

IBPA®

INDOOR AIR QUALITY FOR WELL-BEING, SUSTAINABILITY AND EFFICIENCY ENERGY.



Recomendado por:



MINISTERIO DE
SANIDAD, CONSUMO
Y BIENESTAR SOCIAL

MINISTERIO PARA LA
TRANSICIÓN ECOLÓGICA
Y EL RETO DEMOGRÁFICO

MINISTERIO
DE TRABAJO
Y ECONOMÍA SOCIAL



Certificados de Ahorro Energético
Fondo Nacional de Eficiencia Energética - RD 36/2023
Tradable White Certificates
National Energy Efficiency Action Plans - 2012/27/UE



BREEAM

WELL™



ABOUT IBPA®

IBPA® is the technology based on ventilation standards for the **improvement of indoor air quality** through low-range non-dielectric electrostatics, which is integrated into the building existing HVAC system for air pathogens removal.

CHARACTERISTICS :

- **Applicable to tertiary buildings**, new or retrofit, with fix or variable (VAV, DVC) mechanical ventilation.
- **Improves indoor air quality** for **energy savings** in the HVAC system and **decarbonization**.
- **100% European and American ventilation standards and presence of people compatible**.
- **Zero ozone or by-products** production.

AIR PATHOGENS:

- Particulate matter
- Mould and Spores
- Viruses and Bacteria
- VOC's
- Odour and Gases

IBPA®, the first energy saving measure in a building:



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IBPA[®]: Solution for AIR QUALITY and WELL-BEING.



We spend most of our lives **inside buildings** and this makes us especially sensitive to the high concentrations of **environmental pathogens** present in them, which are largely **responsible for** the daily aggressions, **oxidative stress**, which our body and immune system suffer.



The reduction of environmental pathogens, by means of a correct filtration **with IBPA[®]**, means a greater well-being:



Improves rest and cellular regeneration.



Improves cognitive performance and productivity.



Improvement of respiratory, circulatory and muscular function.




Strengthens the immune system.



IBPA®: Relationship between environmental pathogens with AIR QUALITY and WELL-BEING.



Increasing building air quality with IBPA® reduces environmental pathogens and brings it in line with air used in healthcare facilities, so improves oxidative stress and the well-being of occupants:

INDOOR AIR QUALITY			AIR QUALITY APPLICATIONS	
	WITHOUT IBPA®	Low quality	IDA 4	Not used (warehouses, garages)
		Medium quality	IDA 3	Hotel rooms, dwellings*, restaurants, stores, gyms.
		Rather good quality	IDA 2	Hotel common areas, offices, kindergartens.
	GRANTED WITH IBPA®	Optimum quality	IDA 1	Hospital
		Clean room / White room	ISO 8	Triage box
		Clean room / White room	ISO 7	Emergency surgery room
		Clean room / White room	ISO 6	Precision surgery room

* Dwellings are not classified by IDA's, which are exclusive for tertiary buildings; this chart represents their equivalence for information purposes only..



IBPA®: The SUSTAINABILITY AND DECARBONIZATION solution.



Improves the building indoor air quality and efficiency energy, optimizing the minimum and continuous ventilation outdoor air-flow rates, **reducing primary energy consumption** in:

Heat + Ventilación + Air Conditioning

1st Building energy consumption



Reduces the carbon footprint of the building at its highest consumption, helping its net-zero emissions.



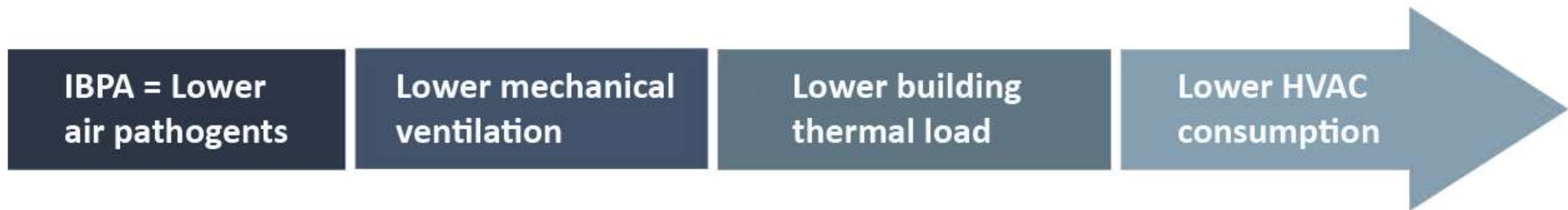
Reduces the construction budget, in new buildings and rehabilitation projects, by optimising ventilation air-flow rates and building thermal loads, so the size and power and cost of the whole HVAC system.



