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Eurovent feedback on the proposal for a recast EPBD

Preamble

The European Commission published its proposal for a recast Energy Performance of Buildings Directive (EPBD) on 15 December 2021. The proposal is positive overall. It ups the ambition level and seeks to address many of the shortcomings of the current Directive. An ambitious EPBD that enables the objectives of the Renovation Wave is essential to meet the EU’s decarbonisation objectives and unlock the co-benefits of building renovation.

Eurovent supports the move to Zero Emission Buildings with clearly defined maximum thresholds (**Articles 2 and 7, Annex III**), the introduction of EU-wide MEPS based on harmonised energy scales (**Article 9**), renovation passports which indicate health and comfort co-benefits (**Article 10**), mandatory indoor air quality (IAQ) monitoring and control devices in new buildings and major renovations (**Article 11**), making the smart readiness scheme mandatory for large non-residential buildings (**Article 13**), energy performance certification reform, including more harmonised energy classification, public EPC databases, and tighter quality controls (**Articles 16, 17, 18, 14, Annexes V and VI**), the addition of ventilation in scope of mandatory inspection requirements (**Article 20**), moving towards (sub)hourly energy calculation methods (**Annex I**), the reference to EN 16798-1 (**Annex I**), and the stipulation that product information requirements per Ecodesign shall be sufficient for energy performance calculations (**Annex I**).

That said, more clarification in the definitions and metrics is required, health and well-being aspects remain underdeveloped, and more must be done to harmonise energy calculation methods. Eurovent makes the following recommendations for amendment.

1. Base Zero-Emission Building requirements on relevant decarbonisation metrics

The Zero-Emission Building threshold values (**Annex III**) are based on total primary energy. Analysis of REHVA shows that total primary energy either does not enable a meaningful energy calculation, or is inconsistently defined across the EPBD, EED and RED and at odds with relevant EN standards¹. These concerns should be addressed. Eurovent further holds that the ZEB definition (**Article 2**) and requirements (**Annex III**) should also allow the energy use to be covered by renewable energy from the grid, and an appropriate definition of “heat pump” should be restored.

Recommended amendments:

Article 2. 2.	
‘zero-emission building’ means a building with a very high energy performance, as determined in accordance with Annex I, where the very low amount of energy still required is fully covered by	‘zero-emission building’ means a building with a very high energy performance, as determined in accordance with Annex I, where the very low amount of energy still required is fully covered by

¹ Refer to the REHVA calculations in .xls format:

https://www.rehva.eu/fileadmin/user_upload/Policy_Tracking/EPBD_Revision_2021/EPBD_primary_energy_calculator_2022-01-13.xlsx

And the detailed explanatory note:

https://www.rehva.eu/fileadmin/user_upload/Policy_Tracking/EPBD_Revision_2021/Technical_comments_on_NZEB_ZEB_level_1a.docx

<p>energy from renewable sources generated on-site, from a renewable energy community within the meaning of Directive (EU) 2018/2001 [amended RED] or from a district heating and cooling system, in accordance with the requirements set out in Annex III;</p>	<p>energy from renewable sources generated on-site, from a renewable energy community within the meaning of Directive (EU) 2018/2001 [amended RED] or from a district heating and cooling system, or from the grid, in accordance with the requirements set out in Annex III;</p>
<p>Article 2. 18.</p> <p>'heat pump' means a machine, a device or installation that transfers heat from natural surroundings such as air, water or ground to buildings or industrial applications by reversing the natural flow of heat such that it flows from a lower to a higher temperature. For reversible heat pumps, it may also move heat from the building to the natural surroundings;</p>	<p>18. 'heat pump' means a machine, a device or installation that that uses a vapour compression cycle or a sorption cycle to transfer heat from or to natural surroundings such as air, water or ground to or from buildings, for the purpose of providing heating, cooling or domestic hot water.</p>
<p>Annex III. I.</p> <p>The total annual primary energy use of a new or renovated zero-emission building shall be fully covered, on a net annual basis, by</p> <ul style="list-style-type: none"> – energy from renewable sources generated on-site and fulfilling the criteria of Article 7 of Directive (EU) 2018/2001 [amended RED], – renewable energy provided from a renewable energy community within the meaning of Article 22 of Directive (EU) 2018/2001 [amended RED], or – renewable energy and waste heat from an efficient district heating and cooling system in accordance with Article [24(1) of Directive (EU) .../... [recast EED]. 	<p>The total annual primary energy use of a new or renovated zero-emission building shall be fully covered, on a net annual basis, by</p> <ul style="list-style-type: none"> – energy from renewable sources generated on-site and fulfilling the criteria of Article 7 of Directive (EU) 2018/2001 [amended RED], – renewable energy provided from a renewable energy community within the meaning of Article 22 of Directive (EU) 2018/2001 [amended RED], or – renewable energy and waste heat from an efficient district heating and cooling system in accordance with Article [24(1) of Directive (EU) .../... [recast EED], – renewable energy from the grid.

