requirements, there is an active discussion ongoing and opinions vary. Currently, Latvia is in the process of carrying out a detailed examination of the situation.

2.1 Progress and current status

The EP requirements are set out for external envelope structures of buildings.

Before 1980, building envelope characteristics were based on calculations to prevent moisture forming on the inner surface of the outer walls and to prevent freezing through the walls. For properly constructed buildings, the envelope heat transfer coefficient U value was usually less than 1.3 W/m².K. From 1980, buildings were built in accordance with a formal USSR Standard for the thermal resistance of envelope, e.g., improving wall U values to 1.1 W/m².K. Significantly more demanding requirements were adopted by the Ministry of Architecture and Construction of the Republic of Latvia in September 1991. Since 2003 until now, the Latvian Building Norm LBN 002-01 ‘Thermal requirements of the buildings envelopes’ (approved by the Cabinet of Ministers on the 27th of November 2001) has been in force.

The changes of requirements of building envelope for residential buildings are shown in Table 1 and Figure 1. In accordance with the EC regulation...
Table 1: Change of requirements for the building envelope for residential buildings and approximate energy consumption for heating.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofs and external coverings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floors on the grounds</td>
<td>0.90</td>
<td>0.25 – 0.40</td>
<td>0.2 k*</td>
</tr>
<tr>
<td>Walls with mass less than 100 kg/m²</td>
<td>-</td>
<td>0.5</td>
<td>0.25 k</td>
</tr>
<tr>
<td>Walls with mass 100 kg/m² or more</td>
<td>1.1</td>
<td>0.33 – 0.50</td>
<td>0.25 k</td>
</tr>
<tr>
<td>Windows, doors and glazed walls</td>
<td>2.4</td>
<td>1.9 – 2.4</td>
<td>1.8 k</td>
</tr>
<tr>
<td>Thermal bridges</td>
<td>-</td>
<td>-</td>
<td>0.2 k</td>
</tr>
</tbody>
</table>

*Temperature factor k = 19/(Ω_{int} – Ω_j), depending on the climate zone for dwellings, k ranges from 0.95 (southwest) to 1.00 (northeast).

<table>
<thead>
<tr>
<th>Energy consumption for heating</th>
<th>kWh/m²·year</th>
<th>150 – 200</th>
<th>100 – 130</th>
<th>70 – 90</th>
</tr>
</thead>
</table>

Figure 1: Normative U-values for residential houses.

![Figure 1: Normative U-values for residential houses.](image)

National legislation does not include exact EP indicators. Therefore, they can be calculated taking several factors into account:

> For residential houses, homes for the elderly, hospitals and kindergartens, the normative value HTR may be determined in accordance with the formula HTR= h_{A} A, where:

  - h_{A} the calculated heat loss coefficient, W/m²·K.
  - A is the sum of floor areas to be heated on all storeys of a building, m².

> For buildings which have parts with a different number of storeys, the value HTR shall be determined for each part of the building separately.

For residential houses, homes for the elderly, hospitals and kindergartens, the specific heat consumption h_{A} per m² for one-storey and two-storey buildings shall be 1.1 W/m²·K, for three-storey and four-storey buildings 0.9 W/m²·K, and for five or more-storey buildings it will be 0.7 W/m²·K.

The calculated heat loss coefficient HT of a building must not exceed the normative value HTR.

**Technical guidance documents**

There are no officially approved guidance documents regarding calculation of the EP requirements, but training materials issued by Riga Technical University can be used.

**EP methodology**

The EP calculation methodology is applicable for new and reconstructed buildings, as well as for existing buildings. The EP calculation methodology is described in the Cabinet regulations 'Building energy performance calculation method' (No. 39 of the 13th of January 2009) and it includes calculations for heating, cooling, Domestic Hot Water (DHW) and lighting, using measured rating and calculated rating. For residential buildings, lighting consumption is not included in the

244/2012 (cost-optimal), new demands are under development and are planned to be implemented during 2013.

### 2.2 Format of national transposition and implementation of existing regulations

**Regulations**

Existing requirements for building envelopes were approved in 2001 and came into force on the 1st of January 2003. Requirements for normative and maximum permissible transmission heat loss coefficient of external envelope structures of buildings, and requirements for maximum permissible heat loss of buildings apply, depending on the type of building. These requirements (Table 2) are included in the Latvian Building Norm LBN 002-01 ‘Thermal requirements of building envelopes’.

