

## EPBD-SRI-Opportunity for Building technology

SRI an indicator for optimise energy use, analyses and comfort

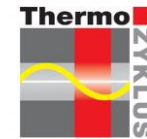


Alfred Freitag Vice President eu.bac



# The voice of European manufacturers in the home/ building automation sector

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Our vision is a world where anyone lives in buildings that are smart, decarbonised and efficient

# Agenda



- All i need is the air that I breath and to....

## Know:

- what I breath...
- what is in the EPBD revision
- what is the SRI...
- what is the SRI good for...
- why EN ISO 52120-1:2021

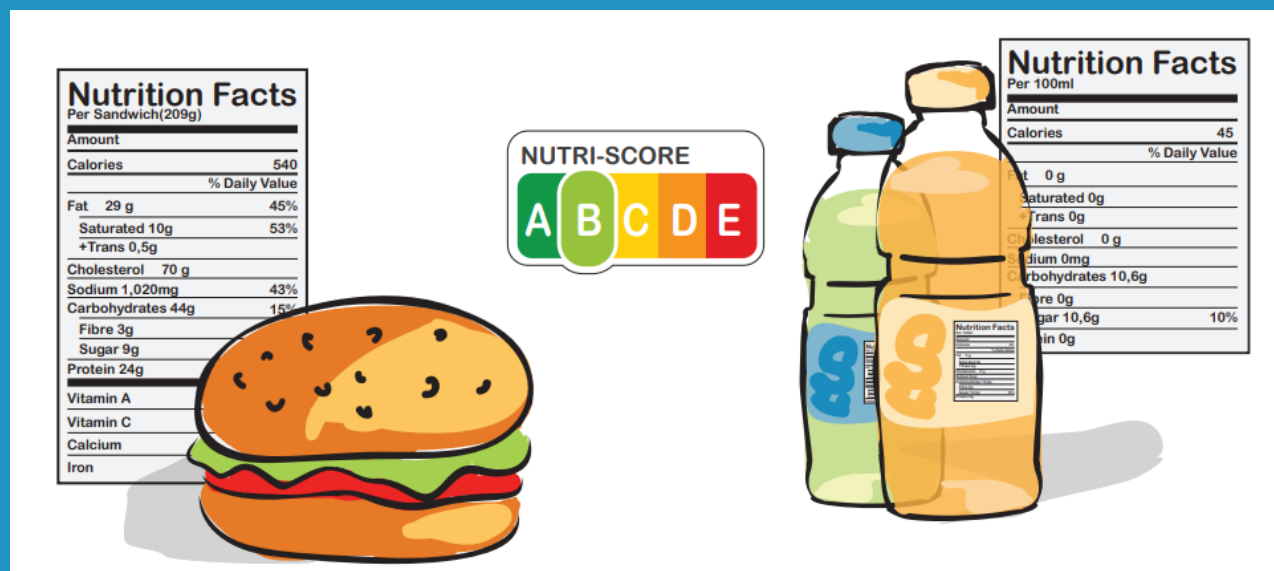




All i need is the air that I breath ?



# All i need is **to know what** I breath!



## Important Measurements

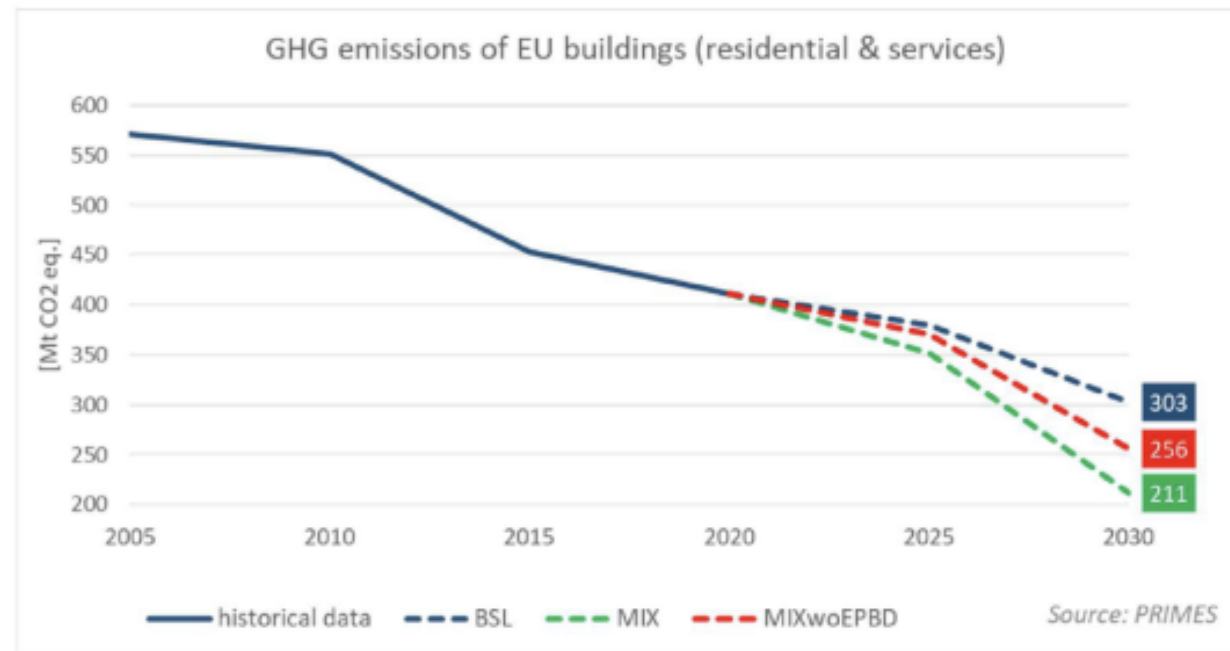
1'000 ppm CO <sub>2</sub>	Air Quality
40% r. F.	Air Humidity
22 °C	Air Temperature