2. Include health and well-being indicators in National Building Renovation Plans

The National Building Renovation Plans scheme is missing important indicators related to health and well-being, which former Article 2a, paragraph 1, point (g) included. We advise to keep these elements in new **Article 3** and to add related indicators to the template in **Annex II**.

Recommended amendments:

<p>Article 3. 1.</p> <p>(g) an evidence-based estimate of expected energy savings and wider benefits, such as those related to health, safety and air quality.</p>	<p>(g) (e) an evidence-based estimate of expected energy savings and wider benefits, such as those related to health, safety and air quality.</p>
<p>Annex II, point (a)</p> <p>Energy poverty (definition):</p> <ul style="list-style-type: none"> – % of people affected by energy poverty – proportion of disposable household income spent on energy 	<p>Energy poverty (definition):</p> <ul style="list-style-type: none"> – % of people affected by energy poverty – proportion of disposable household income spent on energy

— population living in inadequate dwelling conditions (e.g. leaking roof) or with inadequate thermal comfort conditions	— population living in inadequate dwelling conditions (e.g. leaking roof) or with inadequate thermal comfort conditions or poor indoor air quality
Annex II, point (b)	Recommended amendment
Expected wider benefits — Creation of new jobs — % reduction of people affected by energy poverty	Expected wider benefits — Creation of new jobs — % reduction of people affected by energy poverty — Improvements in health and well-being
Annex III, point (c)	Recommended amendment
Policies and measures with regard to the following elements: [...] (e) the removal of hazardous substances including asbestos;	Policies and measures with regard to the following elements: [...] (e) achieving a healthy indoor environment, including adequate thermal comfort conditions and indoor air quality, and the removal of hazardous substances including asbestos;

3. Mandate Member States to define IEQ requirements and ensure transposition

In the absence of common European minimum Indoor Environmental Quality (IEQ) requirements, Eurovent reiterates its recommendation to create a clear mandate for the Member States to set minimum IEQ requirements at national level. The provisions in **Articles 5 and 8** to “take account of general indoor climate conditions, in order to avoid possible negative effects such as inadequate ventilation” and to “address the issue of healthy indoor climate conditions” when setting performance requirements must link to minimum IEQ requirements defined in building codes and make reference to EN 16798-1. The Commission must put the onus on Member States to demonstrate that these safeguards are adequately transposed, implemented, and enforced.

Recommended amendments:

Article 5. 1.	
Those requirements shall take account of general indoor climate conditions, in order to avoid possible negative effects such as inadequate ventilation, as well as local conditions and the designated function and the age of the building.	Those requirements Member States shall take account of general indoor climate conditions by setting minimum Indoor Environmental Quality requirements for different building types based on the parameters laid down in EN 16798-1 , in order to avoid possible negative effects such as inadequate ventilation, as well as local conditions and the designated function and the age of the building.
Article 8. 3.	
Member States shall address in relation to buildings undergoing major renovation, the issues of healthy indoor climate conditions, adaptation to climate change, fire safety, and risks related to intense seismic activity, the removal of hazardous	Member States shall address in relation to buildings undergoing major renovation, the issues of healthy indoor climate conditions by setting minimum Indoor Environmental Quality requirements for different building types based

<p>substances including asbestos and accessibility for persons with disabilities.</p>	<p>on the parameters laid down in EN 16798-1, adaptation to climate change, fire safety, and risks related to intense seismic activity, the removal of hazardous substances including asbestos and accessibility for persons with disabilities.</p>
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4. Include IEQ and ventilation-specific aspects in inspections of HVAC systems

Although ventilation was nominally included in the scope of the mandatory inspection requirements of new **Article 20**, the current formulation does not yet adequately cover ventilation aspects. Firstly, the 70kW threshold excludes most stand-alone ventilation systems from scope. Secondly, the inspections require an assessment only of the generators, pumps, fans, and control systems, but not the air inlets, ducts, and other components crucial to the ventilation performance of the system. Thirdly, it is foreseen that the inspection should assess the feasibility of the system to operate under more efficient temperature setting, but not more efficient airflow settings. Moreover, the inspections scheme still inadequately addresses IEQ aspects.

