

10TH REHVA  
BRUSSELS  
SUMMIT 2024

POLICY CONFERENCE

**REHVA PATHWAY TO CLIMATE NEUTRALITY**  
*Through the EPBD implementation*

**WELCOME!**

# 10TH REHVA BRUSSELS SUMMIT

## 2024

POLICY CONFERENCE

## Introduction

**Johann Zirngibl**, EU PAG leader, Vice-president, REHVA



**Delivering on the European  
Green Deal and Fit for 55**

# **Energy Performance of Buildings Directive (EPBD) recast**

**(2024/1275) – Implementation & Guidelines**

**REHVA Pathway to Climate Neutrality Through the EPBD implementation – 19/11/2024**

Serena Pontoglio  
European Commission – DG  
ENERGY  
Unit B3 - Buildings and Products

# Focus areas of the recast EPBD

## Renovation

- Minimum Energy Performance Standards
- National trajectories for the progressive renovation of the residential building stock
- National Building Renovation Plans

## Enabling framework

- Strengthened Energy Performance Certificates
- Renovation passports
- Sustainable finance & energy poverty
- One-stop-shops
- Deep renovation standard
- National energy performance databases

## Decarbonisation

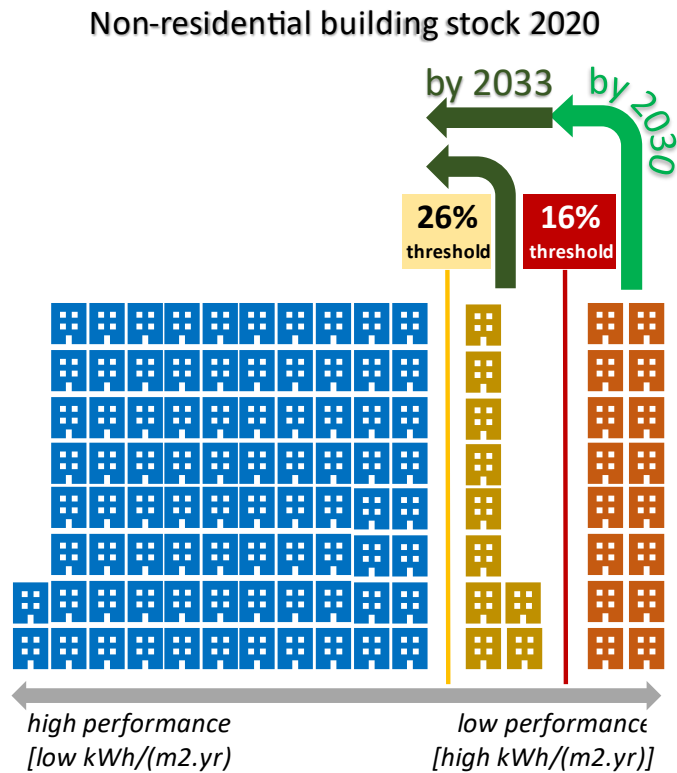
- Introduction of zero-emission buildings as standard for new buildings
- Solar deployment in buildings
- Calculation of whole life cycle carbon
- Phasing out incentives for fossil fuels and new legal basis for national bans

## Modernisation & system integration

- Infrastructure for sustainable mobility
- Smart Readiness Indicator
- Indoor air quality: ventilation and other technical building systems
- Digitisation, data access and exchange

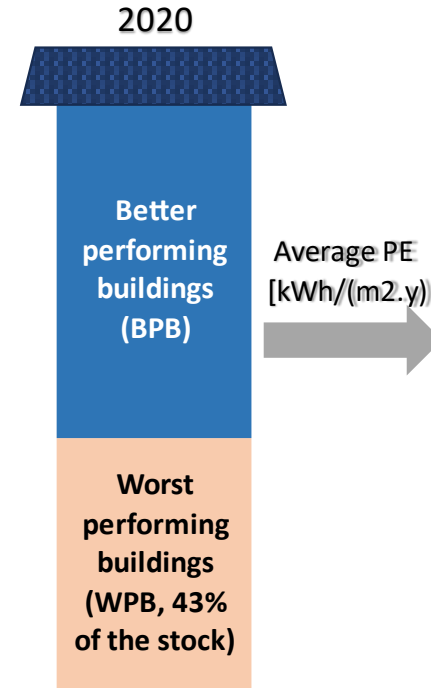
# Key renovation measures for non-residential and residential building stock (Article 9)