# All i need is **to know what is** in the EPBD

## Objectives of the EPBD revision

- **Climate Target Plan** by 2030
  - reduce GHG emissions by 55%
  - integrate 32% RES
  - reduce final energy consumption by 14%
- **Renovation Wave** by 2030
  - renovate 35 million units
  - double and deepen renovation
  - establish minimum standards
  - harmonise EPC classes



### Twofold objective:

Provide a **long-term vision** for buildings and ensure an adequate contribution to achieving climate neutrality in 2050

Set an **enabling framework** for an orderly transition by empowering all levels of action

# All i need is **to know what is** in the EPBD

## Main changes compared to 2018 EPBD



## New buildings

- From Nearly zero energy to zero emission building
  - Update based on benchmarks per climatic zones, to be applied by 2030 (2027 for public buildings)
  - Stronger incentive to on-site renewables, efficient district heating and energy communities
  - Zero-emission buildings become the level to be attained by a deep renovation as of 2030 and the vision for the building stock in 2050
- **IAQ requirement**
- The life-cycle Global Warming Potential (GWP) of new buildings will have to be calculated as of 2030 in accordance with the Level(s) framework, informing on whole life-cycle carbon emissions (2027 for large buildings)
- Strengthened requirements for recharging of e-vehicles, and mandatory bicycle parking in new building

- Building Automation Control for:
  - Non-Residential buildings with effective rated output over 290 kW by 31/12/2024 and over **70kW by 31/12/2029**
  - Larger multifamily residential with effective rated output over 70 kW from **31/12/2024**

# All i need is **to know what is** in the EPBD

## Main changes compared to 2018 EPBD



- Definition of „deep renovation“
- Strengthened requirements for recharging of e-vehicles in case of major renovation
- Stronger provisions on the removal of obstacles and barriers to renovation
- Member States must not subsidise fossil-fuel boilers as of 2027.
- **IAQ requirements upon major renovation**

## Existing buildings

- Minimum Energy Performance Standards:
  - Union-wide MEPS to phase out worst-performing buildings
    - Public and other non-residential buildings: at least EPC class F by 2027 & EPC class E by 2030 •
    - Residential buildings: at least EPC class F by 2030 & EPC class E by 2033
- MS to set up timelines for further improvement of their building stock in their building renovation plans
- Supporting framework with a focus on vulnerable households and monitoring of social impact
- National Building Renovation Plans (replacing the long-term renovation strategies)
  - BRP to be integrated into the NECP process, except the first plan
  - Common template with only national goals and key mandatory indicator, several elements opening to other dimensions beyond energy remain voluntary (accessibility, safety,..)



# All i need is **to know what is** in the EPBD

- §1: Set Requirements for IEQ
- § 2: Definitions on IEQ
- § 3: Renovations plans including IEQ
- § 5: including IEQ in minimum requirements
- § 7+8: IEQ in new and exiting buildings
- § 10: Including IEQ in Renovation Passport
- § 11: Monitoring and regulation of IEQ
- § 11a: Indoor Environment Quality
- § 16: Implement IEQ in EPC
- § 20: Implement IEQ in inspections



Image source: [shorturl.at/ouxH7](https://shorturl.at/ouxH7)

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Article 2 first paragraph, point (57a)  
Indoor environmental quality means the result of an assessment inside a building based upon parameters such as relating to **the temperature, humidity, ventilation rate and presence of contaminants,** influencing the health and wellbeing of its occupants

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3. Member States shall require non-residential zero-emission buildings to be equipped with **measuring and control devices for the monitoring and regulation of indoor air quality.**

In existing buildings, the installation of such devices shall be required, where technically and economically feasible, when a building undergoes a major renovation

# All i need is **to know what is** in the EPBD

## Main changes compared to 2018 EPBD



## Main provisions on Information tools

- Energy Performance Certificates (EPC)
  - by 2025 all EPC must be harmonised
  - with energy and GHG indicators
  - validity of EPC of the lower D to G classes reduced to five years
- GHG become part of the metrics of the EPBD
- Inspections
  - Residential and non-residential split
  - Ventilation systems (sizing and optimization)
- New provisions to ensure access to buildings data,
- **The Smart Readiness Indicator (SRI) is required for large non-residential buildings as of 2026**





All i need is **to know what is** the SRI...



