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# Eurovent comments on 2025 draft Ecodesign and Labelling Regulations setting out requirements for RVUs

## In a nutshell

**With this position paper Eurovent provides comments on the draft revised Ecodesign and Labelling Regulations for Ventilation Units discussed at the Stakeholder meeting on 24 April 2025 with regard to Residential Ventilation Units.**

## Introduction

The second stakeholder consultation meeting was held on 24 April 2025 as part of the follow-up study on the review of the Ecodesign Regulation (EU) 1253/2014 for VUs and the Energy Labelling Regulation (EU) 1254/2014 for RVUs. It was preceded by publication of consultation documents at CIRCABC, including the draft revised Ecodesign and Energy Labelling Regulations. Prior to this (in June 2024), the study consultant published Phase 1.1: Technical Analysis (Draft).

Eurovent members thank the Commission and the consultant for their work and welcome the proposals set out in the draft revised regulations. We appreciate that many of Eurovent' s proposals have been considered in these documents.

In this document, members of the Eurovent Product Group 'Residential Ventilation Systems', which represents the majority of European RVU manufacturers, provide their comments and on the draft revised Ecodesign and Labelling Regulations with regard to requirements for residential ventilation units.

Comments are listed in order of importance.

# Ecodesign Regulation (repealing 1253/2014)

In February 2025, Eurovent and EVIA as the two major European RVU industry associations, submitted to the Commission the final joint proposal for SEC and Energy Labelling. This proposal resulted from intensive and long work by experts from both associations and reflects a well-balanced industry compromise. The proposal has been implemented in draft Regulations, which Eurovent members very much appreciate. However, there are some important discrepancies between the submitted and implemented requirements, which we request to be eliminated (see item 1 to 2).

## 1. Total energy efficiency BVU ($\eta_e$)

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|---|---|
| Reference | Annex VI, Table 5, - page 35 |

With reference to the joint Eurovent and EVIA proposal of 13 December 2024, amended with the paper of 13 February 2025, Eurovent requests that for Cold climate $\eta_e = \eta_t$, while only for Average and Warm climate $\eta_e = \eta_t + 0.08\ \eta_x$.

The joint Eurovent and EVIA paper proposed:

### i) $\eta_e = \eta_t$ in cold climate

In cold climates, when no active humidification is in place in residential homes, there is very little to gain and 8% of $\eta_x$ is not reflecting this.

The condensing recuperative types have long periods with very low heat recovery during the defrosting and the need to defrost is connected to condensed water.

The effect of humidity recovery in cold climates is more a comfort and defrosting aspect, than an energy aspect in regular operation. In warmer climates an energy benefit is given when considering also cooled spaced. So in consequence we propose to correct energy recovery in the following way.

- **in all climate zones $\eta_x$ is used for defrosting**
- **Proposed new value for Cold Climate:** $\eta_e = \eta_t$
- **Proposed new value for Warm and Average climate:** $\eta_e = \eta_t + 0.08\ \eta_x$

Accordingly, Eurovent request the following amendments in the Regulation text

For cold climate SEC formula:
$\eta_e=\eta_t$ except for defrost purpose, there $\eta_x$ is still included.

$$SEC=ta.pef.qnet.\ MISC*CTRLx.SPI\text{-}th.(\Delta T/\eta h).Cair.((qref)\text{-}qnet.\ MISC*CTRL.(1-\eta t))+MISC*(CTRL.(1-\eta x).Qdefr$$

For warm and average climate SEC formula:
$\eta_e=\eta_t+0{,}08\ \eta_x$ also for defrost purpose

$$SEC=ta.pef.qnet.\ MISC*CTRLx.SPI\text{-}th.(\Delta T/\eta h).Cair.((qref)\text{-}qnet.\ MISC*CTRL.(1-\eta e))+MISC*(CTRL.(1-\eta x).Qdefr$$

