

EUROVENT EXPERT WEBINAR

**QUALITY CRITERIA FOR
AIR HANDLING UNITS:
INDUSTRY RECOMMENDATION**

www.eurovent.eu

05 DECEMBER 2023

Copyright

© Eurovent, 2023

Unless otherwise stated hereafter, this publication may be reproduced in whole or in part, provided acknowledgement of the source is made. For any use or reproduction of photos or other material that is not owned by Eurovent, permission must be sought directly from the copyright holders.

Part 1

WELCOME AND INTRODUCTION

Martin Lenz

Head of International Business Development /
Head of Research & Pre-Development

TROX

Chairman, Eurovent Product Group 'Air
Handling Units' (PG-AHU)





Roadmap

- 1 WELCOME AND INTRODUCTION
- 2 EUROVENT RECOMMENDATION 'QUALITY CRITERIA FOR AIR HANDLING UNITS'
- 3 OVERVIEW OF THE RECOMMENDATION AND HOW TO USE IT
- 4 MAINTAINABILITY
- 5 SUMMARY AND WRAP-UP
- 6 Q&A

Speakers



Martin Lenz
Head of International
Business Development /
Head of Research & Pre-
Development
TROX



Laurence Higginson
Business Development
Director
robatherm



Charlene Lochon
Senior Engineer Product
Management
robatherm



Orkun Yilmaz
Geniox R&D Manager
Systemair

What is Eurovent?

Eurovent is a European not-for-profit organisation bringing together manufacturers from various sectors of the HVACR industry.

Eurovent's mission is to foster energy-efficient and sustainable HVACR technologies with holistic consideration of other aspects such as health and life protection, quality of work, safety and the promotion of a level playing field for the entire industry.

Eurovent PG-AHU

Air handling units is one of the main products addressed by Eurovent and its Product Group 'Air Handling Units' is the largest gathering of AHU producers worldwide.

Key Eurovent activities to achieve our objectives

Advocacy

European Union legislation (specifically Ecodesign, Energy Labeling, EPBD)

Technical

EN and ISO standardisation, development of Eurovent standards (codes of good practice)

Marketing

General promotion of the European HVACR industry and its state-of-the-art approaches

Eurovent PG-AHU: Technical activities

Examples of recent technical publications

Eurovent 6/15 - 2021

Air Leakages in Air Handling Units: Guidelines for Improving Indoor Air Quality and Correcting Performance

First Edition

Published on 17 February 2021 by
Eurovent, 80 Bd A. Reyers Ln, 1030 Brussels, Belgium
secretariat@eurovent.eu

Eurovent 6/16 - 2021

Corrosion protection of Air Handling Units

First Edition

Published on 07 September 2021 by
Eurovent, 80 Bd A. Reyers Ln, 1030 Brussels, Belgium
secretariat@eurovent.eu

Eurovent 6/17 - 2021

Control systems for Air Handling Units

First Edition

Published on Thursday, 09 December 2021 by
Eurovent, 80 Bd A. Reyers Ln, 1030 Brussels, Belgium
secretariat@eurovent.eu

Eurovent 6/18 - 2022

Quality criteria for Air Handling Units

First Edition

Published on Thursday, 13 October 2022 by
Eurovent, 80 Bd A. Reyers Ln, 1030 Brussels, Belgium
secretariat@eurovent.eu

Eurovent PG-AHU: Marketing activities

Eurovent Air Handling Units Guidebook



CONTENTS

1. Air Handling Units matter	4	7. Design and selection	38
1.1 Clean air – a basic human need	4	7.1 Air flows	38
1.2 Indoor air quality and energy efficiency	6	7.2 Dimensions and modularisation	38
1.3 Applying high quality AHUs pays off	6	7.3 Fans and energy recovery	39
2. The basics	8	7.4 Filters	39
2.1 Heart of the ventilation system	8	7.5 Casing	40
2.2 Past and present	8	7.6 Installation	41
2.3 Classification	12	7.7 Hygiene	41
3. Application areas	16	8. Certification	42
3.1 General ventilation system	16	8.1 The importance of accurate data	42
3.2 Different areas demand different requirements	16	8.2 Eurovent Certified Performance	42
4. Functions and components	20	9. Standards	44
4.1 General functions	20	9.1 CEN committees	44
4.2 Air filters	20	9.2 Harmonised standards	45
4.3 Energy recovery components	22	9.3 EN 13953 and EN 16798	45
4.4 Heating and cooling components	24	9.4 EN 1886, EN 308, ISO 16890	46
4.5 Fans	24	9.5 European Union Ecodesign	47
4.6 Silencers	26	9.6 National legislation and guidelines	47
4.7 Dehumidifier	26	10. The European AHU industry	48
4.8 Mixing section	26	10.1 Manufacturers	48
4.9 Other components	26	10.2 Constant thrive for innovation	48
5. Energy Efficiency and Life Cycle Costs	28	10.3 Market size	50
5.1 Methodology	29	10.4 Eurovent and AHUs	50
5.2 Life-Cycle Costs (LCC)	30	10.5 Selected Eurovent publications	52
6. Control system	32	11. About this Guidebook	54
6.1 Importance of the control system	32	11.1 Contributors	54
6.2 Key tasks of the control system	33	11.2 The Eurovent Association	56
6.3 Essential control functions for AHU components	33	Table of figures	57
6.4 Facilitating commissioning and maintenance	35		
6.5 Influence of an air handling unit controller on the overall efficiency	35		
6.6 Components in an air handling system that can be combined using a controller	35		
6.7 The importance of Building Management Interfaces	36		

2 | OCTOBER 2021

Eurovent PG-AHU: Advocacy activities

Examples of advocacy efforts – EU legislation

Comprehensive Position Papers to the European Commission on the review of Regulation (EU) 1253/2014

Eurovent consolidated Position Paper concerning Revision of Commission Regulation (EU) No 1253/2014 (Ventilation Units)
 Scope: Non-Residential Ventilation Units
 PP - 2019-03-28

In a nutshell
 Within this Position Paper, the Eurovent Association provides its in-depth, preliminary positions concerning the ongoing review of Commission Regulation (EU) No 1253/2014, (Ecodesign requirements for ventilation units).