1  
Optimise energy  
efficiency and overall  
in-use performance

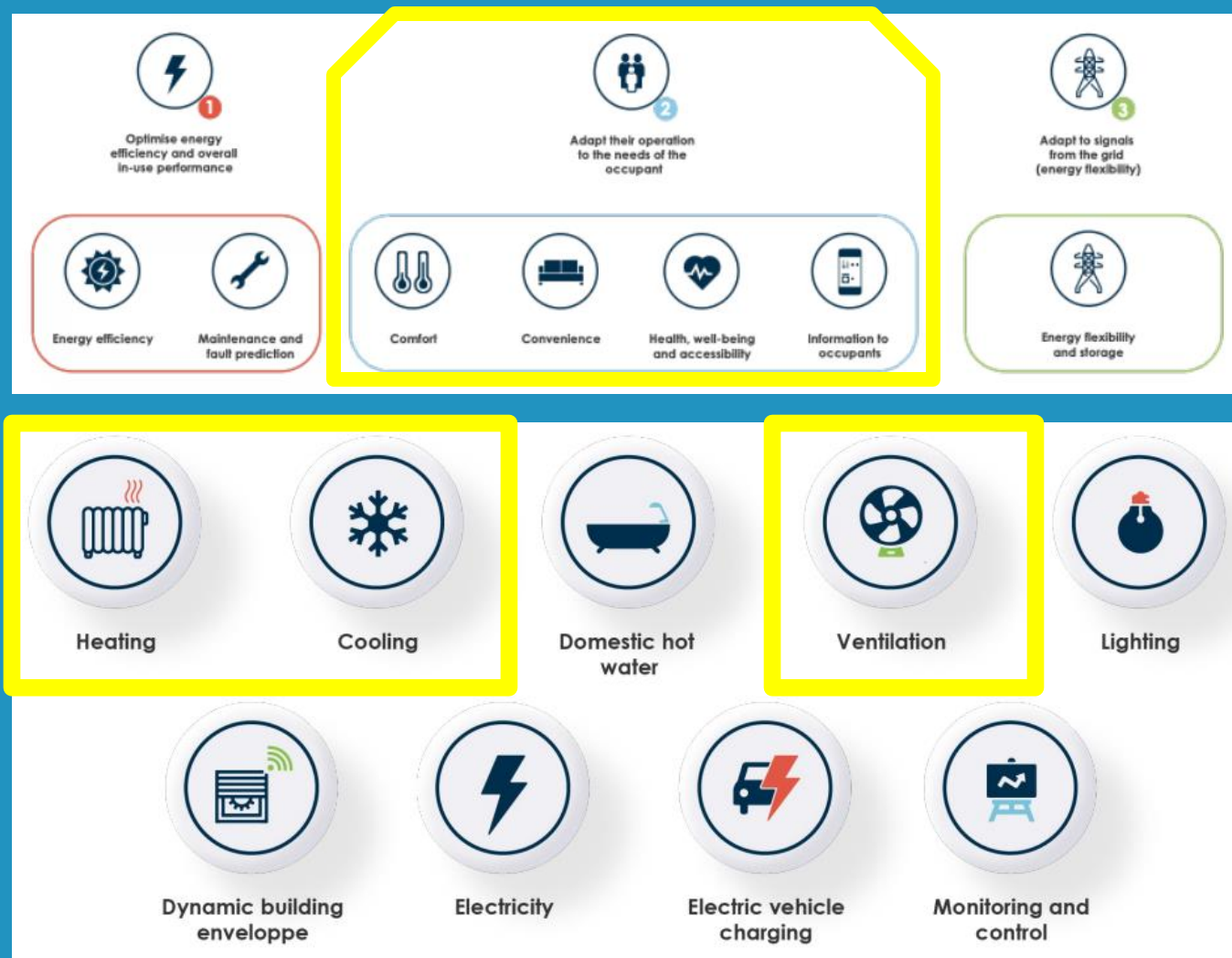


2  
Adapt their operation  
to the needs of the  
occupant



3  
Adapt to signals  
from the grid  
(energy flexibility)

# All i need is **to know what is** the SRI...



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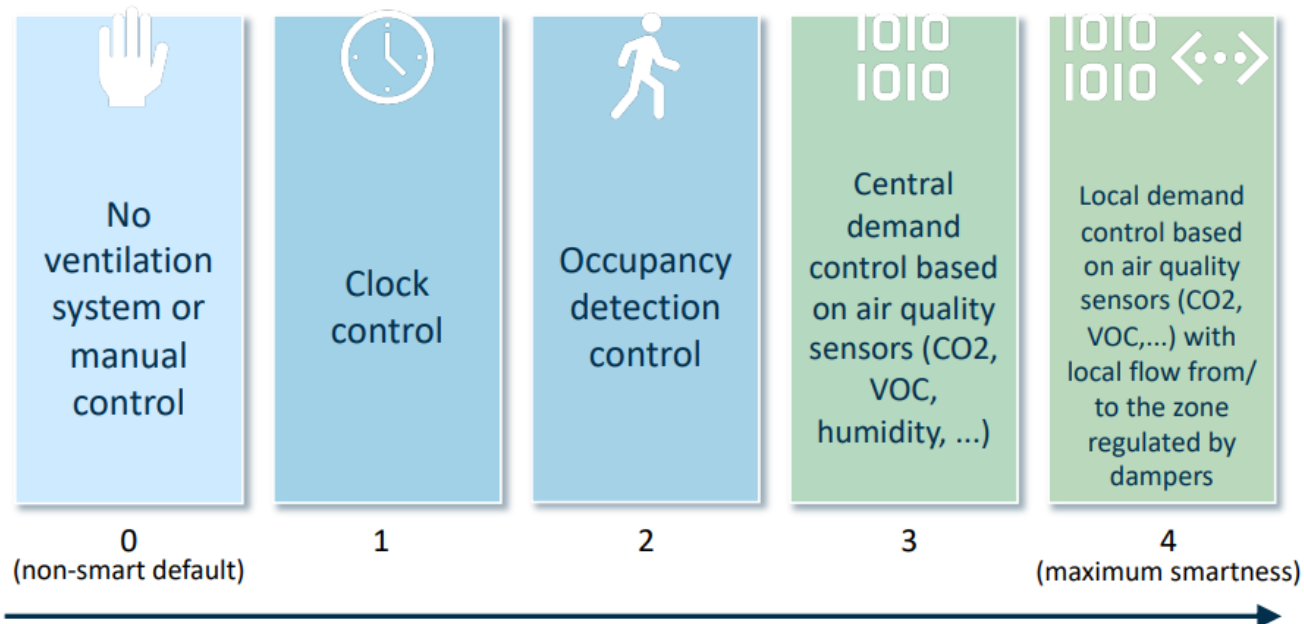
# All i need is to know what is the SRI...