## Non-residential: Minimum Energy Performance Standards (MEPS)

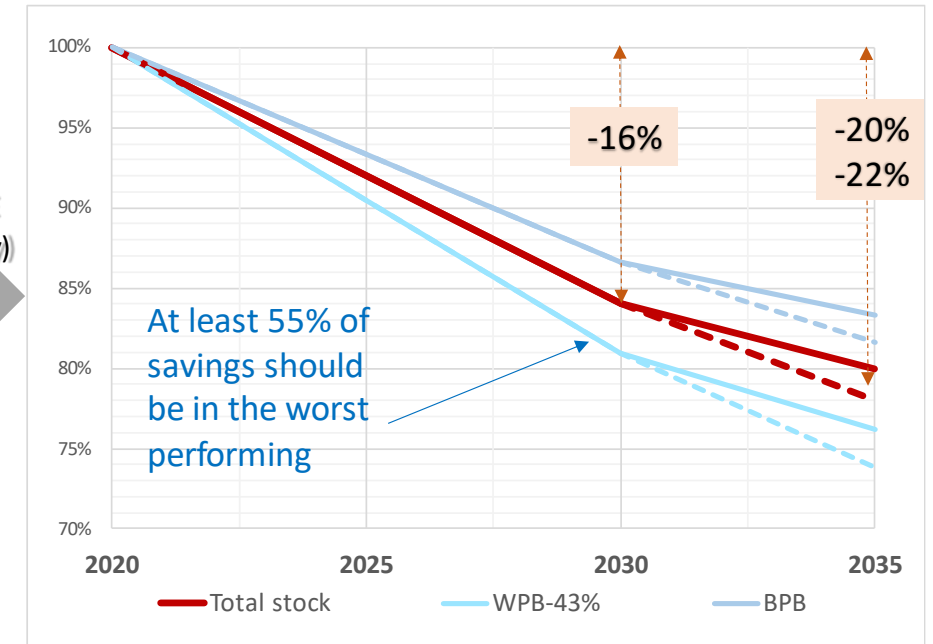


## Residential: trajectory to reduce the average primary energy use

### Residential building stock



### National trajectory for the average primary energy use in kWh/(m2.y)



# EPBD Recast – Implementation timeline

- December 2026** ● National Building Renovation Plans (final)
- June 2026 (ind.) ● Assessment by the Commission of the draft National Building Renovation Plans + country recommendations
- May 2026** ● **EPBD transposition deadline** (24 months after entry into force)
- December 2025 ● Draft National Building Renovation Plans
- Q2/Q3 2025 ● Envisaged publication of **Guidance documents**
- 1<sup>st</sup> January 2025 ● Transposition deadline for Article 17(15) - phasing out financing for stand-alone boilers powered by fossil fuels
- October 2024 ● Adoption of the first Guidance document on phasing out financing for stand-alone fossil fuel boilers from 2025 (C/2024/7161)
- 8 May 2024** ● Publication in OJ and enter into force 20 days after

# Guidance documents – work in progress

## Explicitly requested in legal text:

- Fossil fuel boilers
- Development of one-stop shops
- Consideration of ambient heat
- Energy performance of transparent building elements
- National roadmaps on limit values for total GWP of new buildings
- Fire safety in car parks

## Guidance on other new or substantially modified provisions

- Minimum Energy Performance Standards
- Zero-emission buildings
- Solar energy in buildings
- ...and many more...

**Stakeholders  
consultations**

**Consultation with  
national authorities on  
draft texts**

# Secondary legal acts

- **Portfolio framework** for voluntary use by **financial institutions** (“ex-Mortgage Portfolio Standards”) (delegated act, 12 months after entry into force ~ mid 2025)
- Revised **cost-optimality** framework (delegated act, by 30 June 2025)
- Templates for **information transfer to Building Stock Observatory** (implementing act, by 30 June 2025)
- Union framework for **national calculation of life-cycle Global Warming Potential** (delegated act, by 31 December 2025)
- Interoperability requirements and procedures for access to **building systems' data** (implementing act, by 31 December 2025)
- **Smart Readiness Indicator** for large non-residential buildings (DA & IA, by 30 June 2027)

# New Commission

## **Dan Jørgensen** - New Commissioner-designate for Energy and Housing

- Further details to come, see Mission Letter
- **European Affordable Housing Plan:** Technical Assistance, dialogue with stakeholders and authorities. Pan-european investment platform for affordable and sustainable housing; Double cohesion investments in affordable housing in next MFF. State aid rules to adapt
- **Clean Industrial Deal**
- **Electrification Action Plan**

Thank you!



