

## Reporting template of the European Union on the Member States application of national definitions of Nearly Zero Energy Buildings

Items and assessment categories which are mandatory due to the EPBD or RED are explained or referenced by an example in the column "EPBD / RED requirement". The source is given in the column to its left. Additional typical definition categories that are not mandatory EPBD requirements are included to give the possibility to explain what is defined beside and beyond the EPBD and RED. These categories are differentiated by colour (dark grey letters). For each aspect a number of possible choices is given in a combo box. Explanatory texts and figures are shown by a click in the according cells. Comments and explanations should be entered in the cells on the right.

1. General information				
Country			Estonia	
Name of regulation, directive, certification scheme			Minimum requirements for energy performance	
Editor of regulation, directive, certification scheme			Ministry of Economic Affairs and Communications	
Year of introduction of current version			2013	
Energy benchmark of current version			nearly zero energy buildings	
Integration and consideration in national directive			considered	
2. Field of application	EPBD / RED requirement	EPBD / RED reference	Content in Member States national definition	Explanation, comment, source
<b>2.1 building category</b> <ul style="list-style-type: none"> <li>single-family houses</li> <li>apartment blocks</li> <li>offices</li> <li>educational buildings</li> <li>hospitals</li> <li>hotels and restaurants</li> <li>sports facilities</li> <li>wholesale and retail trade service buildings</li> <li>other types of energy-consuming buildings</li> </ul>	<p>Member States shall ensure that all new buildings are nearly zero- energy buildings by 31 December 2020 respectively after 31 December 2018 (occupied and owned by public authorities).</p> <p>For the purpose of the calculation buildings should be adequately classified into the [...] categories.</p>	<p>EPBD article 9.1a/b</p> <p>EPBD annex I</p>	<p>residential/non-residential</p> <p>included in directive</p> <p>included in directive</p> <p>included in directive</p> <p>included in directive</p> <p>included in directive</p> <p>included in directive</p> <p>included in directive</p> <p>included in directive</p> <p>included in directive</p>	<p>We have defined energy performance requirements for 2 types of residential buildings:</p> <p>1) small residential buildings (residential buildings with one or two apartments, or terraced houses);</p> <p>2) apartment buildings (residential buildings with three or more apartments, including buildings of social welfare institutions and residence halls, excepting terraced houses).</p>
<b>2.2 new/retrofit buildings</b>	<p>New, and existing buildings that are subject to major renovation, should meet minimum energy performance requirements adapted to the local climate.</p> <p>Member States shall furthermore [...] stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings.</p>	<p>EPBD preamble recital 15</p> <p>EPBD article 9.2</p>	<p>new and retrofit</p>	<p>Estonias has set minimum energy performance requirements for new and retrofitted buildings, for 9 types of buildings. NZEB requirements apply only to new buildings.</p>

<b>2.3 private/public buildings</b>	<i>Member States shall ensure that by 31 December 2020, all new buildings are nearly zero- energy buildings and after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings.</i>	EPBD article 9.1a/b	private/public	After every 5 years the minimum requirements for energy performance shall be renewed, taking into account the technical progress that has occurred in the past years.
<b>2.4</b> In case that a additional or separate definiton(s) exists (e.g. for different building types), please add a new sheet by using the button on the right (to use this option Excel macros need to be activated).			click to add new sheet	
<b>3. Energy Balance / Calculation</b>				
<b>3.1 balance type</b>	<i>[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources Energy performance of a building means the calculated or measured amount of energy needed to meet the energy demand [...]</i>	EPBD article 2.2  EPBD article 2.4	energy import vs. energy export	Energy use is calculated on the basis of energy need, taking into account system losses and energy conversion losses. At the end-point of a building technical system (usually the connection point to the corresponding energy network), the energy use of the
<b>3.2 physical boundary</b>	<i>This directive lays down requirements as regards the common general framework for [...] buildings and building units. [...] building' means a roofed construction having walls, for which energy is used to condition the indoor climate.</i>	EPBD article 1.2a  EPBD article 2.1	building site	For the purposes of calculating the energy balance, in addition to the envelope of the building and its utility systems, the local energy generation systems (such as solar collectors and panels, wind turbines, combined heat and power producers) which are
<b>3.3 system boundary demand / energy uses included</b>				
▪ <u>space heating, domestic hot water</u>	<i>[...] energy performance of a building means the calculated or measured amount of energy needed to meet the energy demand associated with a typical use of the building, which includes, inter alia, energy used for heating, cooling, ventilation, hot water and lighting.</i>	EPBD article 2.4	considered	
▪ <u>ventilation, cooling, air conditioning</u>			considered	
▪ <u>auxiliary energy</u>			considered	
▪ <u>lighting</u>			considered	
▪ <u>plud loads, appliances, IT</u>			considered	
▪ <u>central services</u>			considered	