Domain	Code	Service group	Smart ready service	Functionality level 0 (as non-smart default)
Ventilation	V-1a	Air flow control	Supply air flow control at the room level	No ventilation system or manual control
Ventilation	V-1c	Air flow control	Air flow or pressure control at the air handler level	No automatic control: Continuously supplies of air flow for a maximum load of all rooms
Ventilation	V-2c	Air temperature control	Heat recovery control: prevention of overheating	Without overheating control
Ventilation	V-2d	Air temperature control	Supply air temperature control at the air handling unit level	No automatic control
Ventilation	V-3	Free cooling	Free cooling with mechanical ventilation system	No automatic control
Ventilation	V-6	Feedback - Reporting information	Reporting information regarding IAQ	None








## Service group: Air flow control

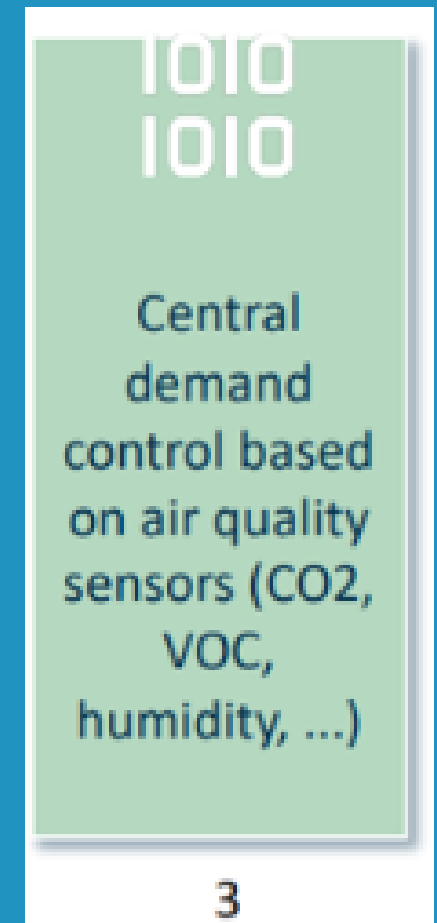
### Smart-ready-service: Supply air-flow control at the room-level

Standard : EN 15232



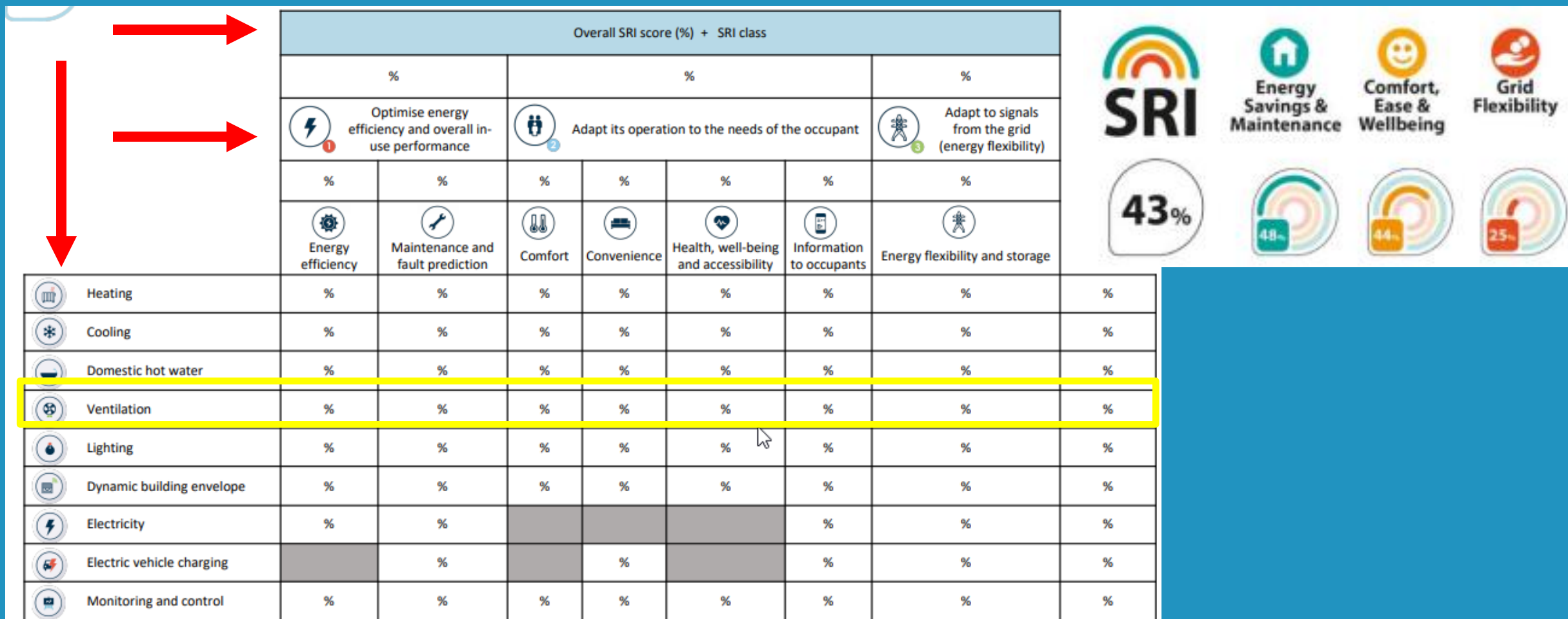
All i need is **to know what is** the SRI...