The minimum requirements are set out for external envelope structures of buildings and should apply for newly built, reconstructed and renovated heated buildings, as well as for new heated spaces to be added in existing buildings when their temperature during the heating season is maintained at 8 °C or higher. By the amendment to LBN 002-01 from the 26th of September 2006, the requirement to indicate total heat losses of the whole building and specific heat losses per m² of floor space were also included.

**Support documents**

In order to promote the proper use of the calculation methodology, the Ministry of Economics developed a software tool for calculating the energy performance of buildings. The software runs on Microsoft Excel and is available free of charge on the Ministry of Economics’ website (www.em.gov.lv/em/2nd/?cat=30723). The programme is available for the evaluation of the energy performance of buildings and for issuing an Energy Performance Certificate (EPC) for existing buildings, or a temporary EPC for designed buildings (new and reconstructed). Although the programme makes the work of the energy auditors and the construction designers substantially easier, its proper use requires knowledge of building construction, building materials, heating equipment, technical building systems, as well as of the building energy performance calculation methodology. The programme use is limited: it can do the calculations for most existing buildings with no more than three heating zones, but it does not detail what is required for energy performance calculations of Nearly Zero-Energy Buildings (NZEB) or buildings needing complex solutions. The software is complemented with a guidebook (Figure 2).

<table>
<thead>
<tr>
<th>Heat transmission coefficients</th>
<th>Type of building</th>
<th><strong>$U_{\text{EN}}$</strong></th>
<th><strong>$\Psi_{\text{EN}}$</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Envelope</td>
<td>Residential, homes for the elderly, hospitals and kinder gardens</td>
<td>0.2 k/0.25 k</td>
<td>0.25 k/0.35 k</td>
</tr>
<tr>
<td>Floors on the grounds</td>
<td>Public, excl. pensions, hospitals and kinder gardens</td>
<td>0.25 k/0.35 k</td>
<td>0.35 k/0.5 k</td>
</tr>
<tr>
<td>Walls: - with mass less than 100 kg/m²</td>
<td>Industrial</td>
<td>0.25 k/0.3 k</td>
<td>0.35 k/0.5 k</td>
</tr>
<tr>
<td>- with mass 100 kg/m² or more</td>
<td></td>
<td>0.45 k/0.5 k</td>
<td></td>
</tr>
<tr>
<td>Windows, doors and glazed walls</td>
<td></td>
<td>1.8 k/2.7 k</td>
<td>2.2 k/2.9 k</td>
</tr>
<tr>
<td><strong>$W/m^2K$</strong></td>
<td></td>
<td>0.2 k/0.25 k</td>
<td>0.25 k/0.35 k</td>
</tr>
</tbody>
</table>

$k$ – temperature factor, $k=\theta_o/\theta_i$, where $\theta_i$ depends on the indoor and outdoor air normative values.

### Training, CPD and accreditation systems

The designer is responsible for the building design and its compliance with EP requirements. Calculation of the EP can be carried out either by the designer or by an energy auditor. There is no official requirement for the training of designers, but professional associations offer 1 - 2 day training courses providing general understanding of energy performance calculations.

The requirements for energy auditors are described in 3.1.

### Compliance checking

The construction company is responsible for building in compliance with the normative requirements. It is a general requirement and the regulations do not specify procedures for compliance with the energy performance. The quality conditions for the building’s energy efficiency can be included in the contracts. In practice, most common quality checks consist of thermography and air leakage tests.

### Monitoring and enforcement statistics

There is no such system that could accurately provide monitoring of compliance with EP requirements. Some elements of monitoring energy performance certification of buildings are included in the Building Information System (BIS):

- register of designers;
- register of energy auditors;
- register of energy performance certificates.

The analysis of BIS data will help to identify unrepresentative performance indicators and select cases for detailed examination. It is planned that the BIS will operate from 2013 onwards.
2.3 Cost-optimal procedure for setting EP requirements

Until December 2012, Latvia did not adopt EP requirements in accordance with the cost-optimal procedures specified in article 5 of the recast EPBD.

