

## 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	Belgium
Name of regulation, directive, certification scheme	<b>Flemish Action Plan NZEB</b>
Editor of regulation, directive, certification scheme	Flemish Energy Agency (VEA)
Year of introduction of current version	2013
Energy benchmark of current version	nearly zero energy buildings

## Integration and consideration in national directive

considered

In Flanders, a considerable number of nearly zero energy buildings need to be built in the medium term.

A Flemish action plan was developed (and integrated in this national plan), based on the barriers to realise NZEB's.

The main purpose of the 'Flemish Action Plan NZEB' is to realise a transition to a broad societal acceptance of NZEB's by 2020. It is the action plan's approach to adopt measures and actions to stimulate the construction of NZEB's on large scale, this with a specific policy focus on trendsetters.

On 29 November 2013, the Flemish Government imposed the requirements for as well NZE residential buildings, as schools and offices. On 28 January 2014, the legislation on NZEB definition was published.

In order to establish the minimum level of renewable energy, a proposal has been agreed by the Government of Flanders on 28 September 2012 for integration in the EPB method.

2. Field of application	EPBD / RED requirement	EPBD / RED reference	Content in Member States national definition	Explanation, comment, source
2.1 building category	<i>Member States shall ensure that all new buildings are nearly zero- energy buildings by 31 December 2020 resprecively after 31 December 2018 (occupied and owned by public authorities).</i>	EPBD article 9.1a/b	residential/non-residential	There is made very little distinction between residential and non-residential buildings. The actions are thus being further developed for all types of buildings. NZEB definition residential buildings = E30 + minimum level RE + additional cost optimal requirements
▪ <u>single-family houses</u>	<i>For the purpose of the calculation buildings should be adequately classified into the [...] categories.</i>	EPBD annex I	select	
▪ <u>apartment blocks</u>			select	
▪ <u>offices</u>			select	
▪ <u>educational buildings</u>			select	
▪ <u>hospitals</u>			select	
▪ <u>hotels and restaurants</u>			select	

<ul style="list-style-type: none"> <li>▪ <u>sports facilities</u></li> <li>▪ <u>wholesale and retail trade service buildings</u></li> <li>▪ <u>other types of energy-consuming buildings</u></li> </ul>			select select select	cost optimal requirements NZEB definition offices & schools = E40 + minimum level RE + additional cost optimal requirements
<b>2.2 new/retrofit buildings</b>	<p><i>New, and existing buildings that are subject to major renovation, should meet minimum energy performance requirements adapted to the local climate.</i></p> <p><i>Member States shall furthermore [...] stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings.</i></p>	<p>EPBD preamble recital 15</p> <p>EPBD article 9.2</p>	new and retrofit	<p>The actions in this document are aimed at encouraging both the new construction and the renovation markets to attain the NZEB requirements. In terms of the Flemish building sector and the techniques it employs, only</p> <p><i>minimal distinction is made between</i></p>
<b>2.3 private/public buildings</b>	<p><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></p>	EPBD article 9.1a/b	select	<p>On 29 November 2013, the Government of Flanders gave final approval to the proposal to tighten the E-level requirement for offices from public organisations to E50 in 2016, E45 in 2018 and E40 (=NZEB-level) in 2019</p>
<b>2.4 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).</b>			click to add new sheet	
<b>3. Energy Balance / Calculation</b>				
<b>3.1 balance type</b>	<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, including energy from renewable sources</i></p> <p><i>Energy performance of a building means the calculated or measured amount of energy needed to meet the energy demand [...]</i></p>	<p>EPBD article 2.2</p> <p>EPBD article 2.4</p>	energy demand vs. energy generation	<p>The method of which renewable energy is integrated in the EPW-calculation method depends on technology.</p> <p>Solar thermal: renewable heat from solar thermal collectors reduces energy use for DHW (and heat)</p> <p><i>PV &amp; CHP: reduces primary energy use</i></p>
<b>3.2 physical boundary</b>	<p><i>This directive lays down requirements as regards the common general framework for [...] buildings and building units.</i></p> <p><i>[...] building' means a roofed construction having walls, for which energy is used to condition the indoor climate.</i></p>	<p>EPBD article 1.2a</p> <p>EPBD article 2.1</p>	other	<p>Regarding the legislation on the minimum share of renewable energy, 6 possibilities are foreseen (whether or not combined):</p> <ol style="list-style-type: none"> <li>1. Thermal solar energy systems</li> <li>2. Photovoltaic solar energy systems</li> <li>3. Biomass (boiler, stove or qualitative)</li> </ol>
<b>3.3 system boundary demand / energy uses included</b>				