Increases the value of the building, being a guarantee of obtaining the **LEED, WELL, BREEAM or DGNB** certifications maximum score.



IBPA®: The EFFICIENCY ENERGY solution.



European standards: Optimized ventilation outdoor airflow rates based in UNE-EN-13799:2008 and UNE-EN-16798-1:2020, '*Percieved Air Quality Method*'.



Normativa Americana: Optimized ventilation outdoor airflow rates based in ASHRAE 62.1, '*Indoor Air Quality Procedure*'. LEED, WELL and BREEAM recognized method.



Technology specifically recommended by:



(Click to access documents)



IBPA®: The SUSTAINABILITY solution.



Buildings account for **36%** of the total energy consumed in the world.



HVAC is the largest energy consumption, accounting for **55%** of a building's total GHG emissions, on average.



Improving indoor air quality means at least an **11%** reduction in global emissions and up to 21%. IBPA® makes it possible.



SDG targets, achievable with IBPA®:



IBPA® in figures.

Building annual HVAC consumption

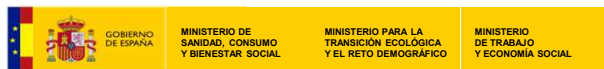


IBPA®

BUSINESS CASES

4* Boutique hotel in Madrid.
Clínic Hospital Thoracic and Respiratory Unit in Barcelona.

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BUSINESS CASE IBPA®

4* BOUTIQUE HOTEL

UE Tradable White Certificate

SPAIN: E_CAE_2024_00081

60 guest rooms, 3.000 m²
Madrid
Spain



%
-45,4

VENTILATION
OUTDOOR AIRFLOW

%
-43,9

HVAC ANNUAL
CONSUMPTION

%
-17,5

BUILDING ANNUAL
CONSUMPTION

Years
2,6

PAYBACK
(0,15 €/kWh)



ENERGY COST: **0,15** € / kWh



UE TWC SUBSIDUES: **150,00** € / MW saved.

TWC: Tradable White Certificates



SUSTAINABILITY: **< 2 years** Payback.

Includes UE TWC subsidies + Voluntary carbon footprint compensation.

OBJECTIVES:

The HVAC annual consumption in a hotel is its second largest operating cost, only behind staff payroll and, depending on the case, ahead of F&B. **Reducing HVAC consumption in order to achieve decarbonisation targets and increase competitiveness is a priority** for the hotelery and hospitality sectors.

This is a 60 guest executive rooms boutique hotel in the downtown of an European capital. The hotel has a restaurant, SPA - Wellness and congress centres as main facilities. The building has two primary air AHU's (12,000 m³h), without recirculation, which feed through ducts to a fan coil system.

SOLUTIONS:

Improvement of indoor air quality with IBPA®, in a single integration phase (retrofit), without disturbing works, with the building in operation, without replacing any existing machines and without modifying the original installation:

- IBPA® solution design.
- Calculation of the new optimized ventilation outdoor airflow rates based in european standards.
- Project Management, installation and commissioning of the IBPA® solution.
- Certification of the result obtained by an accredited IAQ laboratory.
- Coordination of the Tradable White Certificates and european subsidies with the local and European Administrations.