	 Energy efficiency	 Maintenance and fault prediction	 Comfort	 Convenience	 Health, well-being and accessibility	 Information to occupants	 Energy flexibility and storage
Level 0	0	0	0	0	0	0	0
Level 1	1	0	1	1	1	0	0
Level 2	1	0	2	2	2	0	0
Level 3	2	0	3	3	3	0	0
Level 4	3	0	3	3	3	0	0





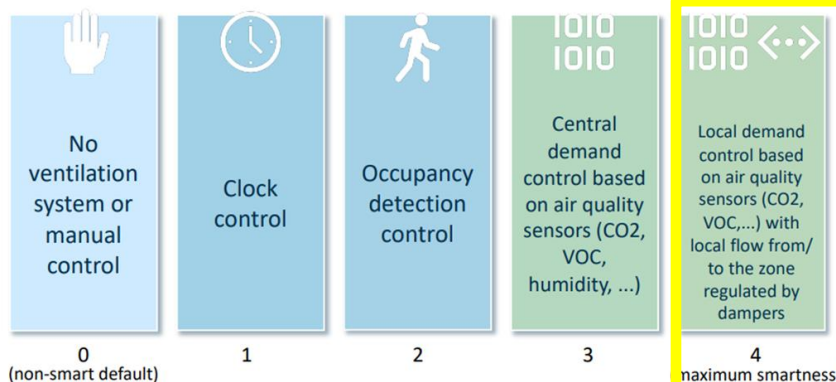
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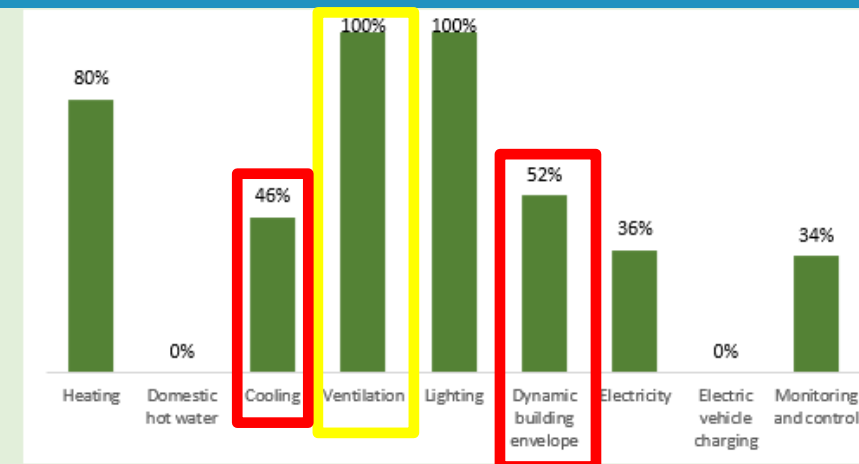
Service group: **Air flow control**  
Smart-ready-service: **Supply air-flow control at the room-level**

Standard : EN 15232



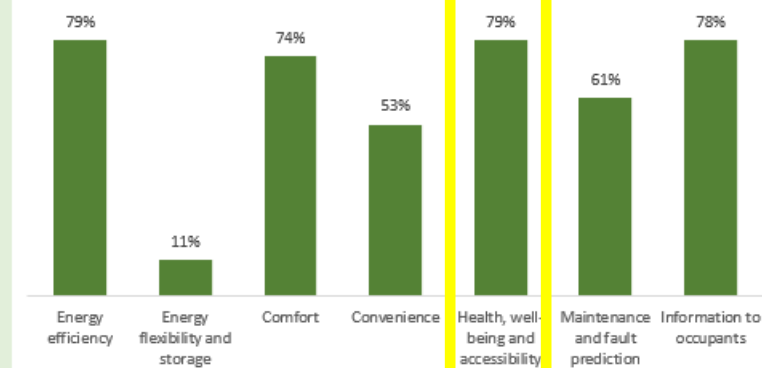
## DOMAIN SCORES

Heating	80%
Domestic hot water	0%
Cooling	46%
Ventilation	100%
Lighting	100%
Dynamic building envelope	52%
Electricity	36%
Electric vehicle charging	0%
Monitoring and control	34%



## IMPACT SCORES

Energy efficiency	79%
Energy flexibility and storage	11%
Comfort	74%
Convenience	53%
Health, well-being and accessibility	79%
Maintenance and fault prediction	61%
Information to occupants	78%



# All i need is to know what is the SRI...

## SMART READINESS INDICATOR (SRI)

### Case study n°2

#### THE BUILDING:

<b>Building type</b>	Residential (semi-detached houses)		
<b>Location</b>	Olm, Luxembourg		
<b>Surface area</b>	200 m <sup>2</sup>	<b>Construction year</b>	2020
<b>Specificities</b>	The Elmen social housing project, developed by SNHBM, is expected to become a model of sustainable construction in Luxembourg. The case study concerns the demo house of the project.		