While strongly supporting the European Union's Ecodesign concept and increasing minimum energy efficiency requirements as a means to support innovation and competitiveness of our industry, our members also acknowledge the need to further develop the Ventilation Units Regulations based on market experiences made.

Given the large amount of input, this Position Paper is being split into the following sections:

- Request to provide further clarifications and amendments to the regulatory text.
- The appropriateness of taking into account the effects of low-energy consuming filters on the average efficiency.
- The appropriateness of introducing new requirements for NRVUs concerning VAVs.
- The need to set a further limit with regard to accessories (equipment) for energy recovery taking into consideration different ambient conditions.
- The appropriateness of considering the positive effects of high-quality control systems on the energy efficiency, quality and safety of non-residential ventilation units (NRVUs).

Important remarks
 This Position Paper covers non-residential ventilation units only. Residential ventilation units are being dealt with in a separate Position by our Product Group 'Residential Air Handling Units'.

While no major changes are being expected, these Positions remain subject to a final vote by members of the Eurovent Product Group 'Air Handling Units' on 15 April 2019 in Vilnius, Lithuania.

Authors
 The above-mentioned Positions derive from 15 years of joint efforts of the Eurovent Product Group 'Air Handling Units', which represents more than 100 manufacturers of non-residential ventilation units across Europe (incl. Russia and Turkey). Whenever necessary, our Product Groups 'Energy Recovery Components' and 'Air Filters' as well as statistical experts of Eurovent Market Intelligence were consulted to guarantee the highest possible validity.

Review background
 In February 2019, the European Commission has initiated the Review Study concerning its Ecodesign and Energy Labelling Regulations on Ventilation Units. The review is being carried out by VHK and managed by Vto. It will include the review of existing Regulations EU 1253/2014 (Ecodesign requirements for ventilation units) and EU 1254/2014 (energy labelling of residential ventilation units).

Eurovent Position Paper
 PP - 2019-12-29

Eurovent comments to the Phase 1.1 and 1.2 Draft Reports of Tasks 1, 2 and 3 for the review study on Ventilation Units
 Scope: Non-Residential Ventilation Units and Residential Ventilation Units

In a nutshell
 This Position Paper presents comments to the Phase 1.1 and 1.2 Draft Reports of Tasks 1, 2 and 3 for the review study on Ventilation Units published on 25 November 2019. The comments were developed in a joint effort by members of the Eurovent Product Groups 'Air Handling Units', 'Residential Air Handling Units', 'Air Filters' and 'Energy Recovery Components'.

Comments are made on the issues listed below. With regard to other proposals of the reports, Eurovent does not take a position or holds positions already presented in the previous papers.

1. Proposed extensions to the product scope	2
1.1 VUs with \dot{V} 30 W per airstream	2
1.2 Non-Residential Ventilation Units fitted with a Heat Pump and HRS or Heat Pump for heat recovery	2
2. Proposed adjustments in Regulation text	2
2.1 Definition of Ventilation Units	2
3. Proposed exclusions of the product scope	3
3.1 AHUs primarily used for air heating/cooling with 0-10% ventilation	3
3.2 VUs used for replacing old units in historic buildings	3
3.3 VUs exclusively for dehumidification and de-chlorination of spaces	3
4. Proposed revisions concerning the Energy Performance in regard to NRVU	3
4.1 Modifications regarding energy recovery	3
4.1.1 Include latent heat & humidity recovery feature	3
4.1.2 Proposal to increase limit values for minimum thermal efficiency to 77%	4
4.1.3 Proposal to allow a reduction on limit values for $\eta_{p,0.95}$ or $SFP_{0.95}$ for non-residential BVUs that have smart controls (i.e. IBA-C5, following table 12 of EN 16798-3)	4
4.2 Modifications regarding filters	4
4.2.1 Introduction of separate values for $SFP_{0.95}$ depending on the class of applied filters	4
4.2.2 Set limit values for filter (media) velocity for RVU	4
4.3 Modifications concerning leakages	5
4.4 Modifications concerning defrosting	5
5. Proposed revisions concerning the Energy Performance in regard to RVUs	5

Eurovent comments to the second Stakeholder meeting on 7 May 2020 and to the Discussion Document for 2nd Stakeholder Meeting (v1.1) on Non-Residential Aspects
 PP - 2020-06-03

Background
 The second Stakeholder meeting on the review of VU (Regulation 1253/2014) and VU Energy Labelling Regulation 1254/2014 was held on 7 May 2020. It was preceded by the publication of Discussion Document (v1.1). The document summarized the results of the work for Phase 1 of the Review Study, comprising the Technical Analysis (Phase 1.1) and the update of the Preparatory studies (Phase 1.2).

Eurovent welcomes the tabular proposals for revisions. We believe they bring significant improvements and take into account the suggestions made by stakeholders.

In this paper, Eurovent presents additional comments on Non-Residential aspects to the subjects addressed in the course of stakeholder meeting and to proposals for revisions included in the Discussion Document.

1. Definition Ventilation Unit (par. 2.1 in the Discussion Document)
 The proposed definition to be used in the revised VU Regulation reads:

ventilation units (VU) means an electrically driven appliance equipped with at least one impeller, one motor and a casing intended to replace indoor air with outdoor air, when the indoor air is withdrawn/polluted due to presence of human beings and their use of the building including emissions from building materials, decorative and interior product and equipment.

In the opinion of Eurovent members, this wording may still raise doubts whether Ventilation Units for built industrial process (main purpose) and human presence air in the scope of the regulation. Thus, we believe this should be put more specific:

To make the definition explicit, we propose to consider the following sentence:

ventilation unit means an electrically driven machine equipped with at least one impeller, one motor and an enclosing casing intended to replace indoor air with outdoor air in indoor spaces intended for human occupancy.

2. Clarification toxic environment (par. 2.2)
 The proposed amendment text reads:

Units exclusively specified as operating in toxic, highly corrosive or flammable environments or environments with abrasive substances and are exclusively designed for abstract of air from such an environment without any purpose of ventilation (e.g. an extract air unit for a laboratory fume hood or a technical extraction system of a machinery).