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## THE EUROPEAN PARLIAMENT PERSPECTIVE RECORDED MESSAGE: THE RELEVANCE OF THE EPBD AND ITS CURRENT AND FUTURE IMPACT

**Seán Kelly**, MEP ITRE committee member and EPBD EPP shadow  
rapporteur



**Federation of European Heating, Ventilation  
and Air Conditioning Associations**

# REHVA proposals for EPBD implementation

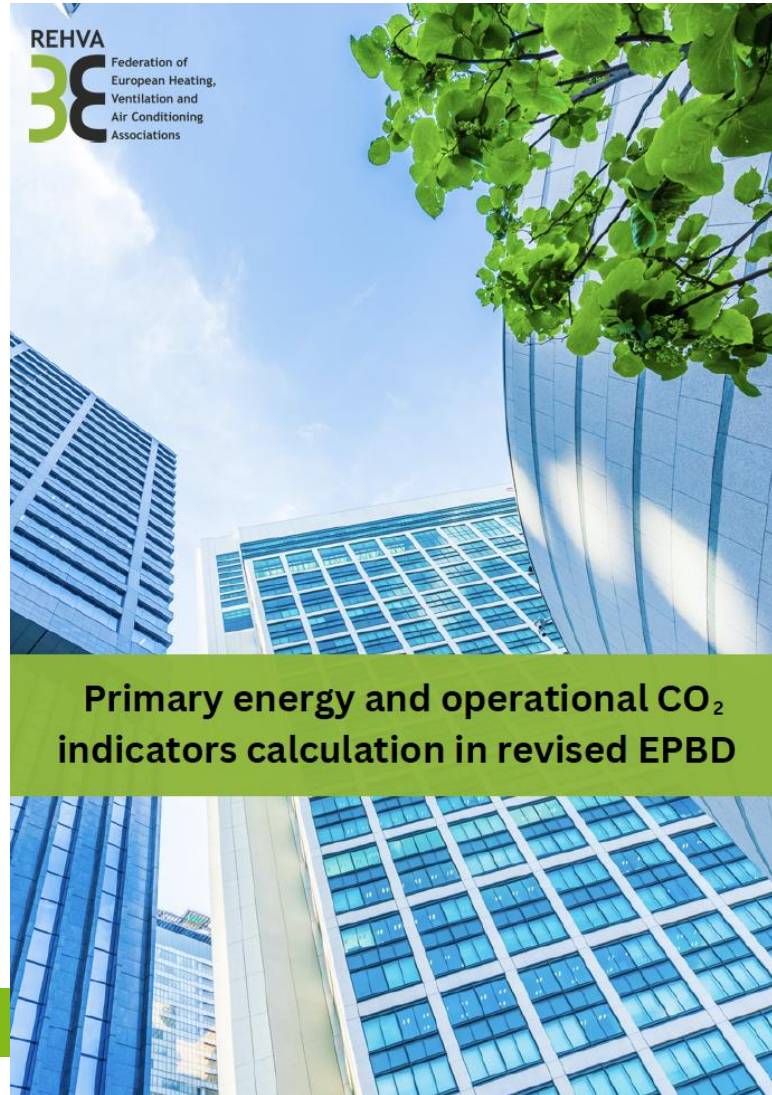
**Jarek Kurnitski**

REHVA Technology and Research Committee  
Tallinn University of Technology, Aalto University



# REHVA Guidance

- REHVA has been active in technical guidance development for harmonised EPBD implementation
- Primary energy:  
[https://www.rehva.eu/fileadmin/user\\_upload/2024/EPBD\\_Guidance\\_2024.pdf](https://www.rehva.eu/fileadmin/user_upload/2024/EPBD_Guidance_2024.pdf)



Proposed modifications and guidelines for implementation of Article 11a 'Indoor environmental quality' in EPBD draft



# Model IEQ regulation to fulfil new provisions of 2024 EPBD recast

New guidance under development (expected December 2024)

- Developed from EPBD provisions and by setting requirements with measurable indicators based on to those of the LEVEL(s) framework
- Is expected to serve as an example of evidence based IEQ useful minimum implementation

Why?

- EPBD provisions on the monitoring and regulation of indoor air quality (IAQ) as well as on optimal indoor environmental quality (IEQ) are technically more complex than they look at the first glance

# IAQ challenge: what needs to be regulated?

- IAQ Monitoring = direct measurement of many indoor air pollutants is impossible in practice because it generally requires sampling and subsequent chemical analysis
- Practical approach is to monitor pollutants for those low-cost sensors exist and all other pollution sources must be controlled so that harmful concentrations cannot form

Indoor air pollution originates from both indoor and outdoor sources:

- Building materials emitting volatile organic compounds, respiratory effluents and body odours emitted by humans, combustion, cooking, products with fragrances, resuspending floor dust, interaction of pollutants and oxidants, ...
- It has been shown that the most harmful contaminants in dwellings are PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>2</sub>, formaldehyde, radon, and ozone
- WHO AQG provides thresholds for six pollutants, but many other harmful pollutants are common in the indoor air

# IAQ management strategy

1. Controlling of indoor emission sources
  2. Reducing the entry of outdoor pollutants to indoors
  3. Ventilating out (diluting) the remaining pollutants indoors
- Considering that low-cost sensors for routine IAQ monitoring are available for CO<sub>2</sub>, RH, particulate matter PM2.5, and CO (originates from combustion), the following minimum requirements are to be established to manage IAQ:

1. Source control must be applied for pollution sources from building materials and interior design through the use of labelled low polluting building materials
2. Outdoor air particulate matter has to be controlled by filtering of outdoor air and reducing infiltration when above WHO limits
3. Ventilation rates are to be specified to maintain an acceptable level of pollutants in the indoor environment and CO<sub>2</sub> concentration can be used as a proxy to assess ventilation rates in operation

# IAQ management in the construction process

Parameters and factors depend on the construction process stage:

- Minimum requirements are needed in the **design**
- Ventilation system performance must be tested and documented by conducting **commissioning** procedures before handing over
- Proper operation and maintenance can be ensured with continuous **monitoring** and **inspection** (regular check)
- Relevant IAQ parameters are different in these stages

# Proposed IAQ parameters

		Design	Commissioning	Monitoring <sup>1)</sup>	Inspection	Comment	
Indoor air quality	Carbon dioxide	x		x		At 1.1 m above the floor in occupied zones, in the extract air	
	PM2.5	x <sup>2)</sup>		x <sup>3)</sup>		At 1.1 m above the floor in occupied zones	
	Formaldehyde				x	Near potential sources such as furniture and flooring	
	Nitrogen dioxide				x	Near potential sources like kitchens and garages	
	Carbon monoxide				x	Alarm sensors in buildings with combustion sources	
	Radon	x				x	In the lowest occupied level of the building
	Ventilation rate	x	x			x	Outdoor airflow rate supplied and extracted from rooms, typically measured from supply and extract terminals

<sup>1)</sup> In addition to indoor values, monitoring of outdoor values for CO<sub>2</sub> and PM2.5 is needed. The importance for IAQ is the difference of indoor-outdoor CO<sub>2</sub> and PM2.5.

<sup>2)</sup> For non-residential buildings filters are specified in EN 16798-3.

<sup>3)</sup> PM2.5 continuous monitoring is not needed if particulate matter is controlled with filters in ventilation system, and there is no significant infiltration through building envelope.

- EPBD requirements apply mostly for desing and monitoring
- Inspection of ventilation systems is also included, but alternative measures are possible

# IAQ parameters hand in hand with thermal

		Design	Commissioning	Monitoring <sup>1)</sup>	Inspection	Comment
Thermal	Operative temperature	x				At representative points in the occupied zone to ensure occupant comfort
	Air velocity	x				At representative points in the occupied zone for design and control of HVAC system for occupant comfort
	Air temperature			x		At 1.1 m above the floor in occupied zones
	Relative humidity	x		x		At 1.1 m above the floor in occupied zones
Indoor air quality	Carbon dioxide	x		x		At 1.1 m above the floor in occupied zones, near air
	PM2.5	x <sup>2)</sup>		x <sup>3)</sup>		At 1.1 m above the floor in occupied zones
	Formaldehyde				x	Near potential sources such as furniture and
	Nitrogen dioxide				x	Near potential sources like kitchens and garages
	Carbon monoxide				x	Alarm sensors in buildings with combustion
	Radon	x			x	In the lowest occupied level of the building
	Ventilation rate	x	x		x	Outdoor airflow rate supplied and extracted, typically measured from supply and extract



# Example of the model regulation 1/2

## 6 IAQ monitoring and regulation equipment in non-residential buildings

6.1 New non-residential buildings shall be equipped with measuring and control devices as a part of a demand-controlled ventilation (DCV) system for the monitoring and regulation of IAQ.

6.2 New non-residential buildings shall be equipped with building automation and control systems which provide monitoring of IAQ and temperature in continuously occupied spaces.