Demo house of the Elmen project. © Sébastien Thomas

## OUTCOMES OF THE SRI ASSESSMENT:

Overall SRI score: **40%**\*

#### Scores per impact criteria:

Energy efficiency	51%
Maintenance and fault prediction	27%
Comfort	44%
Convenience	46%
Health, well-being and accessibility	32%
Information to occupants	35%
Energy flexibility and storage	51%

\* One of the highest scores observed for residential buildings which have an average score of 19%, according to a survey conducted in Q1 2023 (cf. [webinar presentation slides 66-68](#))

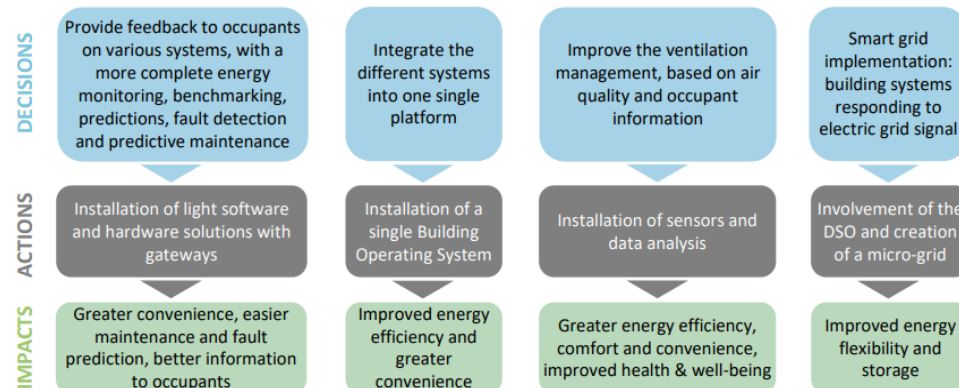
\*\*\* = Heating, Ventilation and Air Conditioning  
\* DHW = domestic hot water

#### Scores per technical domains:

Heating	65%
Cooling	69%
Domestic hot water	31%
Ventilation	19%
Lighting	42%
Dynamic building envelope	16%
Electricity	51%
Electric vehicle charging	44%
Monitoring and control	31%

## IMPROVEMENT POTENTIAL:

To increase the overall SRI score from **40%** to **70%**:



You can find factsheets and use cases on the [SRI implementation tools](#) page on the European Commission's homepage

For [SRI News and newsletter](#)









All i need is **to know is what** the SRI is good for...



## 1. In compliance with the upcoming law!

1st EPBD 2018 SRI is voluntary

2nd EPBD 2021 revision: The Smart Readiness Indicator (SRI) is required for large non-residential buildings as of 2026

Tests underway in 8 EU countries

Assessments conducted by Member States' technical partners	 Denmark	 Austria	 Czech Republic
External assessors being recruited, longer process implemented	 France	 Finland	
Conducted with the support of one or several LIFE projects	 Croatia	 Spain	 Slovenia

  European Commission

## 2. Increase the value of your real estate

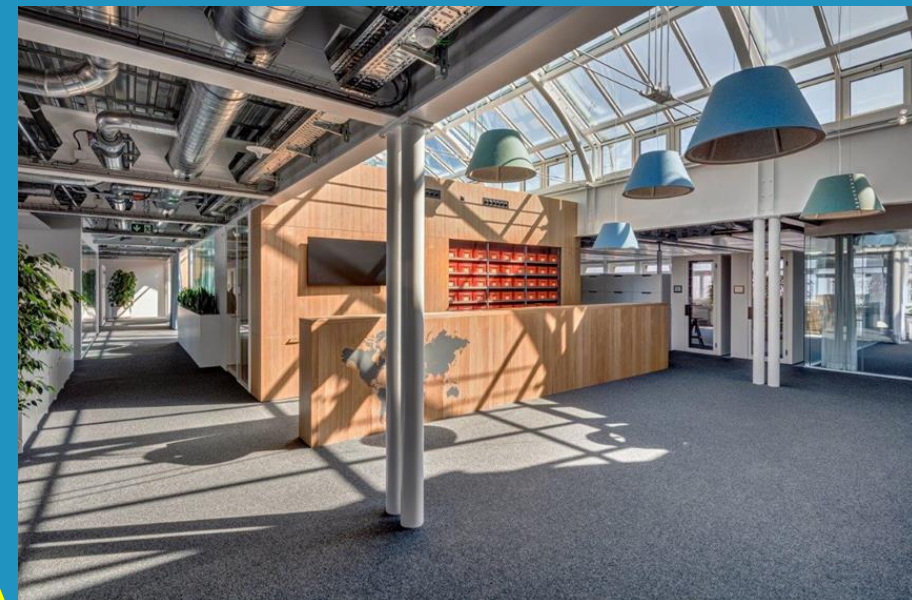
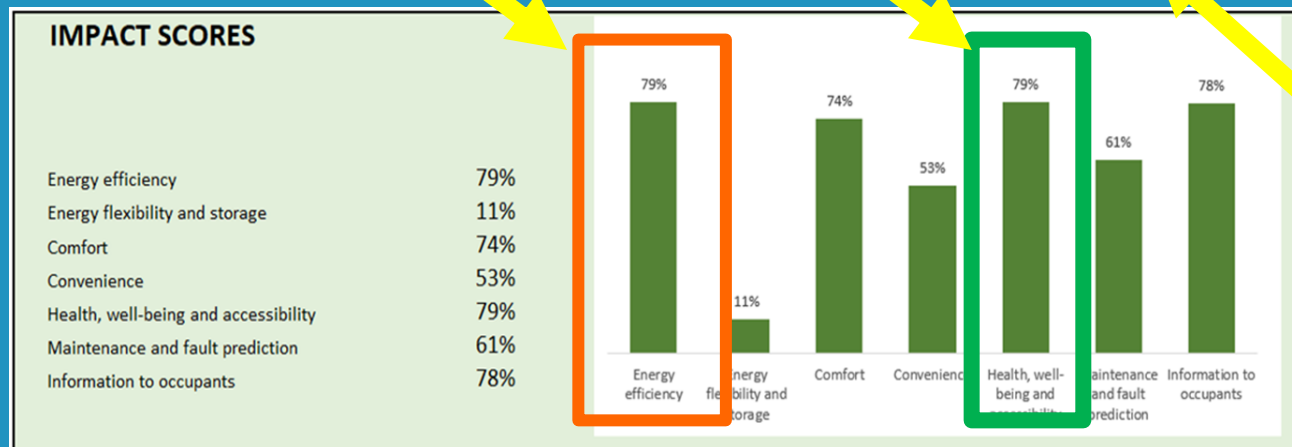
### IMPROVEMENT POTENTIAL:

To increase the overall SRI score from **40%** to **70%**:



All i need is **to know is what** the SRI is good for

### 3. Basis for the ESG sustainability reporting



**IEQ = Swiss Labour Act**

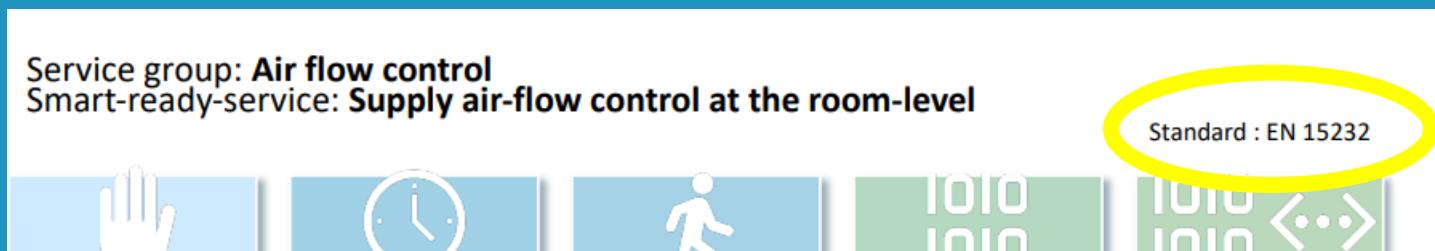
Temp. 22-26C,

**IAQ 1'000ppm CO2**

**40-60% r.H**

Light 550 lx, Akustik <65 dB(A)

# All i need is **to know** is the EN ISO 52120-1:2021



The SRI refers to the functions in EN 15232 **New EN ISO 52120-1:2021**



**Building owners and design engineers**, defining the functions to be implemented for a given new building or a renovated existing building.



**Public authorities**, defining inspection procedures of technical systems as well as inspectors applying these procedures to check if the level of BACS and TBM functions implemented are appropriate.

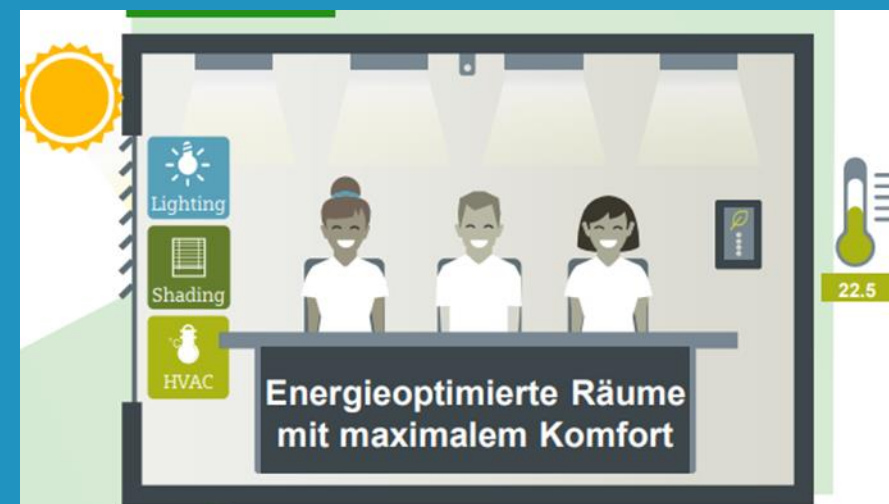
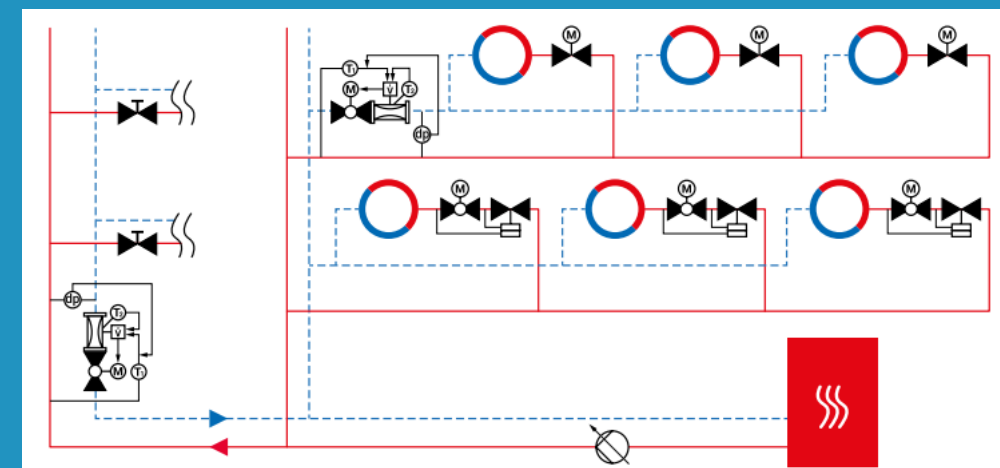
# All i need is **to know** is the EN ISO 52120-1:2021