Eurovent suggests using word 'extract' instead of 'abstract' and deleting 'without any purpose of ventilation'.

Eurovent comments to draft working documents on Ecodesign requirements for VU and Energy Labelling of RVUs
 PP - 2021-04-28

In a nutshell
 Following the Consultation Forum meeting concerning the proposals made in draft working documents on Ecodesign requirements for VU and Energy Labelling of RVUs, Eurovent provides in this paper its comments on proposed amendments regarding:

- Ecodesign requirements for non-residential ventilation units
- Ecodesign requirements for residential ventilation units
- Energy Labeling Requirements for residential ventilation units

Introduction
 Consultation Forum Meeting on the review of the Ecodesign and Energy Labelling regulations on ventilation units took place on 30 March 2021. It was preceded by making available the draft working documents.

Eurovent welcomes the proposal for amended ecodesign and energy labelling provisions for ventilation units set out in draft working documents '2021 0222 ED-no TC' and '2021 0222 EL-no TC' published on 1 March 2021. Eurovent members appreciate that most of the industry motions were taken into consideration in the review.

After reviewing the draft working documents and clarifications made at the Consultation Forum meeting, we would like to provide the following comments from Eurovent members.

1 Non-residential Ventilation Units - Ecodesign Requirements (Review EU1253/2014)

1.1 Requirements for known and unknown place of installation
 Reference: Annex III - Specific ecodesign requirements for NRVUs

Eurovent fully supports the proposal for separate requirements for RVUs with known and unknown place of installation, or in other words with known or unknown minimum outdoor temperature.

We are confident that, wherever needed and justified, lower requirements for the temperature ratio combined with higher requirements for $SFP_{0.95}$ will contribute for further energy savings and decarbonisation.

We also believe that making requirements dependent on the outdoor temperature does not create additional burdens and challenges for market surveillance, which were indicated by some Member States during the Consultation Forum meeting. In our view, the outdoor temperature is another input parameter declared by a manufacturer for the conformity assessment, similar to the airflow rate or external pressure drop. All these parameters can be verified by market surveillance in a similar way based on product and ventilation system documentation.

Eurovent PG-AHU: Advocacy activities

Examples of advocacy efforts – European standardisation



Secretariat

MAIL – 2020-12-11

Eurovent proposal for amendments in EN 16798-3

Eurovent members propose amendments in the revised EN 16798-3, which aim at:

- Clarification and additional explanation of issues related to internal air leakage in bidirectional ventilation units with heat recovery (notably with a rotary heat exchanger), which have a considerable impact on electric energy consumption and deterioration of IAQ.
- adjustment to the expected changes in the revised Regulation (EU) 1253/2014 and EN 308.

According to the Eurovent members' expertise, in improperly designed/commissioned air handling units, internal leakage (expressed with OACF and EATR) may be very high (over 20% of the nominal air flow), which leads to a significant increase in the electric power consumption (up to 40%).

This aspect cannot be ignored, but in the current standard it is not explicitly emphasized. Thus, it is proposed to introduce a correction of SFP values against OACF and EATR. This improvement would bring about a better and more realistic evaluation of the actual electric power input.

To determine the actual SFP values of the bidirectional air handling unit with a heat recovery component (HRC) and without recirculation, its corrected nominal air flow rate must be taken into account.

Corrected nominal air flow rate of the bidirectional air handling unit with HRC means the declared design air flow rate of an air handling unit with a heat recovery component distributed to and/or extracted from the building, including any leakages or any pressure balancing flow, at standard air conditions 20°C and 101.325 Pa, whereby the unit is installed complete (e.g. including filters) and according to the manufacturer instructions.

The corrected air flows in each of the AHU connections (ODA, SUP, ETA, EHA) must be calculated with the consideration of actual EATR and OACF values. The actual EATR and OACF must not exceed the maximum acceptable design values for EATR and OACF.

The corrected air flows are calculated as follows:

$$Q_{SUPCORR} = Q_{SUP} \cdot (1 + EATR)$$

$$Q_{ETACORR} = Q_{ETA} + Q_{SUP} \cdot EATR$$

$$Q_{ODACORR} = Q_{SUPCORR} \cdot OACF$$

$$Q_{EHACORR} = Q_{ETACORR} + Q_{SUPCORR} \cdot (OACF - 1)$$

Where,

Q_{SUP} is the required design air flow rate of outdoor air supplied to the building, calculated acc. to article 10.1.2 in EN 16798-3

Q_{ETA} is the required design flow rate of the air extracted from the building

The corrected SFP value must be calculated by means of the AHU selection software to allow for corrected air flows, and accordingly corrected internal and external pressure losses.

If actual EATR < 1%, the SFP value do not need to be corrected.

Code of good practice to keep EATR and OACF low

Part 2

EUROVENT RECOMMENDATION 'QUALITY CRITERIA FOR AIR HANDLING UNITS'