## 2. Primary energy factor $P_{ef}$

| | |
|---|---|
| Reference | Annex VI, Table 5 - page 33 |

Primary energy factor electric power generation &distribution, $p_{ef}$ needs to be changed to 1.9

## 3. SEC limits for average climate

| | |
|---|---|
| Reference | Annex II (1) - page 16 |

Eurovent suggests introducing the minimum ecodesign requirements and the tentatively proposed values are as follows:

- ducted residential UVUs - no more than -22 kWh/($m^2$.a)
- ducted residential BVUs - no more than -31 kWh/($m^2$.a)
- non-ducted residential UVUs - no more than -17 kWh/($m^2$.a)
- non-ducted residential BVUs - no more than -28 kWh/($m^2$.a)

Eurovent also suggests to explicitly clarify that the RVU which is put on the market must meet the minimum SEC requirements without additional ventilation controls accessories (see also the related item 7).

## 4. Temperature ratio ($\eta_t$) for ducted BVU and non-ducted L-BVUs

| Reference | Annex VI, Table 5, - page 35 |
|---|---|

With refernce to PP – 2021-04-30 section 2.2 and following ICF's recommendation in Phase 1.1: Technical Analysis (Draft) section 3.3.3, Eurovent requests that $\eta_1 = \eta_0$ in the determination of $\eta_t$.

If this request cannot be accepted, Eurovent demands using trace gas as the only test method for all types of heat exchangers in order to ensure a fair and unified comparison of all technologies.

In addition, Eurovent request to disregard the impact of airflow sensitivity (i.e. $\eta_5 = \eta_4$) in the calculation of $\eta_t$. This impact is already addressed in the SEC formula.

| Parameter | symbol | non-ducted L-BVUs | ducted BVUs |
|---|---|---|---|
| Temp. ratio on supply air side [%] | $\eta_0$ | *Measured at massflow balance variation ≤ 3%* | |
| Internal leakage in [%] | $w$ | $\eta_1 = \eta_0 \times (1 - 0{,}7 \times (w - 0{,}02))$ | $\eta_1 = \eta_0 \times (1 - 0{,}7 \times (w - 0{,}02))$ |
| Outdoor mixing rate in [%] | $o$ | $\eta_2 = \eta_1 \times (1 - (o\text{-}0{,}02))$ | $\eta_2 = \eta_1^{a}$ |
| Indoor mixing rate in [%] | $y$ | $\eta_3 = \eta_2 \times (1 - (y\text{-}0{,}02))$ | $\eta_3 = \eta_2^{a}$ |
| External leakage in [%] | $z$ | $\eta_4 = \eta_3^{b}$ | $\eta_4 = \eta_3^{b}$ |
| Airflow sensitivity in [%] | $v$ | $\eta_5 = \eta_4 \times (1 - (v\text{-}0{,}02))^{0{,}4}$ | $\eta_5 = \eta_4 \times (1 - (v\text{-}0{,}02))^{0{,}4}$ |
| Temperature ratio BVU | $\eta_t$ | $= \eta_5$ | $= \eta_5$ |

## 5. Maximum internal and external leakage rate (%)

| Reference | Annex II (1) - page 16 |
|---|---|

Eurovent reiterates its request from PP – 2021-04-30 section 2.2 to amend the requirements as follows:

> *The maximum internal and external leakage rates (%) for ducted BVUs shall be less than 7% when the pressurization test is used, less than ~~4~~ 7% when the in-duct tracer gas test is used, and less than ~~6~~ 10% when the chamber tracer gas method is used*

## 6. Temperature ratio of a residential ERS ($\eta_t$)

| Reference | Annex 1 – Definitions (8) – page 9 |
|---|---|

*'temperature ratio of a residential ERS ($\eta_t$)' means the ratio between supply air temperature gain and exhaust air temperature loss, both relative to the outdoor temperature, measured under dry conditions of the ERS, and standard air conditions, with balanced mass flow, at reference airflow rate, an indoor-outdoor temperature difference of 13 K, no correction for thermal heat gain from fan motors but corrected for internal and external leakages, indoor and outdoor mixing and airflow sensitivity;*

Part marked yellow needs to be updated in line with comments in section 4.