Although the EC Regulation 244/2012 and its guidelines clearly specify the methodology for calculation of the cost-optimal procedure for setting EP requirements, its practical use involves a series of tasks, whose completion needs careful planning and time consuming actions. Latvia has not been involved in IEE projects (TABULA, ASIEPI), whose data is suggested to be used for reference buildings. For the existing building sector, the reference building is planned to be defined from the state cadastre information system: it contains data about the buildings usage, area, number of floors, wall materials, etc.. Establishing the new EP requirements in accordance with the EPBD and Regulation 244/2012 will have to solve a series of challenges, and there is thus a need for a new approach:

- the usage of EPBD CEN standards till this moment is only partly approved at the national level, mostly for evaluating the energy performance of existing buildings, but a detailed solution for NZEB evaluation is limited;
- there is no reliable construction price database that would reflect the real market data. Since the crisis in 2008, the market activity in new constructions has been low and construction costs are variable;
- Latvian Construction Regulations define 10 different climatic zones, but Latvia does not intend to run the calculation for all of them because differences among local climates are too small to impact significantly the cost-optimal results;
- there is a need for discussion on issues, such as:
  - defining energy efficiency measures, their packages and variants for the reference buildings;
  - the approach for taking into account Renewable Energy Resources (RES) in the calculation;
  - primary energy factors in Latvia, including central heating in different regions;
  - local fuel energy price change forecast.

Work on the new EP requirements is already started. The new requirements are expected to come into force during 2013.

2.4 Action plan for progression to NZEB

First experience with the construction of low energy buildings in Latvia started in 2012, when the Ministry of Environmental Protection and Regional Development started a project called Low Energy Buildings (LEB) within the Latvian governmental program of Climate Change Financial Instrument (CCFI). The CCFI is funded from sales of state-owned greenhouse gas emissions of assigned amount units by the international emissions trading under the Kyoto protocol. The LEB project supported the construction of new buildings and the reconstruction of existing ones to achieve target values (Table 3). Within the LEB, 31 different projects were realised for different building types. The results can be discussed after the first full heating season, in 2013. The next steps at national level will be planned taking into account the experience and results of the LEB project.

In the new LEPE, NZEB is defined as a high energy efficiency building, in which high efficiency energy systems for energy supply are used. Detailed requirements will be set by Cabinet regulations.

| Table 3: CCFI competition ‘Low-energy building’ criteria - Requirements for the performance of the Low-Energy Building (annex 2 of Cabinet Regulation ‘Climate Change Financial Instrument funded projects open competition ‘Low-energy building’ regulation’ (No.1185 of 28 December 2010). |
|-----------------------------|-------------------------|-------------------------|
| Criteria                    | Energy consumption for heating (internal dimensions) |
|                            | < 15 kWh/m²·year       | < 25 kWh/m²·year       | < 35 kWh/m²·year       |
| U values - windows          | U_w <= 0.8 W/m²         | U_w <= 1.0 W/m²·K      |
|                            | (If window replacement is not performed, it is acceptable U_w <= 1.8 W/m²·K) |
| U values - walls, including thermal bridges | U <= 0.3 W/m²          | U <= 0.4 W/m²·K        |
| U values - Roofs and external coverings | 0.2 W/m²·K              | 0.2 W/m²·K             |
| Ventilation system          | recirculation rate >75%, energy consumption 0.4 Wh/m³·h |
| Ventilation with infiltration air exchange rate for whole building (n50 (h⁻¹), pressure difference 50 Pa) | n =< 0.6 h⁻¹ for residential and public buildings | n =< 1.0 h⁻¹ for residential buildings, n =< 1.2 h⁻¹ for public buildings | n =< 1.2 h⁻¹ for residential buildings, n =< 1.8 h⁻¹ for public buildings |
| Primary energy consumption for the whole building (heating, domestic hot water, electric) | < 150 kWh/m²·year       |
3. Energy performance certificates

The existing EPC system in Latvia is transposed based on the original EPBD (2002/91/EC) and it has been operating since 2009. Transposition of the recast EPBD is already started and it is partly included in the new LEPB, whose new requirements are for parts of the building (previously it was not mandatory to certify building parts). The new law is adopted, with entry into force on the 9th of January 2013. For fully implementing the new law, new Cabinet Regulations will be adopted by the 30th of July 2013.