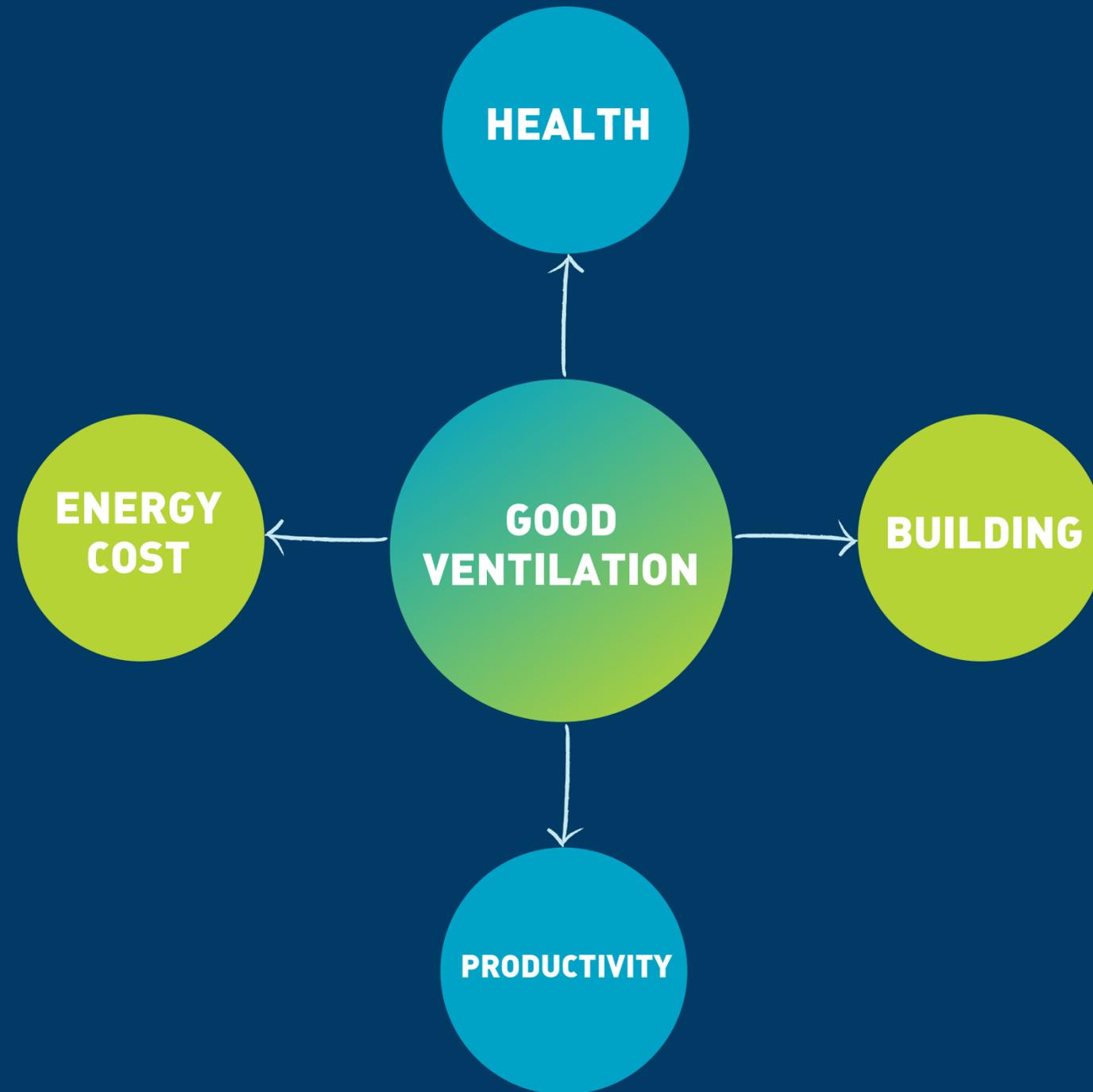
Laurence Higginson

Business Development Director

robatherm



Why is good ventilation important?



What is the future of ventilation in Europe?

Efficiency & Sustainability

Reinforced standards and Air Quality

Responsible use of resources



A complex & important component of building performance



Part 3

OVERVIEW OF THE RECOMMENDATION AND HOW TO USE IT

Charlene Lochon

Senior Engineer Product Management

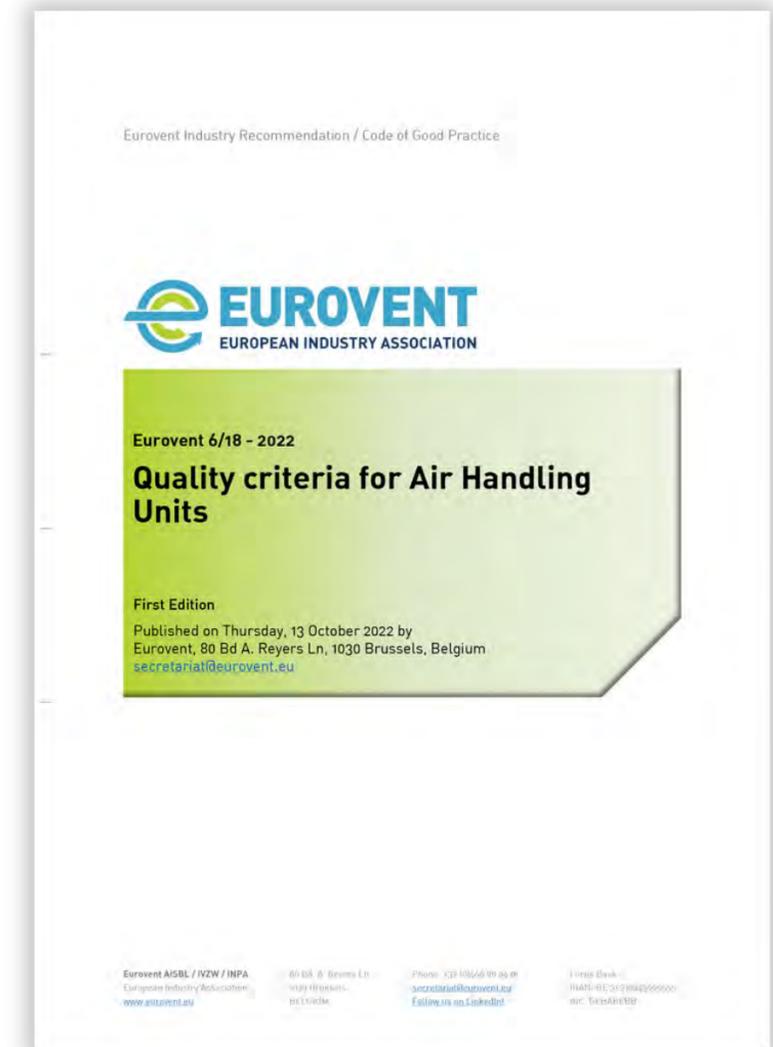
robatherm



The document: How it is built and why

What does it contain?

