

REHVA experts are concerned about some potentially confusing energy performance definitions/requirements in the leaked EC proposal of the revised EPBD. Unclear requirements may hinder ambitious implementation and compliance of Member States, therefore we recommend the correction and clarification of the points below before the final proposal is published. We remain at disposal for any further input and clarification.

The points of concern are the following:

1. *Definition 1a : “zero-emission building’ means a building that has a very high energy performance, as determined in accordance with Annex I, and complies with the benchmarks set out in Annex III. The very low amount of energy still required has to be fully covered by energy from renewable sources produced on-site;”*

‘zero-emission building’ according to Definition 1a, seems to be defined based on the total primary energy, because Annex I defines energy performance through a numeric indicator of primary energy and per Definition 5 “primary energy means energy from renewable and non-renewable sources”. Until now, the cost optimality approach and the minimum energy performance requirements have been based on non-renewable primary energy in the majority of MS, which enables the accurate assessment of energy causing CO₂ emissions. Switching to total primary energy would not distinguish between biofuels with a low CO_{2e} equivalent (CO_{2e}) emission, fossil fuels with the highest CO_{2e} emission and renewable energy with zero CO_{2e} emission (see table B16 from the standard EN ISO 52000-1).

Table B.16 — Weighting factors (based on gross or net calorific value)
(See 7.3.5, 9.5.1, 9.6.2, 9.6.5 and 9.6.6.3)

	Energy carrier Delivered from distant	f_{Pren}	f_{Ren}	f_{Ptot}	K_{CO2e} (g/kWh)	
1	Fossil fuels	Solid	1,1	0	1,1	360
2		Liquid	1,1	0	1,1	290
3		Gaseous	1,1	0	1,1	220
4	Bio fuels	Solid	0,2	1	1,2	40
5		Liquid	0,5	1	1,5	70
6		Gaseous	0,4	1	1,4	100
7	Electricity ^c	2,3	0,2	2,5	420	
Delivered from nearby						
8	District heating ^a	1,3	0	1,3	260	
9	District cooling	1,3	0	1,3	260	
Delivered from on-site						
10	Solar	PV electricity	0	1	1	0
11		Thermal	0	1	1	0
12	Wind	0	1	1	0	
13	Environment	Geo-, aero-, hydrothermal	0	1	1	0
Exported						
14	Electricity ^{b,c}	To the grid	2,3	0,2	2,5	420
15		To non EPB uses	2,3	0,2	2,5	420
^a Default value based on a natural gas boiler. Specific values are calculated according to M3-8.5. ^b It is possible to differentiate between different sources of electricity like wind or solar. ^c These values are established in line with the default coefficient provided in Annex IV of Directive 2012/27/EU. This default coefficient is currently being reviewed and a later amendment of the above factors could be needed.						
NOTE 1 Add a column in case of other requirements, e.g. CO ₂ requirement.						
NOTE 2 Add rows for each relevant energy carrier.						

The ANNEX III on zero emission buildings benchmarks should disclose which primary energy factors are used to calculate these. Evidently the same numeric values cannot be applied in MS where the factor of electricity is 1.2 or 3.0. It would also be important to be explicit, which primary energy is meant here: the total primary energy or non-renewable primary energy, which could substantially change the meaning of the definition. We recommend defining the PE benchmarks for zero emission building the same way as the Commission Recommendation (EU) 2016/1318 defined them for NZEB. (EU) 2016/1318 specified primary energy without on-site RES and as non-renewable PE.

Another concerning issue is that according to zero-emission building definition (1a) and Annex III, renewable energy has to be produced from on-site sources, therefore nearby RES cannot be accounted for, which is not in line with the REDII revised directive requirements on renewable district heating and cooling and the decarbonisation of heating and cooling systems. We recommend specifying renewable energy produced on-site and nearby in both ANNEX III and in the definition 1a: “*The very low amount of energy still required has to be fully covered by energy from renewable sources produced on-site and nearby*”.

Annex III states that “*the primary energy use of a zero emission building shall fulfil the benchmarks indicated in below table for the climatic zones of the European Union*” without defining which type of PE is meant here. We suggest defining explicitly which PE is meant here, e.g. “The non-renewable primary energy use, without accounting on site and nearby renewable electricity generation, of a zero emission building shall fulfil ...etc...”

2. *Article 9a. ‘deep renovation’ means a renovation which transforms a building into a zero-emission building, not including renovations which lead to a reduction in energy demand of less than 30%*

This definition of deep renovation uses the decrease of energy demand as metric. It is not clear whether this refers to the reduction of primary energy use or the reduction of the energy need, therefore it may generate confusion and discrepancies in the MS level transposition. Previously, EU 2019/786 has defined deep renovation through primary energy saving. We recommend naming explicitly which one is meant in the definition 9a.

About REHVA: *The Federation of European HVAC Associations, founded 1963, joins European societies in the field of building engineering services representing more than 100.000 HVAC engineers and building professionals in Europe. REHVA is the leading independent professional HVAC organization in Europe, dedicated to the improvement of health, comfort and energy efficiency in all buildings and communities. It encourages the development and application of both energy efficiency and renewable energy technologies.*