3.1 Progress and current status on sale or rental of buildings

Energy performance certification of buildings is regulated by the LEPB. Under the latest regulation, the EPC of a building is necessary for:

> new (designed) buildings, renovated or reconstructed buildings, for acceptance into operation or selling;
> part of the building (new, renovated, reconstructed) for selling, if the part has, or is intended to have, individual energy carrier or heat metering;
> existing buildings that are being sold or rented, if the buyer or tenant is requesting an EPC;
> existing building parts (with heated floor area over 50 m²) that are being sold or rented, if the buyer or tenant is requesting an EPC and if this part of the building has individual energy carrier or heat metering;
> state or municipality owned existing public buildings with heated floor area over 500 m² (after the 9th of July 2015, with heated floor area over 250 m²);
> existing buildings, if the owner has decided to obtain energy performance certification.

For existing buildings, energy certification is not needed for selling or renting part of a building if that part does not have a separate energy carrier or heat metering.

The EPC format is set out in the Regulation regarding the Energy Certification of Buildings (No. 504, 8 June 2010).

For all building types, EPCs are in the same format, although there are two kinds of certificates:

> energy performance certificate for existing buildings (Figure 3a);
> temporary energy performance certificate for new, reconstructed or renovated buildings (Figure 3b).

For the certification of existing buildings, both a calculated energy rating (asset rating) and a measured energy rating (operational rating) must be determined. The EPC, valid for 10 years, must be issued by an energy auditor.

For the certification of new, reconstructed or renovated buildings, a calculated energy rating (asset rating) must be determined and the temporary certificate, valid for 2 years, must be issued by an energy auditor or building designer.

The energy performance must be expressed using annual EP indicators:

> final energy consumption, in kWh/m².year;
> carbon dioxide emissions, in kg CO₂/m².year.

The EPC must contain information about the total final energy consumption (MWh per year) and the overall energy performance indicator (kWh/m².year) for: heating, cooling, DHW, lighting (optional for residential buildings), ventilation, other needs (must be indicated).

In addition, the EPC or temporary certificate must be appended with an annex, in which the values of the input data used for the calculations are indicated, specifying the method for the acquisition of the data and the data source:

> area of premises, zones, and the temperature therein;
> area of building envelopes, length of thermal bridges and their heat.
transmission coefficients;  
> consumption of accounted energy and energy carriers;  
> values adopted by the expert, in order to observe the factors affecting the energy performance;  
> coefficients used for the correction of calculations.

For existing buildings, the EPC must include a summary of cost effective measures for improving the energy performance of the building.

**EPC activity levels**

For new and reconstructed buildings, the EPC is mandatory and control is provided by a municipal construction inspection while accepting the building for service. For existing buildings, certification requirements are the responsibility of both contracting parties and there is no check performed by any third party. The current situation for energy performance certification for existing buildings is rated as low, but growing.

**Profile of EPC grades**

Energy performance indicators must be presented on an energy performance scale (Figure 4), the one side of which is marked as ‘very good’ and the other side as ‘very bad’. At the end of 2012, there were no classes for energy efficiency, but the new LEPB intends to implement a classification system by Cabinet regulations till the 30th of July 2013.

**EPC costs**

The cost of the assessment of energy performance of buildings is not regulated. For typical apartment buildings (usually of a simple geometric shape, with district heating and natural ventilation), the EPC costs typically range between 300 € and 500 € for the whole building.

**Assessor corps**

The requirements concerning energy auditors are provided in the Regulations of the Cabinet of Ministers (No. 26, 13 January 2009). An energy auditor must have the required theoretical knowledge and practical experience, and must also pass a proficiency exam. In accordance with the regulations, an energy auditor is certified for the following actions:

> energy performance certification of existing buildings;  
> energy performance certification of new and reconstructed buildings (temporary certificates);  
> inspection of boilers and air-conditioning systems.

To evaluate the energy performance of a building and to issue an EPC or a temporary EPC of a building, theoretical knowledge is required in the following fields: thermal performance of building envelopes, technical systems of buildings (heating, ventilation, air-conditioning, water supply and lighting), and building climatology and indoor climate.