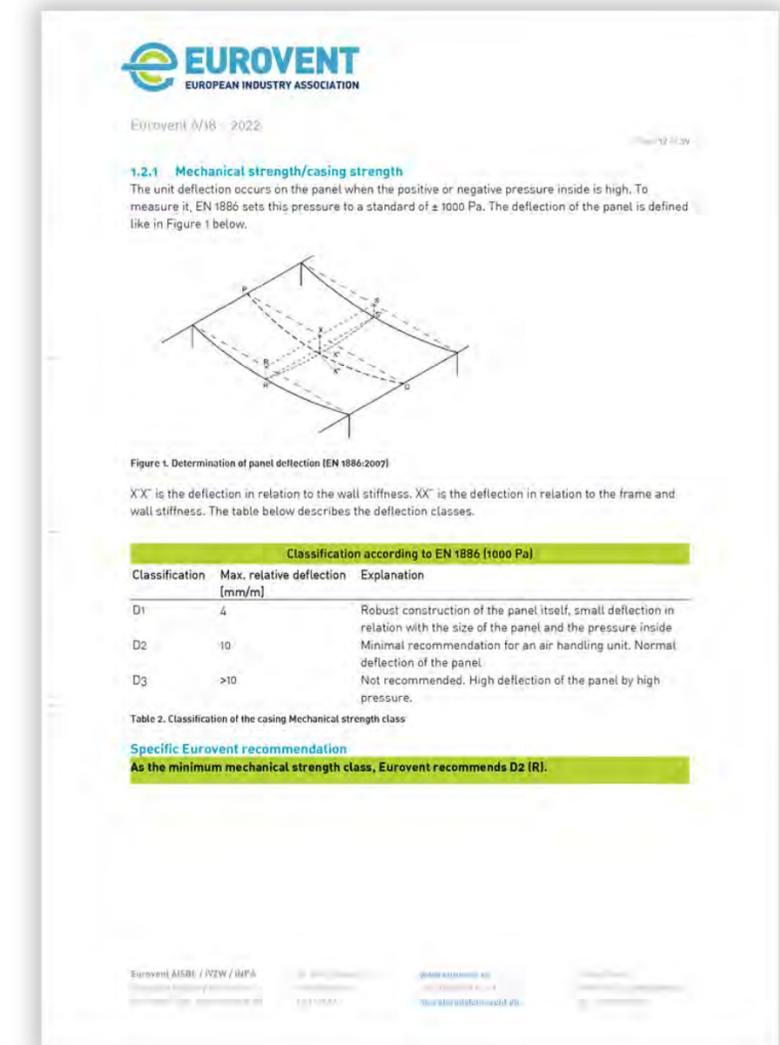
- 1 Information on the state of the art on the European market
- 2 Recommendation for minimum quality criteria related to:
 - Design
 - Materials and construction of both the casing and components of the unit
 - Documentation and delivery



The document: How it is built and why

How is it constructed?

- 1 List of pertinent standards and regulations (e.g. EN 1886)
- 2 Content structure with main focus area (e.g. casing)
- 3 Sub points: Focus on each important aspect (e.g. mechanical strength / casing strength)
- 4 Bullet points: For each chapter, a specific Eurovent recommendation

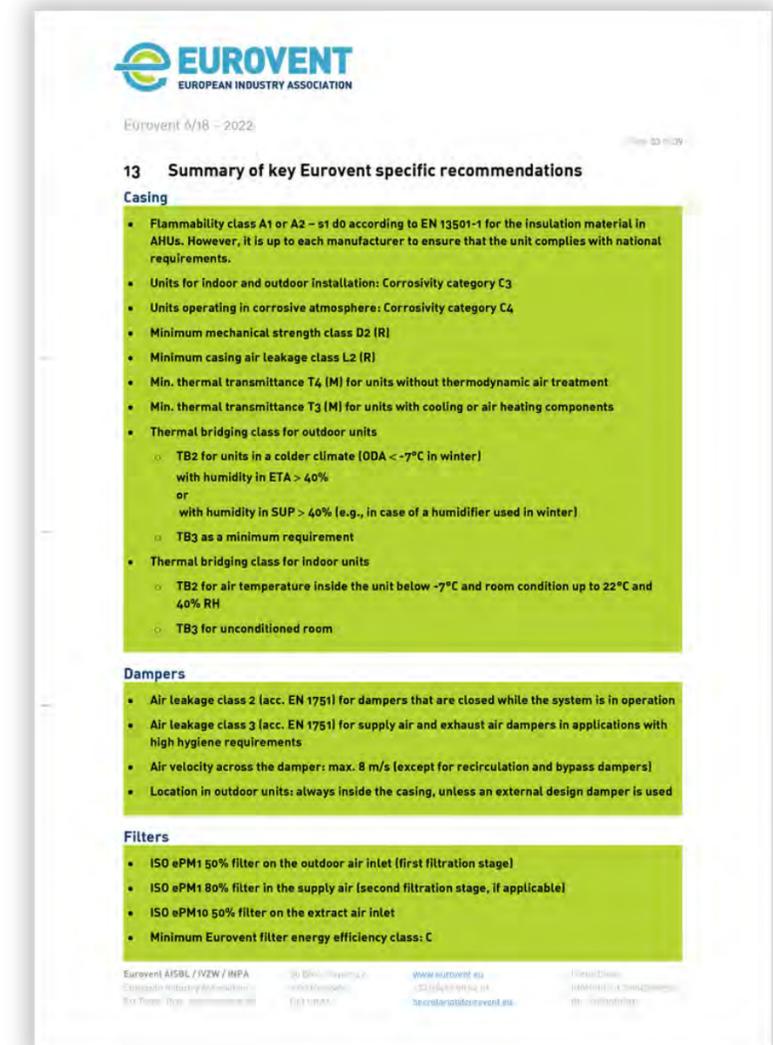


The intent is to balance quality of information with ease of use

The document: How it is built and why

How can it be used?

- 1 The paragraph on each aspect gives context and background information for an in-depth understanding
- 2 The take-away section (highlighted in green) shows the essential information and the Eurovent recommendations
- 3 The summary section condenses on 3 pages all the essential information and recommendations for easy access to all main points
- 4 The standards and regulations are also summarised with key values, highlighted for easy referral
- 5 Finally, access (very important for maintenance and long-term performance) is visually explained with guidance values



In the spotlight: FAQ

Accessibility & assembly: How to integrate into the building?