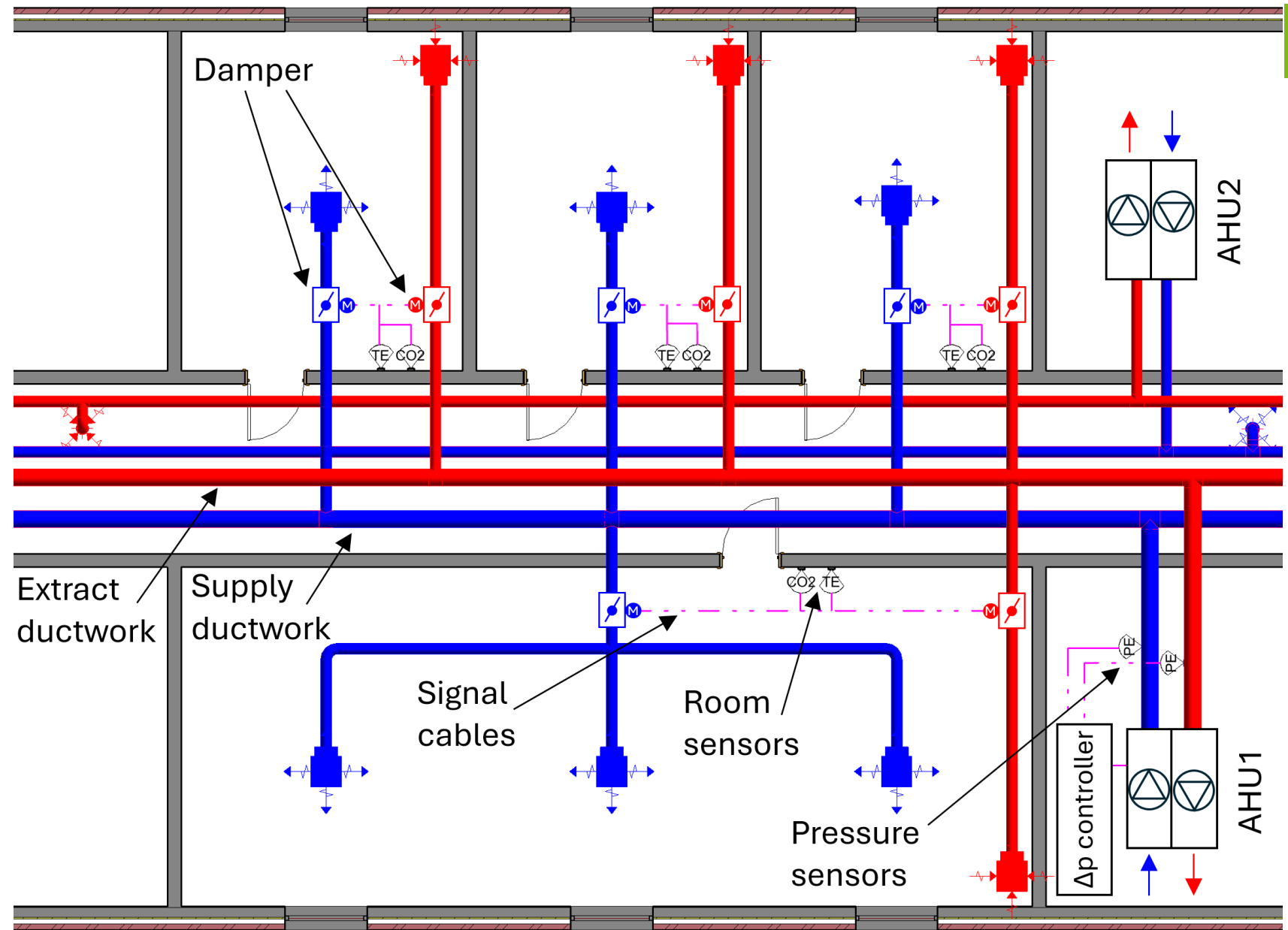
6.3 In major renovations 6.1 and 6.2 shall be followed as applicable.

6.4 IAQ regulation shall be applied at least in spaces that are intended for three or more persons.

6.5 IAQ regulation is not needed in spaces where ventilation requirements are determined predominately by extract air flow rates.

...

- Example of pressure independent DCV system (AHU1)
- = solution to comply with EPBD in non-residential
- Fan speed is controlled to keep constant static pressure in the main duct
- Dampers adjust the air flow rates based on the room sensors CO<sub>2</sub> (and temperature) readings
- AHU2 (CAV) with time control but not DCV serves toilets and corridors



# Example of the model regulation 2/2

...