Table 6 — Function list and assignment to BAC efficiency classes

			Definition of classes							
			Residential				Non residential			
			D	C	B	A	D	C	B	A
<b>Automatic control</b>										
1	Heating control									
1.1	Emission control									
	The control function is applied to the heat emitter (radiators, underfloor heating, fan-coil unit, indoor unit) at room level; for type 1 one function can control several rooms.									
	0	No automatic control	x				x			
	1	Central automatic control	x				x			
	2	Individual room control	x	x			x	x		
	3	Individual modulating room control with communication	x	x	x	x <sup>a</sup>	x	x	x	x <sup>a</sup>

<sup>a</sup> In case of slow reacting heat and cool emission systems, for example, floor heating, wall heating, etc., functions 1.1.3 and 3.1.3 are allocated to BAC class A.

<sup>b</sup> In residential buildings, it is usually applied only to public areas (e.g. stair cases, corridors, etc.).



EN ISO 5210-1:2021 = No more:  
What is building automation?

All i need is **to get** the EN ISO 52120-1:2021

Better  
today than  
tomorrow!

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN ISO 52120-1

March 2022

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ICS 91.120.10

Supersedes EN 15232-1:2017

English Version

**Energy performance of buildings - Contribution of building automation, controls and building management - Part 1: General framework and procedures (ISO 52120-1:2021)**

Performance énergétique des bâtiments - Contribution de l'automatisation, de la régulation et de la gestion technique des bâtiments - Partie 1: Cadre général et procédures (ISO 52120-1:2021)

Energieeffizienz von Gebäuden - Einfluss von Gebäudeautomation und Gebäudemanagement - Teil 1: Allgemeiner Rahmen und Verfahren (ISO 52120-1:2021)

This European Standard was approved by CEN on 3 December 2021.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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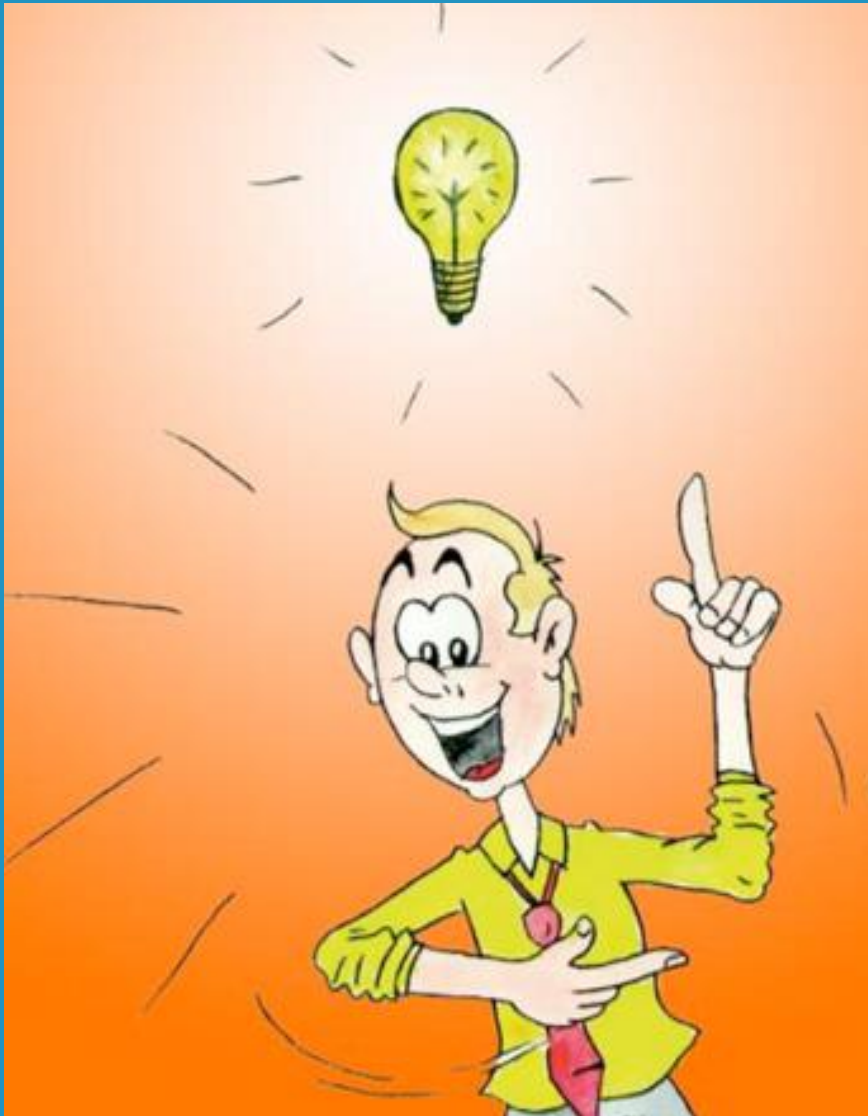


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**Knowledge is power, action  
makes winners.**

**Success is the result of  
action!**

**Good luck!**