1

If the unit is not assembled well, it can have an impact on the energy consumption of the unit and on its durability

2

Good assembly keeps the air leakage as low as possible, as it can be declared by the manufacturer

3

The recommendation of Eurovent on what should be done by the customer to enforce the quality of the unit onsite

12.4 What should the customer do before assembling?

- Check the technical data sheet and the unit drawings
- Check the instructions for installation, commissioning and maintenance
- Check the CE conformity declaration
- Check the warnings on the unit
- Check the fixing point for lifting devices
- If the unit is stored on site before assembling, it should remain dry and clean
- Check if the floor or support construction on which the unit will be mounted is in one horizontal plane

In the spotlight: FAQ

Energy efficiency: How to minimise the energy impact?

1

Well-known on the market, because of the different changes of the legislation in the past few years

2

The Eurovent Recommendation gives more ideas on how to save energy, for example:

- Optimal control of AHU operation with factory-supplied optimised systems [DOWNLOAD](#)
- Effective and leak-free air delivery: Air leakages increase the energy consumption of the AHU - not only air leakages through the casing are relevant, but also internal air leakages [DOWNLOAD](#)

Specific Eurovent recommendation

The following general minimum requirements regarding energy efficiency are recommended:

- $SPF_{int} < SPF_{int_limit}$ according to Regulation (EU) 1253/2014
- SFPv within the range of 1300 and 1800 W/(m³/s)
- Control system covering a function level 3 or higher according to EN 15232 or IDA-C5 /C6 according EN 16798-3 (either installed by AHU manufacturer or on site)
- Temperature efficiency η_t according to Regulation (EU) 1253/2014
- Efficiency class of the HRS: H2 (acc. EN 13053)
- EATR < 5% (where applicable)
- OACF with the range of 0.95 and 1.05 (where applicable)
- AHU technical data (including SPF_{int}) shall be reported including the impact of leakages (EATR, OACF) according to Eurovent 6/15
- Energy efficiency of ePM1 / ePM2,5 / ePM10 filters: Class C
- Minimum Eurovent Energy Efficiency Class: B*

In the spotlight: FAQ

Durability & maintainability: What level of quality should be installed for the casing and all components?

1

Hygiene, place and safety have the main impact on durability and maintainability

2

Main quality criteria:

- Every material must be resistant to abrasion, be emission free and microbially not metabolisable
- Each component in the unit should be accessible
- The casing surfaces should not have any sharp metal sheets

1.1.4 Maintainability

For good maintainability, different aspects must be taken into account: hygiene, place, safety.

The hygienic criteria of chapter 1.1.2 should be fulfilled. Moreover, every material must be resistant to abrasion, emission free and microbially not metabolizable. Metallic surfaces are recommended. It is better to avoid the use of plastic in the air flow. If it's necessary, every plastic element should have a certificate according to ISO 846 and fulfil a minimum class of 1 for method A (fungi) and C (bacteria).

Each component in the unit should be accessible. This means:

- Every revision area should be accessible with a door. Panels that need to be unscrewed from the outside to access to the maintenance place are not recommended, and panels which can only be unscrewed from the inside are strongly discouraged.
- For big units (height > 1,6m): the revision area should be big enough to let a person enter the unit and work properly. Bent over position for the maintenance team should be avoided.

To ensure a safe maintenance, the casing and its surfaces should not have any sharp metal sheets.

Specific Eurovent recommendation

Every revision area should be accessible with a door.

For the maintenance of the AHU, a neutral cleaning agent or alcohol-based disinfectants should be used on the inner surfaces.

Units with humidification process should be maintained in intervals of maximum 6 month. Units without humidification process should be maintained in intervals of maximum 12 month. In addition, a detailed hygienic check should be carried out every 2 years for units with humidification and every 3 years for units without humidification.

Part 4

MAINTAINABILITY

Orkun Yilmaz

Geniox R&D Manager

Systemair



Maintainability

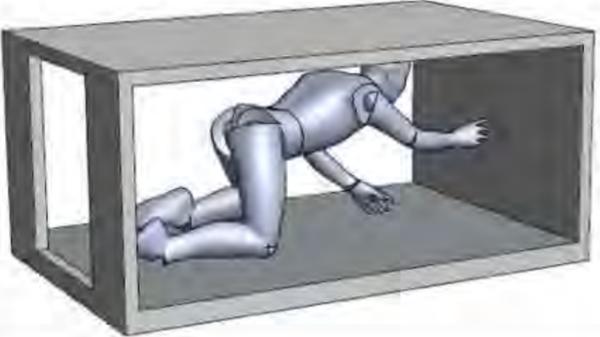
Eurovent Recommendations:

- Hygiene
 - Materials
 - Cleaning
- Safety
- Maintenance intervals
- Accessibility
 - Doors
 - Inspection spaces



Dimensions of access doors and access panels



AHU SECTION SIZE (+- 1%)		ALL LEVELS		LEVEL 1	LEVEL 2	LEVEL 3
Internal unit depth (= IMC-D) per air stream	Internal unit height (=IMC-H) per air stream	Designed type of IMC (after entering the unit, all relevant inner surfaces shall be reached with the hand)		Minimum IMC length IMC-L (For quickly removable components: including free space when component is removed)		
< 800mm	> 300 mm and <1900 mm	Standing outside and entering the unit with the arm or with arm plus the shoulder		250 mm	400 mm	550 mm
≤1000mm	>400 mm and < 1900 mm			400 mm	400 mm	550 mm
<1300mm	>550 mm and ≤1300 mm	Standing outside and entering the unit with the upper part of the body.		400 mm	400 mm	700 mm
Any	>600 mm and ≤800 mm	Entering the unit partially or with the full body by crawling and working in lying position.		500 mm	500 mm	700 mm

Every revision area should be accessible with a door



- Unit installed 2 m above the ground
- No indication of where maintenance should be made
- Access requires to unscrew panels
- **Access is dangerous and difficult**
- **Not clear that maintenance is required (easy to forget)**
- **Takes time – Not easy – Probably discourages good maintenance**



- Unit installed at user level
- Clear indication on door
- Easy access with door handles and fast filter mounting
- Easy access for cleaning and inspection