6.6 DCV systems should use sensors that can reliably measure parameters that are used for IAQ monitoring and regulation.

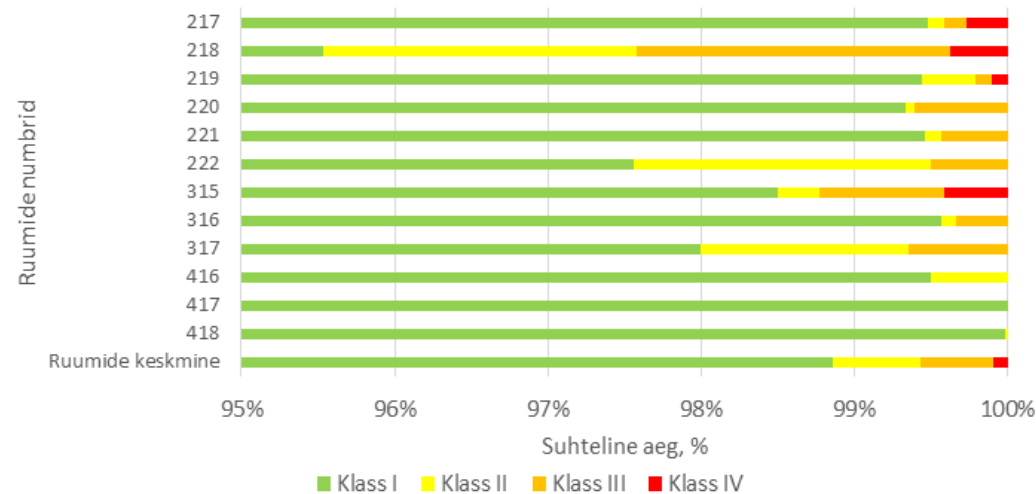
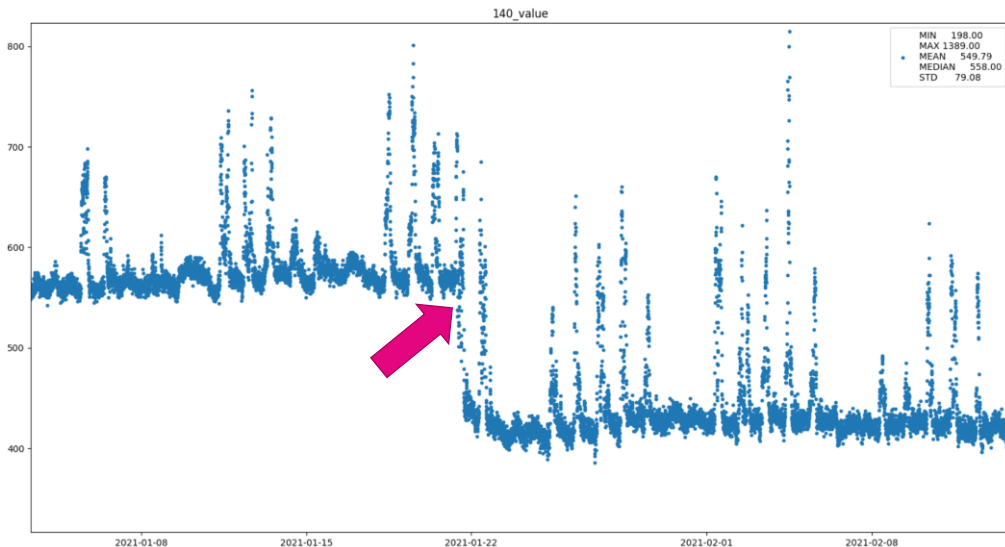
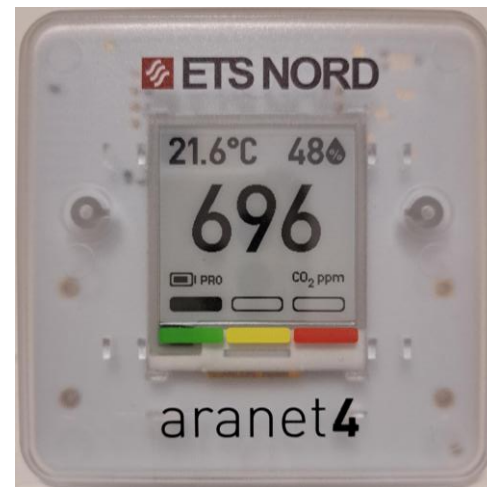
6.7 In DCV systems equipped with adequate outdoor air filters, CO<sub>2</sub> may be used as a parameter for IAQ monitoring and regulation. In DCV systems without outdoor air filters, additionally the particulate matter PM2.5 shall be used for IAQ monitoring and regulation.

6.8 Monitored IAQ parameters shall be made visible in rooms for users, provided both by readings and traffic light colour type of indicators. They should also be available in building automation and control systems for long term performance assessment and maintenance support purposes.

# What should be required for monitoring?

There are likely two aims for monitoring:

- Monitored IAQ parameters should be made visible in rooms for users, provided both by readings and traffic light colours
- Monitored IAQ parameters should also be available in building automation and control systems for long term performance and fault detection purposes



# Model IEQ regulation

1. Subject matter
2. Definitions
3. Design values and requirements for thermal comfort
4. Design values and requirements for indoor air quality
  - 4.1 Ventilation in non-residential buildings
  - 4.2 Ventilation in residential buildings
- 5 Ventilation system requirements
  - 5.1 General requirements
  - 5.2 Operation for optimal indoor air quality in non-residential buildings
  - 5.3 Operation for optimal indoor air quality in residential buildings
- 6 IAQ monitoring and regulation equipment in non-residential buildings
- 7 Capacity to react to external signals and adapt energy use, generation or storage

Format:

6 pages

3 tables

4 equations

+15 pages explanatory report

December 2024



Johann ZIRNGIBL  
REHVA Vice-President  
EU Policy Advocacy Group  
[Johann.zirngibl@epb.center](mailto:Johann.zirngibl@epb.center)

## REHVA Policy & Advocacy activities: the EPBD and beyond

REHVA BXL Summit - Policy Conference  
REHVA Pathway to Climate Neutrality - Through the EPBD implementation  
Tuesday 19<sup>th</sup> of November 2024

