

EVIA Comments on Residential Ventilation Units Control Aspects

05 March 2021

Following the publication on 25 September 2020 of the Final Task 1-7 reports on the review of Regulations (EU) 1253/2014 and 1254/2014, EVIA would like to highlight the following important input controls. This position is valid for ducted and non-ducted residential ventilation units.

Controls aspects

EVIA recognises the strong role that the presence of sensors plays in improving Indoor Air Quality and the energy efficiency of the built environment as a facilitator of demand-controlled ventilation (DCV). However, there are two issues that will undermine the regulation of sensors and controls under LOT 6. Firstly, a lack of test standards for determining control and sensor accuracy requirements. Secondly, weak definitions for sensors and control strategies.

1. Missing standards for control/sensor accuracy:

As it stands, the impact of different types of sensors (humidity, CO2, VOC, etc.) and the quality of sensor/controls equipment cannot be determined or tested due to a deficiency/lack of standards. The ongoing revision of Regulation (EU) 1253/2014 therefore cannot be used to set such requirements due to the lack of suitable test procedures. Therefore, or the current revision the approach taken must remain simple and must not discriminate between types of sensor/controls.

In addition, and in principle, requirements for the presence of a given sensor/controls or a given combination of sensors should not be set at EU level. To account for climatic variance, if these are to be set, they should be set in national/local/regional building regulations. EVIA would support the development of EU level non-binding guidance for the deployment of sensors/controls in national/local/regional building regulations in the context of the revision of the Energy Performance of Buildings Directive (EPBD) and its Smart Readiness Indicator (SRI), that is expected to be published in Q4 2021.

EVIA recommend that the Commission use the current revision of LOT 6 and the forthcoming revision of the EPBD to point the way forward for a body of standardisation work to lay the foundations for enforceable requirements. The elements are detailed below.

Control/accuracy requirements in LOT 6: EVIA recognises the need and would support the development of sensor/controls test standards for the different types of sensors/controls. Sensor/controls performance depends significantly on the application in which the sensor/controls is deployed in a given building. As such sensor/controls test standards must be established by expanding ventilation standards to ensure that the testing is conducted in a manner that reflects the ventilation use/application against a series of reference building use-cases.

The Commission should pursue a standardisation request (sReq) for a ventilation sensor/control accuracy performance testing standard. This should be included in the review clause of the revised Regulation (EU) 1253/2014. Eurovent are understood to be working on the accuracy and use of sensors/controls which could be used as a basis for expediting this work and EVIA will support the develop of an sReq.

Standardised commissioning and inspection procedures: Ensuring that sensor/control functionalities are used properly also requires correct installation and ongoing monitoring/inspection of sensor/controls system performance. In the context of the EN 16798 suit of EPBD standards the Commission should pursue an sReq to standardise sensor/controls commissioning and monitoring in non-residential buildings by extending EN 16798-17: Energy performance of buildings - Ventilation for buildings - Part 17: Guidelines for inspection of ventilation



and air conditioning systems. For residential ventilation, EN 14134: Ventilation for buildings - Performance measurement and checks for residential ventilation systems, should be similarly extended.

2. Clear implementable definitions:

EVIA have proposed the below table of CTRL-factors as an alternative to the table that has been proposed by the consultants. Based on and expanding the current list of CTRL-factors the EVIA suggestion is less complex:

CTRL =			control		
		Current 1253	central	zonal ^(b)	local
sensors / switches	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)
0,	local	0,65 (0,5)	0,65	0,55	0,45

The EVIA key principles for defining CTRL factors are:

- 1. As the CTRL factor has a huge impact on the result, the determination shall be unequivocal and clear. Robust definitions are required.
- 2. A limited selection of no more than ~8-12 (better less) options shall be offered for the regulation use currently.
- 3. Design engineers and manufacturers might later use the full approach of the VPA tool for individual consulting.
- 4. 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.

If the approach to definitions suggested in the LOT 6 report is followed without clarification, manufacturers will struggle to consistently implement the provisions, with resulting legal uncertainty, and market surveillance authorities will struggle to enforce them.

Standardised definitions are currently unavailable due to diverging opinions in the marketplace. Nevertheless, definitions are necessary to support the implementation of requirements. EVIA, however, rejects the definitions proposed in the LOT 6 reports. As such EVIA propose the following:

Definitions sensors:

1. Local: Means <u>one or more sensors in every room</u> or in related extract air ducts.

(For example, CO2 sensors in living-room and all bedrooms, a humidity-sensor in bathroom and VOC-sensor in toilets and kitchen).

2. Zonal: Means <u>two or more sensors in at least two distinct zones</u> in a dwelling or in related extract air ducts. A zone is either one room or a group of rooms.

(An example of a zone is a 'living/habitation area' comprising kitchen, living room, home office, hallway).

(An example of multiple zones would be CO2 sensors in a bedroom or multiple bedrooms, and a Humidity sensor in a bathroom(s)).



3. Central: Means one sensor per dwelling or in related extract air ducts.

(For example, a CO2 sensor in habitable or humidity in exhaust room/exhaust duct).

Definitions controls:

- 1. Local = The flow rate through each distinct room is controlled independently.
- 2. Zonal = The flow rate through two or more distinct zones is controlled independently.
- 3. Central = Flow rate control that is not zonal and not local.

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 40 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.