Possible consequences of inadequate maintenance / No access due to space optimisation



- Slide out filter
- Not air tight
- Lots of filter by-pass
- Short filter life span
- No access to clean the unit



- **After year 4 of use: Heat recovery device clogged and not repairable**
- **No more heat recovery**
- **Huge increase in energy cost**



- Filter clogged at the end of the building construction (cement, plaster, etc.)
- Pressure detector disconnected



- **Filter ripped out of frame and flew into fan**
- **Fan destroyed**
- **Risk of injury**



Eurovent Industry Recommendation / Code of Good Practice



Eurovent 6/18 - 2022

Quality criteria for Air Handling Units

First Edition

Published on Thursday, 13 October 2022 by
Eurovent, 80 Bd A. Reyers Ln, 1030 Brussels, Belgium
secretariat@eurovent.eu

Eurovent AISBL / IVZW / INPA
European Industry Association
www.eurovent.eu

80 Bd. A. Reyers Ln
1030 Brussels
BELGIUM

Phone: +32 (0)456.99.04.01
secretariat@eurovent.eu
[Follow us on LinkedIn!](#)

Fortis Bank
IBAN: BE 31 21004399525
BIC: GEBABEBB

Part 5

SUMMARY AND WRAP-UP

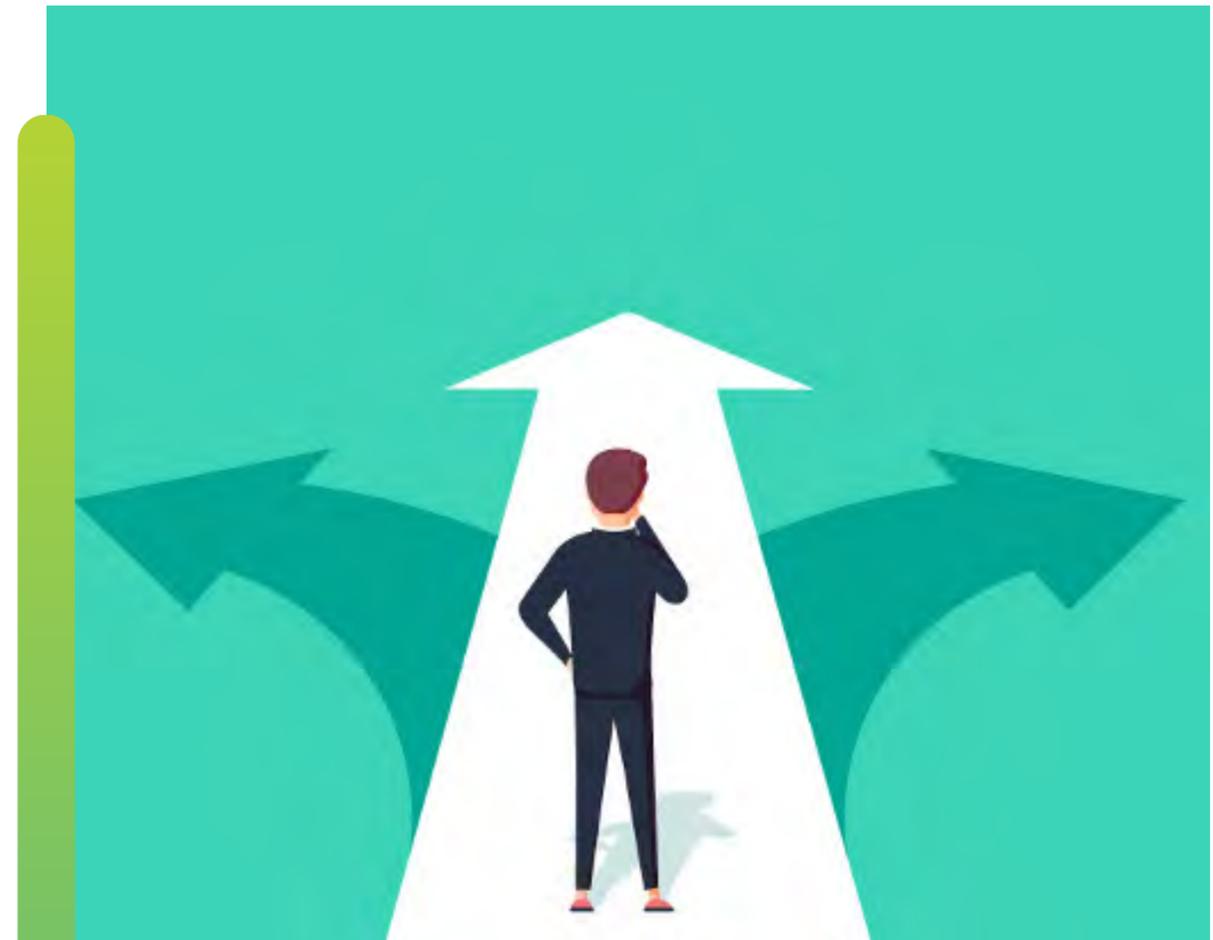
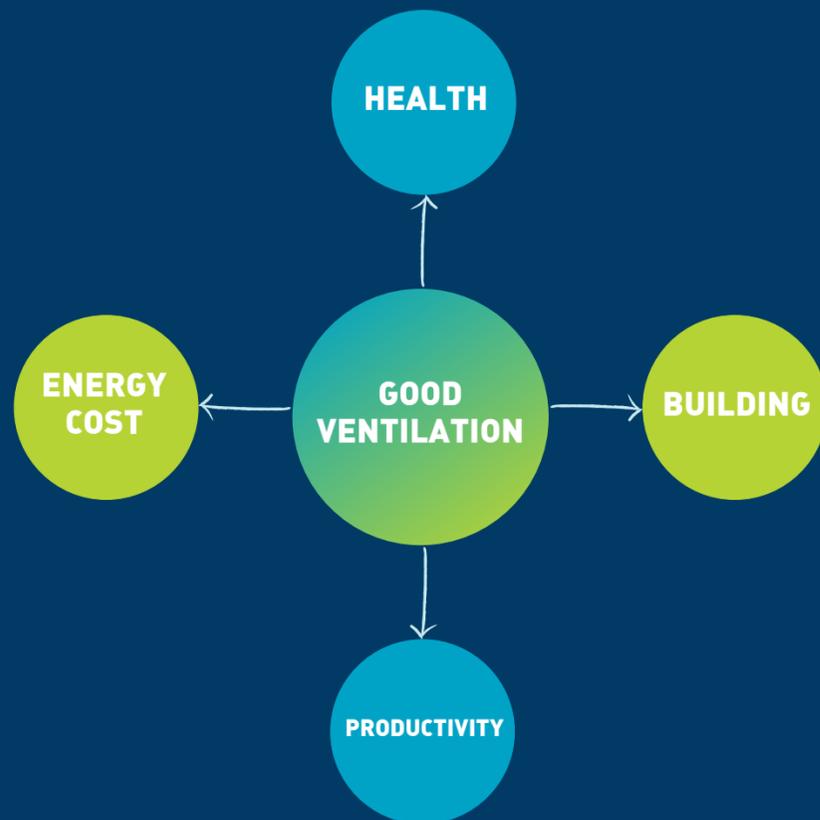
Laurence Higginson