<ul style="list-style-type: none"><li>▪ <b>space heating, domestic hot water</b></li><li>▪ <b>ventilation, cooling, air conditioning</b></li><li>▪ <b>auxiliary energy</b></li><li>▪ <b>lighting</b></li><li>▪ <b>plud loads, appliances, IT</b></li></ul> <ul style="list-style-type: none"><li>▪ <b>central services</b></li></ul> <ul style="list-style-type: none"><li>▪ <b>electric vehicles</b></li><li>▪ <b>embodied energy</b></li></ul>	<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	
			considered	
			considered	
			considered	
			possible to add	only integrated for non-residential buildings
			possible to add	only integrated for non-residential buildings
			not considered	
			not considered	
<b>3.4 system boundary generation / renewable energy sources included</b>				
<ul style="list-style-type: none"><li>▪ <b>generation on-site</b></li></ul> <ul style="list-style-type: none"><li>▪ <b>generation near by</b></li><li>▪ <b>generation external</b></li><li>▪ <b>crediting</b></li></ul>	<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.</i> <i>[...] 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	considered	For heat external generation can be considered. Renewable Electricity should be generated on-site.
	<i>[...] minimum levels of energy from renewable sources [...] to be fulfilled, inter alia, through district heating and cooling [...].</i>	EPBD article 2.6		
		EPBD article 13.4		
			considered	
		considered		
		not considered		
<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 [...]</i> <i>[...] 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	other	monthly
		EPBD preamble recital 10		

3.6 monthly accounting limitation			select and describe right	
<b>4. Accounting System</b>				
4.1 normalization	<i>[...] including a numerical indicator of primary energy use expressed in kWh/m<sup>2</sup> per year</i>	EPBD article 9.3a	gross floor area	not mentioned
4.2 primary metric	<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>	primary / source energy (renewable part not included)	The most important requirement concerns the E-level, which is the annual primary energy consumption, divided by a reference consumption.
4.3 secondary metric			select and describe right	
4.4 symmetric or asymmetric weighting			select and describe right	
4.5 time dependent weighting	<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	quasi static conversion factors	not mentioned
<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>	<p>defined</p>	<p>In order to establish the minimum level of renewable energy, the Government of Flanders gave final approval on the proposal of a minimum share of renewable energy in new buildings and major renovations, on 28 September 2012.</p> <p>Legislation is in force for public new buildings and major renovations since January 2013.</p> <p>From January 2014 legislation is in force for new residential buildings, offices and schools and major renovations.</p> <p>For singular residential buildings are 6 options foreseen:</p> <ol style="list-style-type: none"> <li>1. Thermal solar energy systems</li> <li>2. Photovoltaic solar energy systems</li> <li>3. Biomass (boiler, stove or qualitative CHP)</li> <li>4. Heat pumps</li> <li>5. Connection with district heating or cooling</li> <li>6. Participation in a RE project</li> </ol> <p>For each option quantitative and qualitative requirements are imposed. Residential buildings have the additional possibility to obtain <math>\geq 10</math> kWh renewable energy per m<sup>2</sup> total useful floor area (combination one or more systems). The same regulation counts for schools and</p>
<b>5.2 temporal performance</b>				
<ul style="list-style-type: none"> <li>▪ load match</li> </ul>			<p>select and describe right</p>	
<ul style="list-style-type: none"> <li>▪ grid interaction</li> </ul>			<p>select and describe right</p>	

<b>5.3 energy performance or rating requirements</b>		EPBD article 2.2	defined	The policy decision can therefore consist of interpreting the NZE concept in such a way that guarantees
	▪ <b>energy performance indicator</b>			The most important requirement concerns the E-level, which is the annual primary energy consumption, divided by
	▪ <b>numeric indicator of primary energy use</b>	EPBD Annex 1		
<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	Thermal characteristics, requirements foreseen for: - global insulation level - U-values for building components - net energy demand (= heat losses + useful heat gains) - thermal bridges - necessary cooling (possibility to avoid with solar protection)
<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 [...] The methodology shall [...] take into consideration: [...] indoor climatic conditions [...] That includes [...] indoor air-quality, adequate natural light [...].</i>	EPBD article 1.1 EPBD Annex 1 EPBD preamble recital 9	defined	Indoor climate conditions, requirements on overheating (via necessary cooling) and ventilation
<b>5.6 monitoring procedure</b>	<i>[...] energy performance of a building means the calculated or measured amount of energy needed [...] 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	not defined	not mentioned















