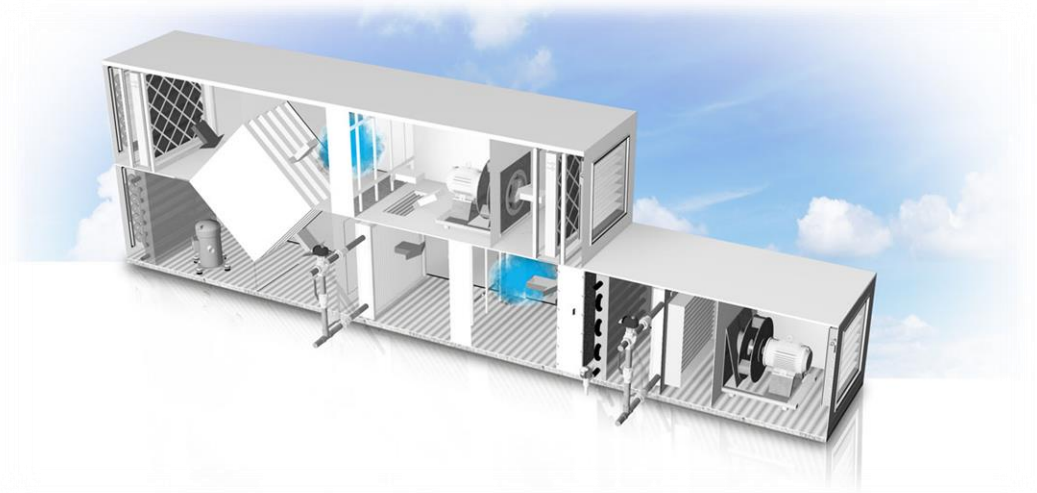

Hygienic Air Handling Units

29 September 2016 - Krakow

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Introduction

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Context – Origin of the Program

Environmental context

Environmental Challenges

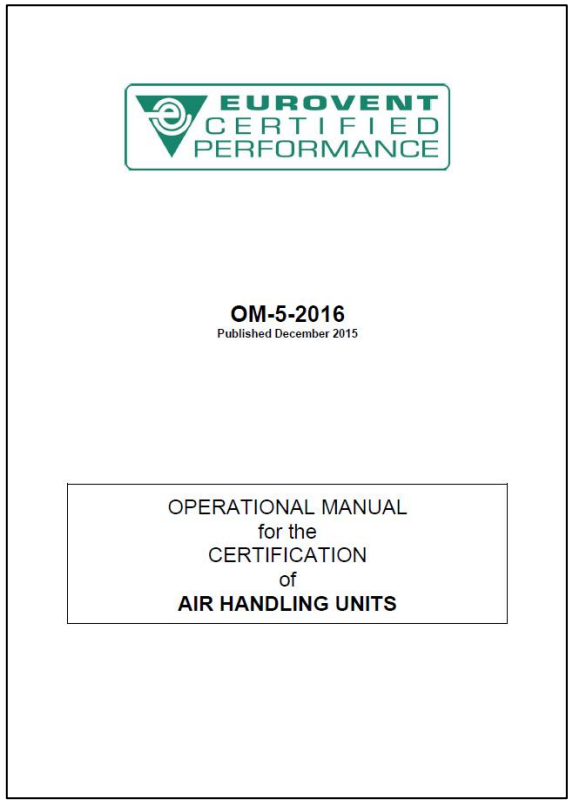
Energy Performance

Comfort

Quality

Indoor air quality is a key element in nowadays building design

ECP AHU Existing Program



The existing ECP Program only certify the performance of an AHU:

- Air Flow
- Heating and Cooling Capacity
- Heat Recovery Efficiency
- Etc.