## 7. Ventilation controls

| Reference | Annex I – Definitions (20) – p. 10 |
|---|---|

Following PP – 2024-07-11, Eurovent request amending the definition of 'ventilation controls' and in particular its 'RVU-package' component in such a way that it takes into account existing sales and distribution models in the markets of all Member States in an appropriate and fair manner. RVUs as mass produced units are typically distributed through wholesalers. In some Member States it is common that control devices are purchased together with the RVU as the 'RVU-package', while in other the RVU is purchased first, and the installer completes control devices afterwards. A statement in the current definition 'purchased together with the RVU' disregards the second distribution model.

Suggested amendment:

*'ventilation controls' means control devices that ~~are part of the RVU-package offered by the manufacturer and purchased together with the RVU and~~ are intended to control the ventilation airflow rates according to the declared 'type of VDC' and 'type of airflow control' (central, zonal, local) as per table 3 in Annex VI. They include devices that improve the level of flow rate control (for instance zonal or local controllable valves) and devices that help determining the actual ventilation need (manual controls, clock controls and ventilation demand controls (VDC); Ventilation controls can be part of the RVU-package offered by the manufacturer and purchased together with the RVU or afterwards. Alternatively, ventilation controls that meet the requirements specified by the RVU manufacturer can be supplied and installed by a separate BAC contractor.*

## 8. Humidity ratio of a residential ERS ($\eta_x$)

| Reference | Annex 1 – Definitions (9) – page 9 |
|---|---|

Test conditions for humidity ratio are missing.

Eurovent proposes referring to standard test point 2 of EN 13141-7:2021, Table 11

**Table 11 — Temperature conditions for standard tests**

| Application mode | Standard test | | |
|---|---|---|---|
| Point number | 1 | 2 | 3 |
| Heat exchanger category | HRC1 and HRC3 (mandatory point) | HRC1a (optional) and HRC1x and HRC3 (mandatory) | HRC1 and HRC3 (optional) |
| **Extract air** | | | |
| Temperature $\theta_{11}$ | 20 °C | 20 °C | 20 °C |
| Wet bulb temperature $\theta_{w11}$ | 12 °C | 15 °C | 12 °C |
| **Outdoor air** | | | |
| Temperature $\theta_{21}$ | 7 °C | 2 °C | - 7 °C |
| Wet bulb temperature $\theta_{w21}$ | — | 1 °C | - 8 °C |

## 9. Maximum $L_{WA}$ for non-ducted RVUs

| Reference | Annex II (1) - page 16 |
|---|---|

'Eurovent requests the following amendment:

*Non-ducted RVUs, including ventilation units intended to be equipped with one duct connection on either supply or extract air side shall have a maximum $L_{WA}$ of ~~35 dB~~ 40 dB(A) at reference flow rate.*

Alternatively, Eurovent proposes the following two tiers:

*As Tier 1:* *40 dB(A) at reference flow rate*

*As Tier 2 after 3 years:* *38 dB(A) at reference flow rate*

Rational:

- Best available technology can hardly meet the $L_{WA}$ limit of 35 dB(A).
- $L_{WA}$ limit of 35 dB(A) is unlikely to be met by RVUs intended for retrofit, which face more demanding technical challenges.
- The maximum sound level in dwellings is regulated by national building codes anyway.

## 10. Subject matter and scope – inclusion of exhaust UVUs < 30 W

| Reference | Article 2 (2)(a) – page 2 |
|---|---|

Eurovent requests to delete point 2(a) in Article 1.

~~*(a) are single room exhaust UVUs with an electric power input of less than 30 W, that are exclusively specified as operating occasionally to ventilate either one bathroom or one toilet, and do not have the technical possibility to continuously ventilate these spaces, except for information requirements;*~~

Single room exhaust UVUs with an electric power input of less than 30 W should be included in the scope of the Regulation also in respect to ecodesign requirements.