Recommended amendments:

<p>Article 20. 1.</p> <p>1. Member States shall lay down the necessary measures to establish regular inspections of heating, ventilation and air conditioning systems with an effective rated output of over 70 kW. The effective rating of the system shall be based on the sum of the rated output of the heating and air-conditioning generators.</p>	<p>1. Member States shall lay down the necessary measures to establish commissioning and regular inspections of heating, ventilation and air conditioning systems with an effective rated output of over 70 kW or a nominal air volume flow rate of over 1.000 m³/h. The effective rating of the system shall be based on the sum of the rated output of the heating and air-conditioning generators.</p>
<p>Article 20. 4.</p> <p>The inspection shall include the assessment of the generator or generators, circulation pumps, fans and control system. Member States may decide to include in the inspection schemes any additional building systems identified under Annex I. The inspection shall include an assessment of the efficiency and sizing of the generator or generators and of its main components compared with the requirements of the building and, where relevant, consider the capabilities of the system to optimise its performance under typical or average operating conditions. Where relevant, the inspection shall assess the feasibility of the system to operate under different and more efficient temperature settings, while ensuring the safe operation of the system.</p>	<p>The inspection shall include the assessment of the generator or generators, circulation pumps, fans, air ducts, air inlets and outlets, and control system. Member States may decide to include in the inspection schemes any additional building systems identified under Annex I. The inspection shall include an assessment of the efficiency and sizing of the generator or generators and of its main components compared with the requirements of the building and, where relevant, consider the capabilities of the system to optimise its performance under typical or average operating conditions. Where relevant, the inspection shall assess the feasibility of the system to operate under different and more efficient temperature settings, without this giving</p>

<p>The inspections scheme shall include the assessment of the sizing of the ventilation system compared with the requirements of the building and consider the capabilities of the ventilation system to optimise its performance under typical or average operating conditions.</p>	<p>rise to a poorer indoor environment and while ensuring the safe operation of the system.</p> <p>The inspections scheme shall include the assessment of the sizing and operation of the ventilation system compared with the requirements of the building and consider the capabilities of the ventilation system to optimise its performance under typical or average operating conditions. Where relevant, the inspection shall assess the feasibility of the system to operate under different and more efficient airflow settings, without this giving rise to a poorer indoor environment and while ensuring the safe operation of the system.</p>
<p>Article 20. 10.</p>	
<p>10. Member States shall put in place inspection schemes or alternative measures including digital tools, to certify that the delivered construction and renovation works meet the designed energy performance and are compliant with the minimum energy performance requirements as laid down in by the building codes.</p>	<p>10. Member States shall put in place inspection schemes or alternative measures including digital tools, to certify that the delivered construction and renovation works meet the designed energy performance and Indoor Environmental Quality and are compliant with the minimum energy performance and Indoor Environmental Quality requirements as laid down in by the building codes.</p>

5. Better define IAQ monitoring and control devices and their functionality

Article 11 makes indoor air quality (IAQ) monitoring and control devices mandatory in new buildings and major renovations. Eurovent strongly supports this requirement, which will give occupants the tools to discriminate between ‘good’ and ‘bad’ IAQ in real time and enable efficiency gains. Moreover, the IAQ data collected at building level can help rating the building’s IEQ in line with EN 16978-1 and facilitate inspections and compliance checks on IAQ aspects. That said, our concern is that the Directive contains no definition of IAQ, nor does it specify any functionality or accuracy requirements for such devices.

Recommended amendments:

<p>Article 2</p>	
<p>-</p>	<p>‘indoor air quality’ means the air quality within buildings and structures, especially as it relates to the presence of chemical, biological and physical contaminants in indoor air affecting the health and comfort of building occupants.</p>
<p>Article 11. 3.</p>	
<p>Member States shall require zero-emission buildings to be equipped with measuring and control devices for the monitoring and regulation</p>	<p>Member States shall require zero-emission buildings to be equipped with measuring and control devices for the monitoring and regulation</p>

of indoor air quality. In existing buildings, the installation of such devices shall be required, where technically and economically feasible, when a building undergoes a major renovation.	of indoor air quality. In existing buildings, the installation of such devices shall be required, where technically and economically feasible, when a building undergoes a major renovation. Such devices shall be capable of monitoring at least the carbon dioxide concentration and humidity in indoor air and signal to relevant buildings systems accordingly.
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6. Add IEQ indicators to the optional elements in the EPC template

The reform of the Energy Performance Certificates (EPC) and the harmonised template (**Article 16, Annexes V**) are great steps in the right direction, but they are still missing information related health and well-being. Eurovent recommends that information regarding ventilation rates, thermal comfort and IEQ are added to the optional elements to be included in the EPC.

Recommended amendments:

Annex V. 2.	
In addition, the energy performance certificate may include the following indicators: [...]	In addition, the energy performance certificate may include the following indicators: [...] (l) ventilation rates in the most common room categories; (m) indicators related to winter and summer thermal comfort; (n) IEQ category (I-IV) as defined by EN 16798-1

7. Create a common European calculation methodology for energy performance

The setting of common MEPS based on harmonised energy scales (**Article 9**) and common threshold values for ZEB (**Annex III**) only makes more pressing the need for convergence towards a harmonised European calculation model based on the EN standards developed for that purpose under mandate M/480. This is essential to ensure that the requirements are understood and implemented in a similar fashion across Member States, notwithstanding the particularities of national building stocks.