## REHVA's new organization on policy advocacy

### Why policy advocacy?

- ❖ **EU Decisions impact our profession** (e.g. EPBD and national transposition);
- ❖ **Bring the REHVA technical know-how / experience into EU Directives, regulations, guidelines, etc;**
- ❖ **To be able to inform to REHVA Members “what is going on at EU level”**

### REHVA's new organization on policy advocacy

- 1. REHVA is proactive towards politicians and the Commission**
- 2. Registered lobbyist at European Parliament**
- 3. New full time REHVA Policy and Advocacy Officer**  
(**Francesco Robimarga** [fr@rehva.eu](mailto:fr@rehva.eu))
  - to better represent all REHVA member associations at European level
  - to coordinate with REHVA members the implementation of EU policy at national level.
- 4. Creation of the European Policy Advocacy Group [EUPAG],**  
to **work out and coordinate** the policy advocacy activities (already more than **60 Members**)



## For what is REHVA advocating? - The REHVA principles

1. **Technology neutral** approach;
2. **Holistic, decarbonized** building design, including **energy grids**, based on:
  - the **Energy Efficiency First** principle,
  - the **priority use of renewables** in the **entire energy chain**,
  - the **life cycle approach (LCA)**;
3. High indoor environmental quality (**IEQ**) and indoor air quality (**IAQ**);
4. **Social responsibility** (optimized cost effective, **affordable** buildings);
5. **Performance based building codes** (focusing on results, not on means);
6. **Digitalization** of buildings (smart buildings, SRI);
7. **European added value**, *a EU common technical language (e.g. calculation methods, free circulation of professionals and services, harmonized upskilling, EU certification, etc*



There is no **“one fits all solution”** but a **needed optimization** of the solutions adapted to each building, worked out by **qualified professionals**

# Examples of REHVA actions (1/3)

## REHVA Manifesto - the “2050 ready building” pact

For sustainable, healthy and affordable buildings

Worked out by **EU PAG** (Policy Advocacy Group) issued in English, French, German, Italian, Romanian, Slovak

- Carbon **Neutrality** for the building sector in 2050
- **Healthy** buildings – better **IEQ** and **IAQ**
- **Affordable** homes and **performances based incentives**
- HVAC in the Energy Transition – **built up skills, EU dimension**

Send to ~ **60 lead candidates** (EU, Member States) **before election**  
High feedback (~30%, **several signatures**)

**First step: Contact the Member of Parliament (MEP).**  
**Next step: Meet MEP at European and national level,**



For sustainable, healthy and affordable buildings - the “2050 ready building” pact



Pour des bâtiments durables, sains et abordables - le pacte « 2050 ready building »



Für nachhaltige, gesunde und bezahlbare Gebäude - der „2050 Ready Building“-Pakt

Brüssel, 29 Mai 2024

REHVA ist eine Dachorganisation, die über 120.000 Heizung-, Lüftung-, Klima (HLK) Planungsingenieure, Gebäudetechniker und Techniker in 24 europäischen Ländern vertritt.



Pentru clădiri durabile, sănătoase și accesibile – Pactul “2050 ready building” (clădiri pregătite pentru 2050)



Pre udržateľné, zdravé a cenovo dostupné budovy - pakt „Budovy pripravené na rok 2050“

Brusel, 29. mája 2024

## Examples of REHVA actions (2/3)

### REHVA supports international standardization

#### Example:

**ISO/TC163** and **ISO/TC205** workshop, Paris

Keynote speakers from :

- the **European Commission**,
- the **UN Environment Program (UNEP)**,
- the **International Energy Agency (IEA)**,
- the **industry**.

**REHVA member experts** contribute with their:

- **expertise** and **experience** to the development of
- **reliable, high quality standards**

for the **assessment of the energy performance** of buildings



# Examples of REHVA actions (3/3)

## EPBD implementation – Guidance documents

- Commission started to draft **around 20** Guidance documents, delegated acts etc.

### Timeline of the process for the Delegated Act

Workshops with stakeholders and MS experts + Discussions in EPBD CA	April 2024
Circulation of working document	3 September 2024
<b>Consultation of expert group on working document</b>	<b>17 September 2024</b>
Circulation of first draft delegated act to EPB committee	19 November 2024
<b>2<sup>nd</sup> consultation of expert group - on first draft of delegated act</b>	<b>3-4 December 2024</b>
<b>4-week feedback period on Have your Say</b>	<b>March – April 2025</b>
Circulation of final draft delegated act to EPB committee	13 March 2025
<b>3<sup>rd</sup> consultation of expert group – Opinion on the draft final delegated act</b>	<b>27 March 2025</b>
Incorporation of expert group's opinion and feedback	March – April 2025
Adoption by the College	by 30 June 2025
Scrutiny period for EP & Council (2+2 months)	-

- REHVA published **Guidance documents** (IEQ, Prim. energy) and **commented the Commission drafts**



**Contribution on DRAFT**  
 COMMISSION NOTICE No [XXX/XXXX] of [XX/XX/XXXX]  
 on phasing out financial incentives for stand-alone fossil fuel boilers powered by fossil fuels under the recast Energy Performance of Buildings Directive  
 Johann Zirngibl  
 This document is a contribution to the draft Commission notice of the EU Commission on the phase out of financial incentives for stand-alone boilers powered by fossil fuel. The draft Commission notice is related to agenda point 3 of the EPBD Committee meeting scheduled for the 16<sup>th</sup> of May.