And also the casing performance

But there are no Hygienic Criteria

NEW Hygienic Option for the Existing AHU Certification Program

The aim of this option is to ensure:

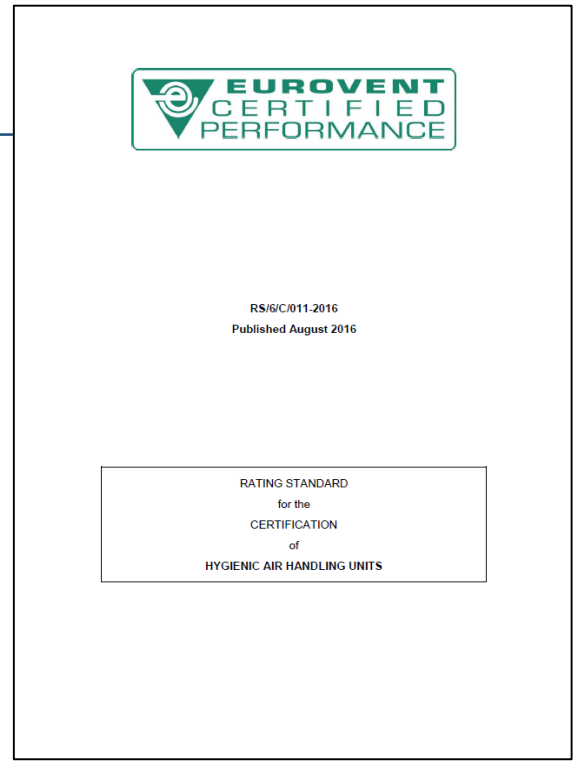
- Hygienic aspect of an AHU
- Air quality for the building
- Components suitable for a hygienic unit
- Comply with hygienic standards such as EN ISO 846

A certification for all type of commercial buildings
Not only for hospitals

Context – Origin of the Program

How did we proceed to develop this option?

Specific Rating Standard (RS)



Existing Operational Manual (OM) Updated

How did we proceed to develop this option?

AHU Compliance Committee

Technical Sub-committee

Project Development Manager from ECC

Headlines of the Program

The Hygienic option is a certification by range proposing 3 levels of certification representing by stars

EUROVENT CERTIFIED PERFORMANCE
AHU N°
Range
www.eurovent-certification.com

Level 3

Level 2

Level 1

The levels can be associated to a type of building

EUROVENT CERTIFIED PERFORMANCE
AIR HANDLING UNITS
www.eurovent-certification.com
HYGIENIC

Offices

Schools / University

Hotels

Retails

The levels can be associated to a type of building

EUROVENT CERTIFIED PERFORMANCE
AIR HANDLING UNITS
www.eurovent-certification.com
HYGIENIC

Hospitals

A level 2 unit can also be used for an office, a school, a hotel or a retail

The levels can be associated to a type of building

Pharmaceutical

Food Process

White Room

A level 3 unit can also be used for a hospital, an office, a school, a hotel or a retail

The hygienic option consists of a list of requirements covering several categories

60 Requirements overall organized in 3 main categories

General (Manufacture, Shipment, etc.)

Unit Housing (Material, Maintenance, AHU arrangement, etc.)

Air Treatment (Filter, Coils, Fans, etc.)

Program content – Overview of the requirements

Program Content – Overview of the requirements

All the requirements are listed in the RS, they are related to the following topics:

General

- Planning
- Manufacture
- Shipment

Unit Housing

- Metallic Materials
- Non-Metallic Materials
- General AHU Arrangement
- Inner Casing Surface
- Inspection, Maintenance and Cleaning
- Filter Maintenance

Air Treatment

- Filter
- Cooling and Heating Coil
- Humidifier
- Dehumidifier
- Heat Recovery System
- Fans
- Silencer

Program Content – Overview of the requirements

Each requirement comprises a description as well as the criteria for each level

A reference document clear and easy to use

Reference of the requirement →

Description of the requirement →

Criteria for each level →

R31. To avoid condensation, the certified model box shall have a minimum thermal bridging class of **X**.

Level 1&2: X=TB3

Level 3: X=TB2

R32. The certified model box shall have at least a tightness class of **X**.

Level 1&2: X = L2 (M)

Level 3: X = L1 (M)

R33. The certified model box strength shall be at least class **X**.