## 11. Suitability of a defrosting system for colder climate and energy impact

| Reference | Annex IV (1) (w) - page 25 |
|---|---|

Eurovent requests the following amendment in this information requirement:

*for BVUs equipped with a defrosting system: the type of applied defrosting system according to Table 4.* ~~*the type of the applied frost protection strategy as well as its suitability for colder climates and its energy impact;*~~

The frost protection strategy, its suitability for colder climates and its energy impact should be specified and clarified in Table 4 for each listed defrosting system. Furthermore, new updated table 4 from CEN/TC 156 WG 2 should be implemented.

## 12. Maximum flow rate for non-ducted RVUs

| Reference | Article 2 (14) – page 5 |
|---|---|

Eurovent request the following amendment to the definition of 'maximum flow rate' with respect to non-ducted RVUs:

'maximum flow rate' is the declared maximum air volume flow rate of a ventilation unit that can be achieved at standard air conditions (20 °C) and 101 325 Pa, where the unit is installed complete (e.g. including clean filters) and according to the manufacturer's instructions, for ducted RVUs the maximum flow is related to the air flow at 100 Pa of external static pressure difference, and for non-ducted RVUs to the air flow at 20 Pa of external static pressure, which correspond to the wind speed of 6.5 m/s. The reference airflow for non-ducted units is defined as 70% of the maximum airflow.

## 13. Material efficiency requirements

| Reference | Annex II (2)(1)(a) and (b) – page 16 |
|---|---|

Given that:

- Some motors used by RVU manufacturers are proprietary and specially designed components only for them, and their technical characteristics are their non-public intellectual property.
- Some motors are integrated into a non-demountable fan assembly.

Eurovent requests the following amendments to the requirements:

*(a) Manufacturers, importers or authorised representatives of RVUs, shall make available to professional repairers at least the following spare part when they are proprietary and specifically designed components:*

- *filters;*
- *sensors;*
- *ventilation controls*
- *motors and non-detachable motor-fan assemblies.*

*(b) Manufacturers, importers or their authorised representatives of RVUs shall make available to professional repairers the ~~technical characteristics~~ maintenance and repair information of at least the following components*

- *motors and non-detachable motor-fan assemblies*

## 14. Information requirements for air filters

| Reference | Annex VI(t) – page 25 |
|---|---|

Given that:

- There is no standard or reliable method to estimate power consumption of used/full filters in case they are not exchanged, nor expected filter change intervals.
- The effective filter area (the total area of filtration media in the filter) is a much better measure to evaluate energy performance of a filter than the filter velocity.

Eurovent suggests the following amendments to the requirements:

*(t) filter(s) class, filter(s) ~~velocity~~ effective filtration area, clean pressure drop(s), ~~final pressure drop(s) and related expected filter change intervals and power consumption of used/full filters in case they are not exchanged~~, of the filters installed in the model;*

## 15. Definition of ventilation demand control (VDC)

| Reference | Annex I – Definitions (23) – page 11 |
|---|---|

Eurovent request the following correction to the definition:

*'ventilation demand control (VDC)' means a device that measures with a sensor or sensors, one or more parameters that are representative for the ventilation demand in a specific room type and use the result to automatically control the airflow rate of the RVU or section of the RVU;*

## 16. Definition of central sensors system

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|---|---|
| Reference | Annex I – Definitions (24) – page 11 |

Eurovent request the following corrections to the definition:

*'central sensors system' means a VDC formed by one sensor measuring in the ~~mixed~~ exhaust air of the whole ventilated building one or more of the following parameters: humidity, volatile organic compounds (VOC), ~~motion sensors;~~ $CO_2$*

## 17. Definition of zonal sensors system

| | |
|---|---|
| Reference | Annex I (25) – page 11 |

Eurovent request the following corrections to the definition:

*'zonal sensors system' means a VDC formed by at least two sensors measuring, in a way that is representative of at least two separate rooms or groups of rooms of the ventilated building, one or more of the following parameters: humidity, VOC, motion sensors; $CO_2$*

## 18. Definition of local sensors system

| | |
|---|---|
| Reference | Annex I (26) – page 11 |

Eurovent request the following corrections to the definition:

*'local sensors system' means a VDC formed by at least one sensor per each habitable space and each exhaust space of the ventilated building, measuring one or more of the following parameters: humidity, VOC, motion sensors; $CO_2$*

## 19. Definition of spare part

| | |
|---|---|
| Reference | Annex I (43) – page 12 |

'Eurovent request the following corrections to the definition:

*'spare part' means a separate part that can replace a part with the same or similar function in a VU ~~server or data storage product~~. The functionality of the VU ~~server or data storage product~~ is restored or upgraded when the part is replaced by a spare part. Spare parts may be used parts;*

## 20. Definition of professional repairer

| | |
|---|---|
| Reference | Annex I (43) – page 12 |

'Eurovent request the following corrections to the definition:

*'professional repairer' means an operator or undertaking which performs repair and professional maintenance of VUs ~~servers or data storage products, either as a service or with a view to the subsequent resale of the repaired device~~;*

## 21. Benchmarks – SEC for average climate

| | |
|---|---|
| Reference | Annex IX – page 43 |

Eurovent suggests the following values to be indicated for the best available technology on the market:

- For ducted UVUs: -35 kWh/(m$^2$.a)
- For ducted BVUs: -40 kWh/(m$^2$.a)
- non-ducted UVUs: -29 kWh/(m$^2$.a)
- non-ducted BVUs: -39 kWh/(m$^2$.a)

# Labelling Regulation (repealing 1254/2014)

## 22. Label – Reference flow rate

| | |
|---|---|
| Reference | Annex III, (1.1) (XII) and (2.1) (XII) |

Eurovent requests showing reference flow rate (not maximum flow rate) under filed XII.

## 23. Energy efficiency classes of ducted and non-ducted RVUs

| | |
|---|---|
| Reference | Annex II, Table I, page 13 |

Eurovent proposes to define a lower boundary for class G as follows:

- Warm climate: +0,9 > SEC > -1,5
- Average climate -3,1 > SEC > -9,3
- Cold climate -16,2 > SEC > - 25,5

## 24. Label - symbol of UVU and BVU

| | |
|---|---|
| Reference | Annex III, (1.1) and (2.1) |

The symbol to distinguish UVU / BVU is not clear. Eurovent suggests using one bigger arrow for UVU, two crossing bigger arrows for BVU.

## 25. Label – QR code

| | |
|---|---|
| Reference | Annex III, (1.1)(I) and (2.1) (I) |

Eurovent suggest adding clarification that QR code is linking to the EPREL database.

## 26. Letter grade for filter class

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|---|---|
| Reference | Annex IV, (2) |

Eurovent requests leaving out the filter letter class (A...F). It is misleading and could be mixed up with the RVU energy class.

## 27. Primary energy factor $P_{ef}$

| | |
|---|---|
| Reference | Annex IV, Table 2 |

Primary energy factor electric power generation &distribution, $p_{ef}$ should be changed to 1.9

## 28. Qder table

| | |
|---|---|
| Reference | Annex IV, Table 4 |

New table by CEN156 WG2 should be used (and $q_{net}$ should be 1,3 instead of 1,97

## 29. Total energy efficiency $\eta_e$ of the ERS

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|---|---|
| Reference | Annex IV, Table 5 |

Same comments as in Section 1above regarding the draft ecodesign Regulation.

## 30. Definitions of AEC, AHC and TAEC,

| | |
|---|---|
| Reference | Annex V |

Definitions of AEC, AHC and TAEC are missing.

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| | |
|---|---|
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