A temporary EPC for new buildings and for buildings to be reconstructed can also be issued by professionals who have received a Building Practice Certificate in the field of structural design of buildings, in accordance with the procedures specified by regulatory enactments concerning construction.

The certification of energy auditors is performed by three accredited certification bodies: PSI Grupa Ltd. ([www.psi.lv](http://www.psi.lv)), Certification Body of The Latvian Association of Heat, Gas and Water Technologies Engineers (Latvijas siltuma, gāzes un ūdens tehnoloģijas inženieru savienības Būvniecības speciālistu sertifikācijas centrs) ([www.lsgritis.lv](http://www.lsgritis.lv)), and Certification Body of ‘Mācību un konsultāciju centrs ABC Ltd’ ([www.abc.edu.lv](http://www.abc.edu.lv)).

Certification bodies perform the supervision of professional activities of the certified energy auditors.
Energy auditors’ certificates issued by certification bodies must be registered in a central register maintained by the Ministry of Economics. The Ministry of Economics provides public access to the energy auditors’ register (www.em.gov.lv/em/2nd/?cat=30272). The number of Qualified Experts (QEs) is shown on Figure 5.

Enforcement with building owners – sale, rental
The requirement for issuing a building EPC receives more support from professionals (like energy auditors) than from the owners, tenants or buyers who just see EPC as another bureaucratic burden. Therefore, energy performance certification of buildings still has only a minor effect on the real estate market. There is hope that this situation could change after the new LEPB requirement comes into force. The law prescribes that EP indicators must be included within the advertisements for sale or rent. It will increase the public’s interest on energy performance of buildings.

A research on the criteria commonly used while purchasing a house or apartment made by banks shows that energy efficiency criteria (like insulated buildings) were considered important to 41% of survey participants in 2012, against 29% in 2009 (Figure 6).

Quality Assurance of EPCs – system, activity level and penalties
At the end of 2012, the monitoring of the work of the energy auditors is not yet completely implemented. Regulations prescribe the conditions in which an energy auditor’s certificate is suspended or withdrawn. If violations of regulatory enactments in the field of the energy performance of buildings are detected in the professional activities of an energy auditor, the certification body takes a decision regarding the suspension of the certificate until the energy auditor has eliminated the consequences caused by his/her activities, and specifies a deadline for elimination of the consequences.

A certification body takes the decision regarding the cancellation of an energy auditor’s certificate:

> if after the certification body has made a decision regarding the suspension of the certificate, the energy auditor does not eliminate the consequences caused by his/her activities within the deadline specified by the certification body;
> if it is proven that an energy auditor has deliberately violated regulatory enactments in the field of evaluation of the energy performance of buildings.

Infringement cases are initiated when violations have been detected. Usually violations are detected in state financed activities, where the examination of documents is detailed. Since 2009, the Ministry of Economics initiated more than 50 cases on violations from energy auditors and, in 20 cases, the certification bodies decided to suspend the certificate.

The Ministry of Economics is monitoring the certification system as a whole, and is considering appeals on the certification body decisions. In turn, the decision of the Ministry of Economics may be appealed against in court.

3.2 Progress and current status on public and large buildings visited by the public
The requirement to display the EPC in a visible place is set by law. The current legislation does not specify the procedure for display of the EPC or its format. The actual rate of display of EPCs is low and should be better promoted. The new LEPB sets the obligation for building owners (for state and municipalities) to ensure the display of the EPC in a place visible

![Figure 6: Criteria used when purchasing housing.](https://www.dnb.lv/lv/publikacijas/dnb-latvijas-barometers)
for the visitors. The legislation does not set specific requirements for experts regarding the certification of public buildings and sanctions for administrators of public buildings who fail to obtain an EPC and to display it.

The energy performance of public buildings is characterised in the same way as other buildings: asset rating for new and reconstructed buildings and asset rating validated by operational rating for existing buildings.