## How REHVA is working on policy advocacy

### Working organization for Policy and Advocacy activities

**Objective:** Draft a **common message** based on REHVA's **principles**

- Technology Research Com. (**TRC**) - drafting **guidelines** - **middle term**
- Policy Advocacy Group (**EUPAG**) - drafting (technical) **position papers** - **short term**
- **EPBD Implementation** task group - drafting **comments on draft guidelines** - **“immediate”**

### Dissemination channels of the “*common REHVA message*”

- Cooperation with the **EU Commission services** (EPBD, ErP);
- Cooperation with **building code writers national level**;
- Contribution to **standardization**;
- Coordination with other **European associations**.

#### **Still to be increased**

- Contact with **politicians** at **European and national levels**
- Publishing “REHVA messages” in the REHVA journal, Member journals, press release



## How to better cooperate on EPBD implementation (1/2)

### With the Commission on the draft guidance documents

- **Directly** by sending comments, guidance documents and direct discussions
- **Indirectly** via the Member States (REHVA **Member association experts**)

### Difficulties:

- **Access to information**
- **Available** technical work force (fast reaction, funding, etc)

### Solution ?

- REHVA (technology neutral, etc) could be **invited as expert** by the **Commission**
- Commission **tendering** via “**Service contracts**” and not “**framework contracts**”



## How to better cooperate on EPBD implementation (2/2)

- The **details** of **EPBD implementation** will be **fixed** at **national** level  
The number of guidelines (~ 20) **underlines** the possibilities of **interpretation** and the **importance** of the implementation stage.

**Cooperation** with the Member States via **REHVA Member association** is **crucial**

*Technical know-how and expertise is not sufficient to lobby the REHVA message*

- **Communication** and **networking**

REHVA Member association should **identify an expert** to be member of the “**EPBD implementation task group**” and **leverage** the common messages at national level

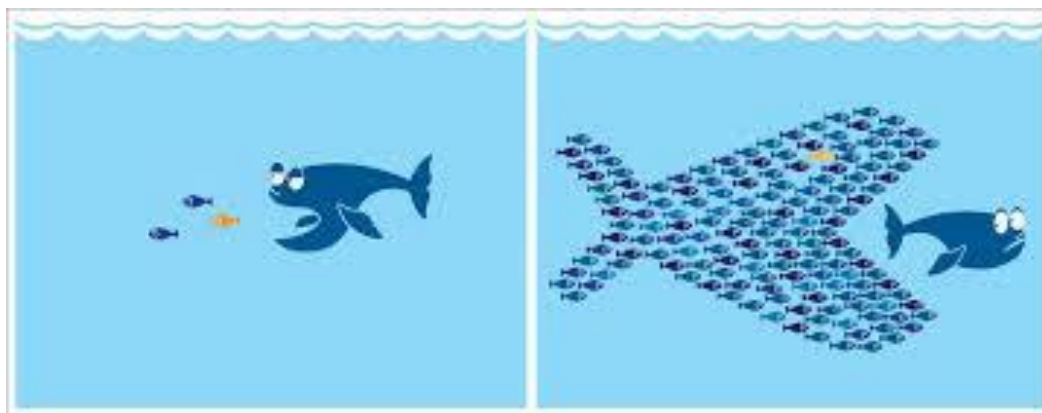
- **Dissemination**

The **common messages** should be **published** at **national level** (journals, social media, etc )

...last slide

## Together we can

- contribute to a **harmonized** and **ambitious national EPBD implementation**;
- promote **common training** and **tools** with a **real European added value**;
- communicate on the **interest** and **societal utility** of our **HVAC profession**;
- ...and much more.





REHVA



Federation of  
European Heating,  
Ventilation and  
Air Conditioning  
Associations

**Thank you!**

# 10TH REHVA BRUSSELS SUMMIT

## 2024

POLICY CONFERENCE

## DIALOGUE WITH THE EUROPEAN POLICY MAKERS

*Moderator: Johann Zirngibl, EU PAG leader, Vice-president, REHVA*

- *Jarek Kurtniski, Tallinn University of Technology and Aalto University*
- *Serena Pontoglio, European Commission*