▪ <b>electric vehicles</b>			not defined	The energy use of electric cars is included, if the charge the batteries from the electrical home grid. But it is not defined as a individual part of the energy demand. If a special charging station is used it may not be included in the boundary of the house.
▪ <b>embodied energy</b>			not defined	
<b>3.4 system boundary generation / renewable energy sources included</b>				
▪ <b>generation on-site</b>	<i>[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby. [...] energy from renewable sources means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases.</i>	EPBD article 2.2  EPBD article 2.6	not defined	We do not take into account the proximity of the power source, but rather the type. We have introduced weighing factors for energy carriers: 1) fuels based on renewable energy sources (wood and wood-based fuels and other biofuels, excepting peat and peat briquettes)—0.75 2) district heating—0.9 3) liquid fuel (heating oils and liquefied gas)—1.0
▪ <b>generation near by</b>	<i>[...] minimum levels of energy from renewable</i>	EPBD article 13.4	not defined	4) natural gas—1.0 5) solid fossil fuels (coal, etc.)—1.0
▪ <b>generation external</b>	<i>sources [...] to be fulfilled, inter alia, through</i>		not defined	
▪ <b>crediting</b>	<i>district heating and cooling [...].</i>		not defined	
<b>3.5 balance period / calculation step</b>	<i>[...] The methodology for calculating energy performance should be based not only on the season in which heating is required, but should cover the annual energy performance of a building [...] [...] requirements should be set with a view to [...] the cost-optimal balance between the investments involved and the energy costs saved throughout the lifecycle of the building [...]</i>	EPBD preamble recital 9  EPBD preamble recital 10	yearly	Energy consumption is represented by the energy performance indicator [kWh/(m <sup>2</sup> y)] – aggregate weighted specific consumption of delivered energy consumed in the course of standard use of the building, less the weighted specific consumption of energy fed into energy networks.
<b>3.6 monthly accounting limitation</b>			select and describe right	
<b>4. Accounting System</b>				

<b>4.1 normalization</b>	<i>[...] including a numerical indicator of primary energy use expressed in kWh/m<sup>2</sup> per year</i>	EPBD article 9.3a	other	The annual energy consumption is normalized based on heated area of
<b>4.2 primary metric</b>	<p><i>The energy performance of a building shall be expressed in a transparent manner and shall include an energy performance indicator and a numeric indicator of primary energy use, based on primary energy factors per energy carrier, which may be based on national or regional annual weighted averages or a specific value for on- site production.</i></p> <p><i>[...] including a numerical indicator of primary energy use expressed in kWh/m<sup>2</sup> per year.</i></p> <p><i>[...] primary energy' means energy from renewable and non- renewable sources which has not undergone any conversion or transformation process</i></p>	<p>EPBD Annex 1</p> <p>EPBD 9.3a</p> <p>EPBD article 2.5</p>	energy use	The primary metric is specific use - the annual energy use in kilowatt-hours per square metre of heated area of a building [kWh/(m <sup>2</sup> y)].
<b>4.3 secondary metric</b>			select and describe right	
<b>4.4 symmetric or asymmetric weighting</b>			symmetrical weighting	
<b>4.5 time dependent weighting</b>	<i>Primary energy factors [...] may be based on national or regional yearly average values and may take into account [...] European standards</i>	EPBD 9.3a	static conversion factors	
<b>5. Further requirements</b>				
<b>5.1 fraction of renewables</b>	<p><i>Member States shall introduce [...] appropriate measures [...] to increase the share of all kinds of energy from renewable sources in the building sector [...]. By 31 December 2014, Member States shall [...] require the use of minimum levels of energy from renewable sources in new buildings and in existing buildings [...]</i></p> <p><i>[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources [...]</i></p>	<p>RED article 13.4</p> <p>EPBD article 2.2</p>	not defined	
<b>5.2 temporal performance</b>				

▪ load match			not defined	
▪ grid interaction			not defined	
<b>5.3 energy performance or rating requirements</b>	<i>nearly zero-energy building means a building that has a very high energy performance [...]. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources [...]</i>	EPBD article 2.2	defined	
▪ energy performance indicator	<i>The energy performance [...] shall [...] include an energy performance indicator and a numeric indicator of primary energy use [...]</i>		defined	The energy performance indicator of a near-zero energy building may not exceed the following limit values:
▪ numeric indicator of primary energy use		EPBD Annex 1	not defined	
<b>5.4 general framework / prescriptive requirements</b>	<i>The methodology shall [...] take into consideration: thermal characteristics (thermal capacity, insulation, passive heating, cooling elements, and thermal bridges), heating installation and hot water supply, air-conditioning installations, natural and mechanical ventilation, built-in lighting, the design, positioning and orientation of the building, outdoor climate, passive solar systems and solar protection, [...], internal loads</i>	EPBD Annex 1	defined	We have defined requirements for the envelope of the building (thermal transmittance values for the walls, roofs, windows and doors) but they are rather for minimum energy performance requirements, not for nZEB buildings specifically.
<b>5.5 definition of comfort level &amp; IAQ requirements (for winter and summer season, beside other national directives)</b>	<i>This Directive [...] takes into account [...] indoor climate requirements [...]</i> <i>The methodology shall [...] take into consideration: [...] indoor climatic conditions [...]</i> <i>That includes [...] indoor air-quality, adequate natural light [...].</i>	EPBD article 1.1  EPBD Annex 1  EPBD preamble recital 9	defined	We have defined requirements for minimum and maximum indoor temperature and ventilation rates (l/s m2).

<b>5.6 monitoring procedure</b>	<i>[...] energy performance of a building means the calculated or measured amount of energy needed [...]</i> <i>Member States shall encourage the introduction of intelligent metering systems [...] and the installation of automation, control and monitoring systems [...]</i>	EPBD article 2.4  EPBD article 8.2	defined	Where parts of new buildings with indoor climate control, or parts of existing buildings with indoor climate control which undergo major renovation are intended to be used separately and may have different owners or may, in accordance with the
---------------------------------	--	--	---------	---