3.3 Implementation of mandatory advertising requirement – status
The new LEPB sets obligatory requirements for the owners to include energy efficiency indicators for the whole building or its part (e.g., an apartment) in the advertisements for selling or renting. This obligation does not apply for buildings exempted from having a certificate:

> unconditioned buildings;
> buildings which are historical monuments or located within a historical area, if the fulfilment of the requirements endangers the preservation of those historical monuments;
> buildings designed and built for worship and other religious activities;
> buildings designed and built for use only during the warm season (e.g., summer residences);
> buildings with a total heated floor area of less than 50 m².

3.4 Information campaigns
Information on energy certification of buildings and other EPBD related issues for entrepreneurs, professionals and citizens are distributed through information campaigns, publications and the internet. Information campaigns for building energy efficiency often take place at different levels, such as initiatives of state and local government institutions, or private and non-governmental organisations.

Since 2010, the campaign ‘Living warmer’ (Figure 7), on the energy performance of buildings in Latvia, is running. The ‘Living warmer’ campaign was launched on the 25th of February 2010, when the Ministry of Economy, industry associations and business signed a memorandum of cooperation at the conference ‘Housing renovation - Latvian investment in the future’. Within the memorandum of cooperation, the parties agreed on joint cooperation in the housing renovation market.

The key objectives of the ‘Living warmer’ campaign are:

> to activate apartment owners to start their home renovation using European Union funds (EU funds);
> to inform and advise house managers, apartment owner associations and trustees on the EU funding programmes, conditions, and benefits;
> to encourage construction companies, construction material manufacturers and traders to take the initiative of housing renovation;
> to raise awareness of energy efficiency and reduce heat consumption.

As part of the campaign, more than 20 events, meetings and workshops are held annually.

4. Inspection requirements - heating systems, air-conditioning
Latvia initially chose option (b) from article 8 of the original EPBD. Prior to the new legislation, with entry into force on the 9th of January 2013, inspection of boilers and AC systems was voluntary except in the case of energy performance certification of a building where it is mandatory. To facilitate voluntary inspections, the Ministry of Economics is providing information for residents.

In the new LEPB, the inspection regulation is changed and regular inspections of heating systems and AC systems shall become mandatory. The new requirements will be fully implemented with Cabinet Regulations by the 30th of June 2013.

4.1 Progress and current status on heating systems
Inspections of boilers were implemented during 2009. The mandatory inspection of boilers is performed during the certification of the building, otherwise on a voluntary basis. The inspection includes an evaluation of effectiveness and recommendations. Energy auditors then make a report on the inspection of boilers. The inspection of boilers must be done in accordance with standard LVS EN 15378:2007 ‘Energy performance of buildings: Inspection of boilers and heating systems’.

The format of the inspection reports is prescribed in the legislation and follows a standard prototype (Figure 8). The report includes reference to the building (address), technical information about the
system (model, power, operating spaces), visual inspection assessment, details of the inspections and tests, system performance evaluation, and recommendations for improving the future operation of the system, including possible replacement of the boiler.

If the rated output of the boiler of a building is more than 20 kW, or the heating system is older than 15 years, the energy auditor shall assess the boiler together with the heating system, shall provide an opinion regarding the boiler efficiency and shall provide recommendations regarding the change thereof, or other possible changes of the heating system of the building, and alternative solutions in order to reduce the energy consumption and the amount of carbon dioxide emissions.

Additional checking of boilers is supported by:

1. Cabinet Regulations on Fire Safety (No.82 of 17 February 2004) provides the requirements for operation of heating systems (boilers for heating and DHW):
   - maintain equipment in working condition and operate it in accordance with the manufacturer’s specification and fire safety requirements;
   - inspect twice a year, unless the operational rules state otherwise.

2. ‘Regulations for the Supply and Use of Natural Gas’ (No.1048 of 16 December 2008) prescribe that the user has the duty to maintain the natural gas supply system in running order and to ensure the technical maintenance thereof in accordance with LVS 445:2003/A1:2004 ‘Operation and technical maintenance of natural gas distribution and consumer supply systems with max operation pressure 1.6 MPa (16 bar)’;

Standard LVS 445:2003/A1:2004 is now replaced by two others:
- LVS 445-1:2011 ‘Operation and Maintenance of natural gas distribution and Consumer supply systems with max operation pressure 1,6Mpa (16 bar): Part 1:General requirements’ and

According to Standard 445-2:2011, maintenance of the supply systems includes boiler inspection and adjustment according to the technical specifications of the boiler to ensure the effective operation of the equipment.