Level 1&2: X= D2 (M)

Level 3: X = D1 (M)

R34. All drain pans, condense trays and water tanks shall have a sufficient slope from any point of the bottom to the drain tube. The requirement is deemed to be fulfilled, if after filling them with 5 l/m² water, minimum the percentage **X** has been drained off over a period of 10 minutes.

Level 1: X = 95% (25 cl/m²)

Level 2: X = 97% (15 cl/m²)

Level 3: X = 99% (5 cl/m²) **and** a suitable disinfection facility is recommended to be used to reinforce the system safety. (Water UV device, etc.)

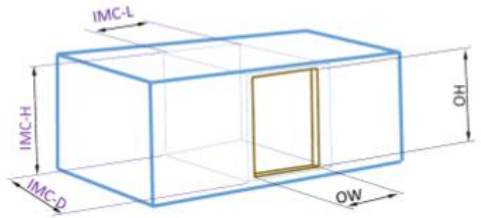
Note: The manufacturer shall provide the appropriate material to test this requirement during the audit

Program Content – Overview of the requirements

Compared to existing hygienic certification each requirement is quantified or clearly defined

Factors decisive for the supply-air quality to be achieved include:

- accessibility for inspection and cleaning of wet and contaminated surfaces in contact with the handled air



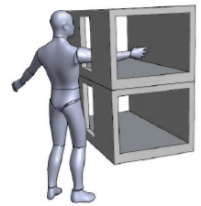
IMC-D: IMC Depth

IMC-H: IMC Height

IMC-L: IMC Length

OW: Opening Width

OH: Opening Height

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

ECP Hygienic Option

Program Content – Overview of the requirements

Reference documents also comprises few requirements on the software

The software shall propose the hygienic option and allow the display of the hygienic certification only if all the requirements listed in the RS are met

Certification Process
Desk Study and Audits

Certification Process - Desk Study and Audits

As an option of the ECP AHU Program the manufacturer first needs to be ECP certified to pretend to the hygienic option

Eligible to the Hygienic option

Certification Process - Desk Study and Audits

What are the requirements to be certified?

100% of the requirements checked (desk study + audit)

Including at least 40% visually checked during an audit

Tests done within the Ahu certification program are taken into account

Certification Process - Desk Study and Audits

For the qualification, the requirements are checked through a desk study and an audit

Desk Study

Audit

Certificate Delivered

Certification Process - Desk Study and Audits

The desk study is a review of technical documents and software provided by the manufacturer to validate the requirements

	Source of Evidence								Evidence Details		
	Technical Document							Software	Document/Sofware Reference	Paragraph (if applicable)	Page (if applicable)
	Visual Check	Quality Procedure	IOM	Technical Drawing	Technical Specification	Certification / Test Report / Label	BOM				
R1											
R2											
R3											
R4											
R5											
R6											
R7											
R8											
R9											
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R24											
R25											
R26											
R27											
R28											
R29											
R30											

Document checklist sent to the manufacturer

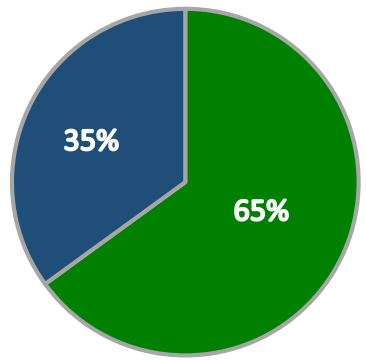
Technical documents reviewed by ECC team

A lot of requirements can be checked prior to the audit (e.g. selection software requirements)

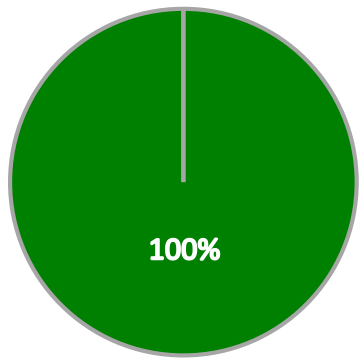
Certification Process - Desk Study and Audits

During the audit the auditor will complete the desk study by checking the remaining requirements and visually check 40% of the requirements