Business Development Director

robatherm

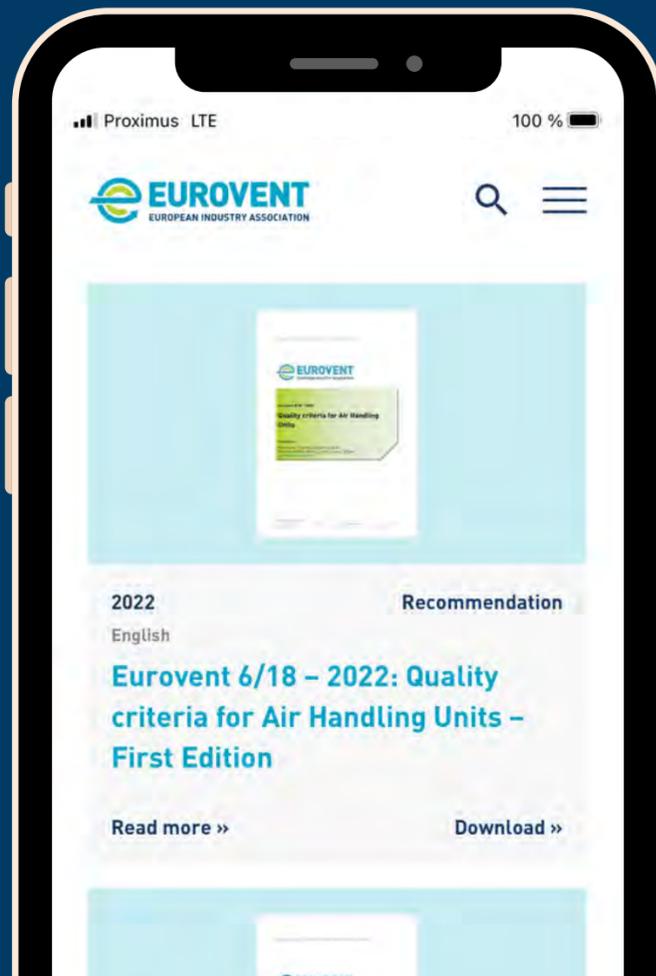


Performance & sustainability is built at every step



More information

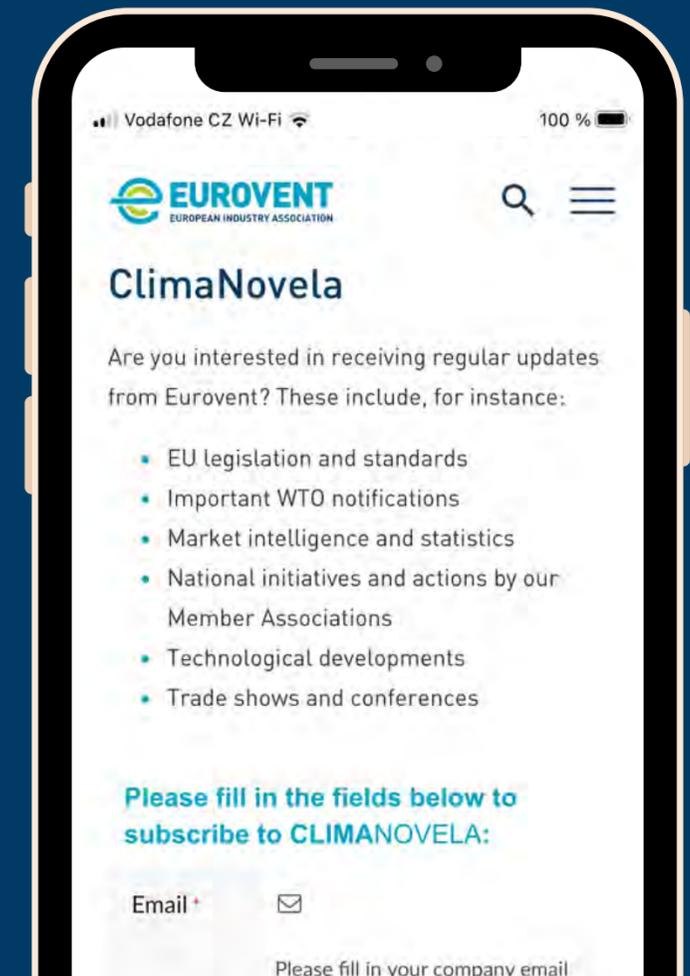
DOWNLOAD EUROVENT PUBLICATIONS



FOLLOW US ON LINKEDIN



SIGN UP FOR OUR NEWSLETTER



Q&A



Martin Lenz
Head of International
Business Development /
Head of Research & Pre-
Development
TROX



Laurence Higginson
Business Development
Director
robatherm



Charlene Lochon
Senior Engineer Product
Management
robatherm



Orkun Yilmaz
Geniox R&D Manager
Systemair



Contact

www.eurovent.eu



secretariat@eurovent.eu



+32 466 90 04 01



www.linkedin.com/company/eurovent





**THANK
YOU**

www.eurovent.eu