There are not so many voluntary inspections being made because of the low interest of the population.

4.2 Progress and current status on AC systems
Considering the climatic conditions in Latvia, legislation does not specify requirements for AC or its inspections. Apartment buildings in Latvia are generally not equipped with AC systems for cooling. When they are installed, the total power of the AC systems in separate rooms usually does not exceed 12 kW.

Inspections of AC systems were implemented during 2009. The inspection of AC systems is performed during the certification of the building, or on a voluntary basis. The inspection includes an evaluation of effectiveness and recommendations. Energy auditors then make a report on the inspection of AC systems. The inspection of AC must be performed in accordance with the Standard LVS EN 15240:2007 ‘Ventilation for Buildings - Energy performance of buildings: Guidelines for the inspection of air conditioning systems’.

Additional checking of AC systems is supported by:

1. Cabinet Regulations on Fire Safety (No.82 of 17 February 2004) prescribe: “Ventilation and air-conditioning equipment shall be installed and
operated in accordance with the manufacturer’s technical regulations, as well as ventilation and air conditioning construction standards governing fire safety requirements”.

2. Latvian Construction Norms LBN 231-03 ‘Heating and ventilation of residential and public buildings’ (approved by the Cabinet Regulation No. 534 of 23 September 2003) provides the following requirements:

- the building design must include measures for ventilation and air-conditioning system commissioning, regulation and operation;
- ventilation and air-conditioning systems shall be tested and put into service in accordance with LVS EN 12599 and LVS ISO 10780;
- a commissioning of the ventilation system shall be reported. The report shall be accompanied by the system description and the use of safety instructions as well as a protocol for ensuring that the staff is trained to operate the system.

There are not so many voluntary inspections being made because of the low interest of the population.

4.3 Any other relevant information

Information from the Ministry of Economics about promoting inspections of heating and AC systems is available at the website (www.em.gov.lv/em/2nd/?cat=30627) and includes: general information, documentation of inspections, experts, regulations and standards.

The majority of apartment buildings and large public and office buildings in Latvia are usually supplied by district heating systems. As 80% of the heating for buildings is provided by district heating systems, and the number of buildings equipped with AC systems is very small, voluntary inspections of boilers and AC systems have received little interest from the market. Buildings with individual (separate) heating systems mostly use wood and natural gas. In 2008, natural gas was used by 52,000 clients, including 46,000 households. The share of other fuels like coal, or peat is negligible.

Given the high proportion of district heating, there are additional requirements for efficiency of district heating in Latvia. Energy efficiency requirements for heating systems are set in ‘Regulations Regarding Requirements of Energy Efficiency to the District Heat Supply Systems Existent in the Possession of a Licensed Energy Supply Merchant and the Procedures for the Inspection of the Conformity Thereof’. This regulation states certain efficiency requirements for energy production plants and permissible values for heat losses in heat supply.

There has not yet been an assessment of the equivalence of the EPBD option b) compared to actual inspections.

5. Conclusions and future plans

Professionals have a good understanding of energy certification of buildings, but society lacks understanding and awareness on these issues. In Latvia, housing energy efficiency is mostly associated with housing insulation and some other measures to increase energy efficiency, but the Energy Performance of Buildings Directive (EPBD) requirements for energy certification of buildings still causes confusion and sometimes is considered as a bureaucratic burden.

Short-term plans (until the 30th of June 2013) include the elaboration of Cabinet Regulations for the implementation of a new Law on the Energy Performance of Buildings according to the recast EPBD:

> Regulation regarding independent experts (significant additions are planned regarding control of experts by the register of EPCs);
> Regulation regarding the Energy Certification of Buildings (significant additions are planned regarding classification of energy performance of buildings for their comparison);
> Regulation regarding the calculation of energy performance of buildings;

New requirements according to the EC Regulation 244/2012 (cost-optimal) are planned to be adopted in Cabinet Regulations before the end of 2013.

In the mid-long term, there is a need to set up plans for financial and other instruments for deep renovation of all types of buildings, construction of NZEBs, and an additional review of the EPBD standards to better adapt them to Latvian conditions.
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