Desk Study *

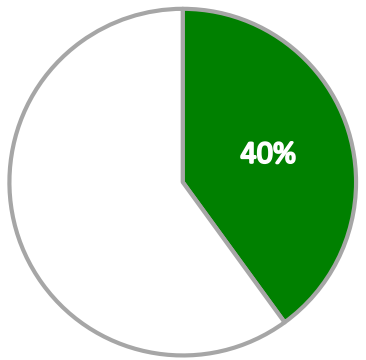


Audit



1

Audit



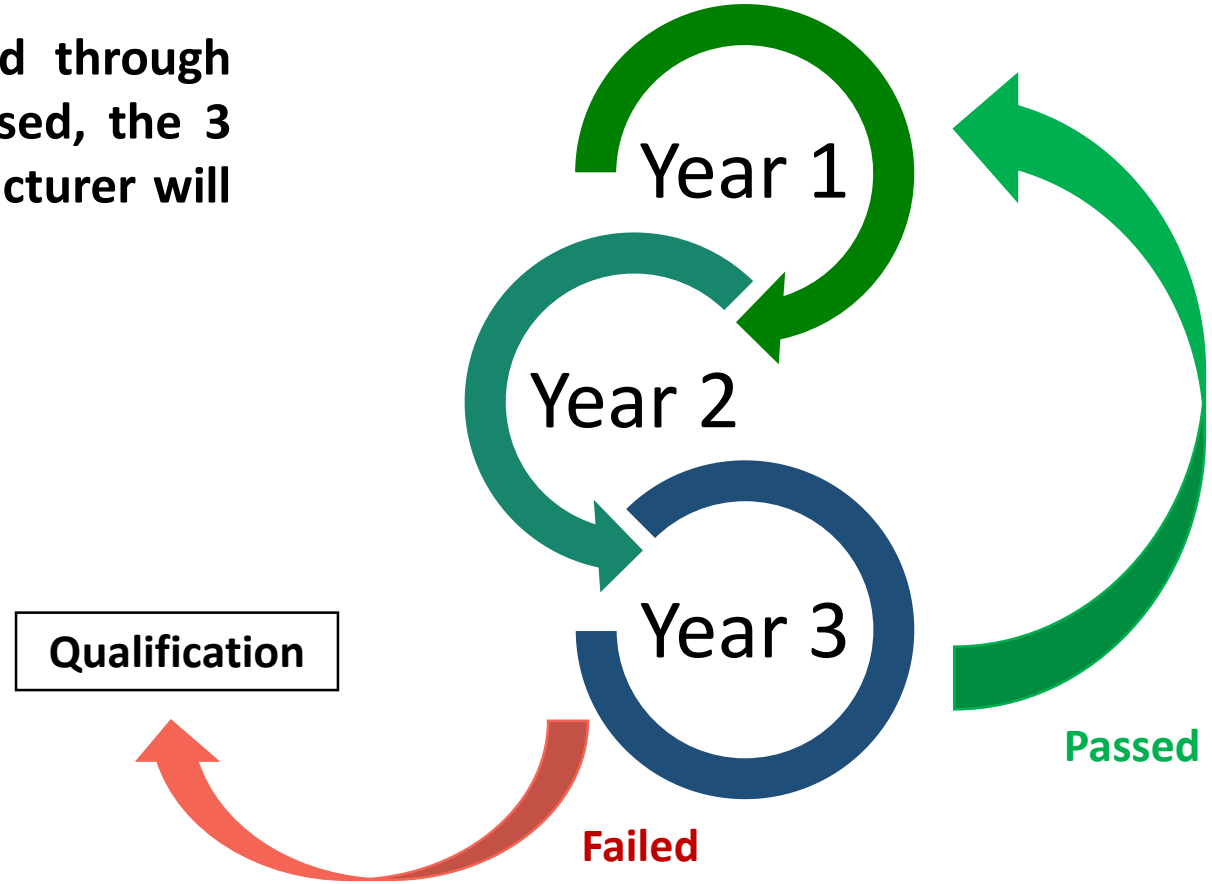
2

**This is an example*

What are the requirements to maintain the certification?

