

Definition of ErP CTRL factors for Residential Ventilation based on EVIA VPA Tool

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The Air Exchange Performance factor of the EVIA Ventilation Performance Assessment (VPA) calculation tool can be used to calculate CTRL factors based on a more realistic scenario. A first draft was shown during stakeholder meeting 29 May 2019 in Brussels from VHK.

EVIA supports this approach, but for the use within a regulation, the approach needs to be simplified based on the following aspects:

1. Delivery and placing in the market

Any declaration and use of the CTRL factors must consider the following aspects:

- The current approach reflects the aspects of declaration and labelling when placing on the market. The units are declared in combination with the sensors and controls devices.
- Ventilation units, sensors, control devices and air transfer devices are sold through different channels and at different times, even if the manufacturer is identical.
- The industry strictly rejects any “package” solution, where the data is linked to one delivery. This would mean a high administrative burden and does not reflect the market needs.
- Individual selections for the real dwelling are needed. This means the amount and sizing of the additional components needed, have to be done on the real dwelling and might differ from one project to another.
- Any type of installer labelling does not work in real life and does not reflect the needs of the Ecodesign Regulation. Installations and real combinations are considered in EPBD implementation.

The current “matrix” solution, where the manufacturer declares the valid combinations is targeting the needs. Clarifications and clear definitions will be helpful.

2. Simplified approach for regulation use

Our key principles for defining CTRL factors are:

- As the CTRL factor has a huge impact on the result, the determination shall be **unequivocal and clear**. Robust definitions are required.
- A **limited selection** of no more than ~8-12 (better less) options shall be offered for the regulation use currently.
- Designing engineers and manufacturers might later use the full approach of the VPA tool for individual consulting.
- The building and other (not ErP) related product impacts shall be limited to the main needs to compare products/systems. MISC and INF factors might be updated or integrated in CTRL factors.

At the current level, the impact of different types of sensors (humidity, CO₂, VOC, etc.) and the quality of controls equipment shall not be determined or tested. Current regulation does not specify as there are currently no suitable test procedures for this.

The CTRL-factors pre-calculated based on the assumption above for example like the following table:

CTRL = ...		control			
Sensors / switches		Current 1253	central	zonal ^(b)	local
	manual	1,0	1,0	0,95 ^(c)	0,90 ^(c)
	clock	0,95	0,95	0,85	0,80 ^(c)
	central	0,85	0,85	(a)	(a)
	zonal	0,65	0,75	0,65	(a)
	local	0,65 (0,5)	0,65	0,55	0,45

(a): possibly makes no sense

(b): minimum 2 zones

(c): further considerations needed to avoid too much detail and too many options

Definition sensors:

1. central: Means **one** sensor per unit/system/dwelling (not single room units).
For example CO₂ sensor in habitable or humidity in exhaust room/exhaust duct.
2. zonal: Means **two or more** sensors per unit/system/dwelling. For example, CO₂ sensor in bedroom and Humidity sensor in bathroom.
3. Local: Means **one sensor in each room** (habitable and exhaust spaces).
For example, CO₂-sensors in living-room and all bedrooms, a humidity-sensor in bathroom and VOC-sensor in toilets and kitchen.

Definition control:

1. Central = Variable volume flow in the entire dwelling and same flowrates over ES + HS, once commissioned.
2. Zonal = Variable flow and supplied or extracted with controllable devices (valves, fans, etc) for 2 zones and with certain sensor/control types for operating these devices and related flows
3. Local = Variable flow and supplied or extracted with controllable devices for all rooms and with certain sensor/control types for operating these devices and related flows.

A clear and general definition, useful for **all types** of units for all sensors and controls shall be developed.

Additional remarks (needs to be specified further):

- Single room units serving only one room shall be treated local. An additional MISC factor of 1.5 might be considered.
- Single room units serving two (or more) rooms (for example small duct to attached room, or alternating units with two room relation shall be treated like zonal.
- Alternating units with no clear relation shall be treated like central.

3. Ventilation Performance Indicator on the label

The ventilation performance of a residential ventilation system is depending highly on very individual building and design parameters beside unit performance data, which cannot be treated with a simplified label on the product. An EU model building, or dwelling does not consider the following aspects:

- Different selection of air volume flow in member states.
- Building design, area and building parameters.
- Any combination of different local or zonal ventilation units or systems. (for example, single UVU in wet room and BVU in selected living rooms).
- The CTRL factor already is used and there is a clear functional relation between CTRL and ventilation performance. An additional parameter is not helpful.

EVIA advocates not to implement an additions indicator for ventilation performance on the label.

About EVIA:

The European Ventilation Industry Association (EVIA)'s mission is to represent the views and interests of the ventilation industry and serve as a platform between all the relevant European stakeholders involved in the ventilation sector, such as decision-makers at the EU level as well as our partners in EU Member States. Our membership is composed of more than 35 member companies and 6 national associations across Europe, realising an annual turnover of over 7 billion euros and employing more than 45,000 people in Europe.

EVIA aims to promote highly energy efficient ventilation applications across Europe, with high consideration for health and comfort aspects. Fresh and good indoor air quality is a critical element of comfort and contributes to keeping people healthy in buildings.