100% of the requirements will be rechecked through annual audits for a period of 3 years. If passed, the 3 years cycle is repeated, otherwise the manufacturer will have to re-validate the qualification process.

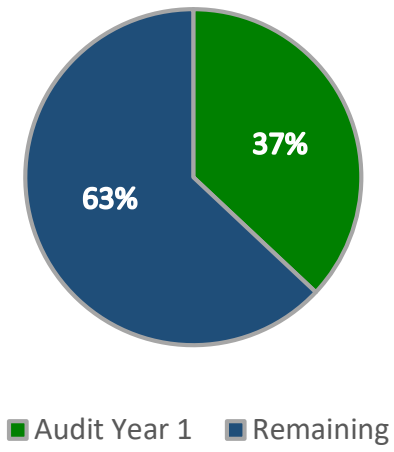
1 audit per year



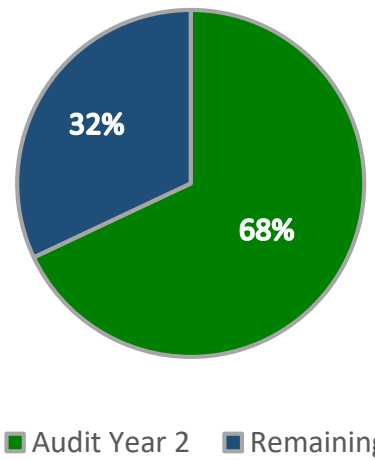
Certification Process - Desk Study and Audits

For a period of 3 years the auditor will check 100% of the requirements listed in the RS

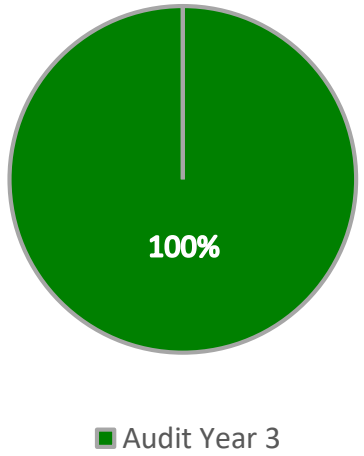
Year 1*



Year 2*



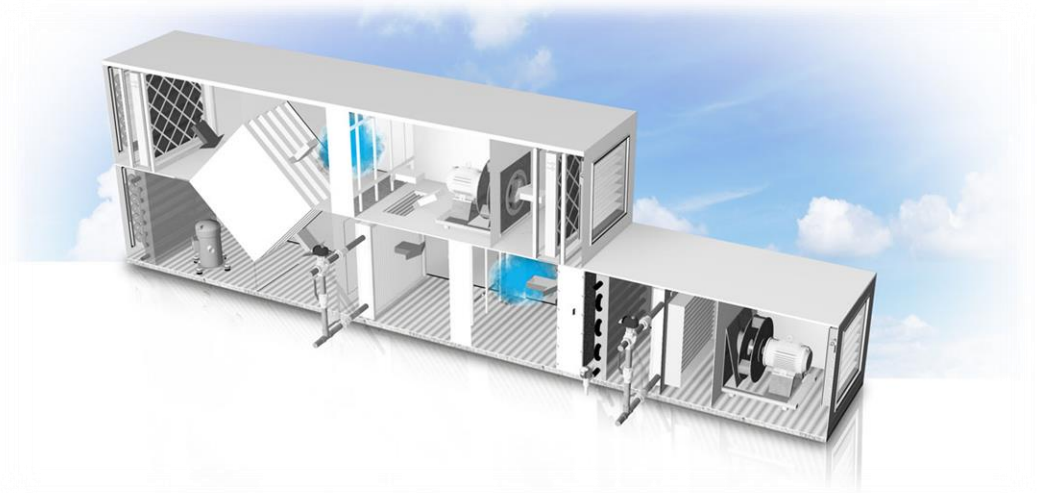
Year 3



**This is an example*

Thank you for your attention,

Any question ?



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