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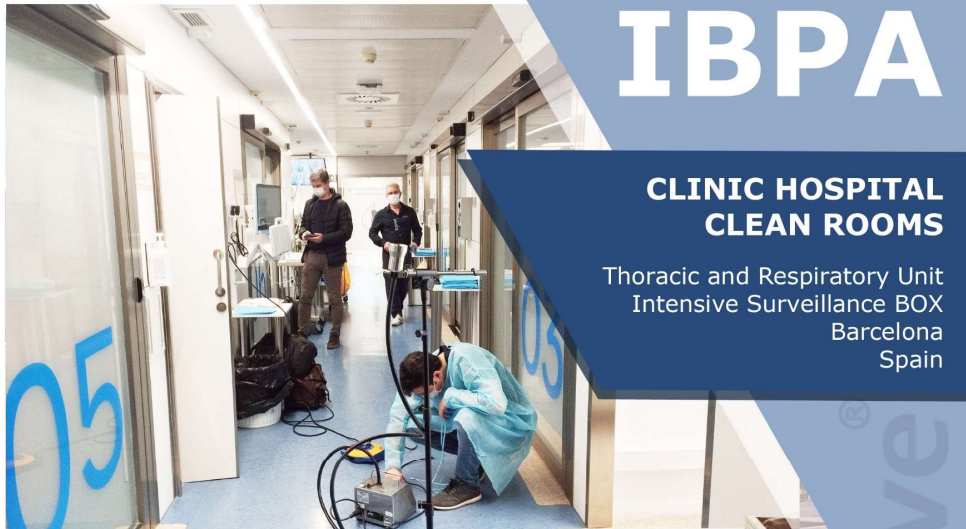
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CASE STUDY IBPA

CLINIC HOSPITAL CLEAN ROOMS

Thoracic and Respiratory Unit
Intensive Surveillance BOX
Barcelona
Spain



**ISO
8**

ISO
INITIAL

**ISO
6/7**

ISO WITH
IBPA®

**%
50,3**

TVOC
REDUCTION

**%
77,5**

FORMALDEHIDE
REDUCTION



Improved ISO classification of critical facilities (clean rooms).



Increase the capacity and flexibility, enabling **new areas** for precision **surgery rooms and laboratories** to be set up **within hours, without modifying the current facility.**



PAYBACK : < 1 year Payback.

Includes UE Tradable White Certificates subsidies.

OBJECTIVES & SOLUTIONS:

- Despite having an H14 filter at the head-end and terminal F9, it **does not meet the required ISO7 classification** (ISO 14644-1).
- TVOC and HCHO levels are very high**, resulting in a "Nonconformance".
- The box is NOT properly overpressurized as its mandatory (ISO 14644-3)** with respect to the dirty zone, nor is the dirty zone with respect to the hospital. If so, it would have been classified as ISO6.

The aim is **to improve indoor air quality with IBPA®, by retrofitting into the existing HVAC system, without construction work or stopping the facility.**

RESULTS:

After complete air renewal (1h), with IBPA®,

ISO 14644-1		INITIAL SITUATION		WITH IBPA®	
ID.		PM > 5.0	PM > 0.5	PM > 5.0	PM > 0.5
1		18.613	704.446	1.053	152.000
2		7.706	484.133	1.676	159.106
3		5.568	293.693	1.146	132.186
4		4.528	228.320	1.093	118.560
5		10.000	264.253	1.533	133.653
6		14.640	311.173	2.013	154.333
AVERAGE:		10.176	381.003	1.411	141.640

PM REDUCTION:	-	-	86%	63%
ISO ACHIEVED:	8	8	6	7
CLASSIFICATION:	8		7	

ZONE	INITIAL SITUATION (ppm)		WITH IBPA® (ppm)	
	HCHO	TVOC	HCHO	TVOC
Corridor	0,67	1,03	0,14	0,41
Box 6	0,53	0,82	0,13	0,51
AVERAGE:	0,60	0,93	0,14	0,46

REDUCTION:	-	-	77,5%	50,3%
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*Clasifica: ZWEI Ingeniería, SL - NCB 2/3. D. Javier García Palomo. ID. Informe: SL-S742.

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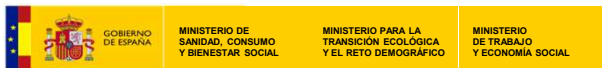
*Rendimiento HVAC/R
Eficiencia Energética
Calidad de aire interior*

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Co-leading the bold since 1997:

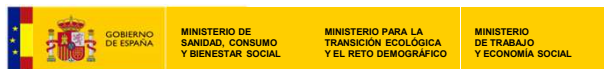


Catálogo comercial V.24..08.05

TRAINNING IBPA®

Selection of air purification technologies

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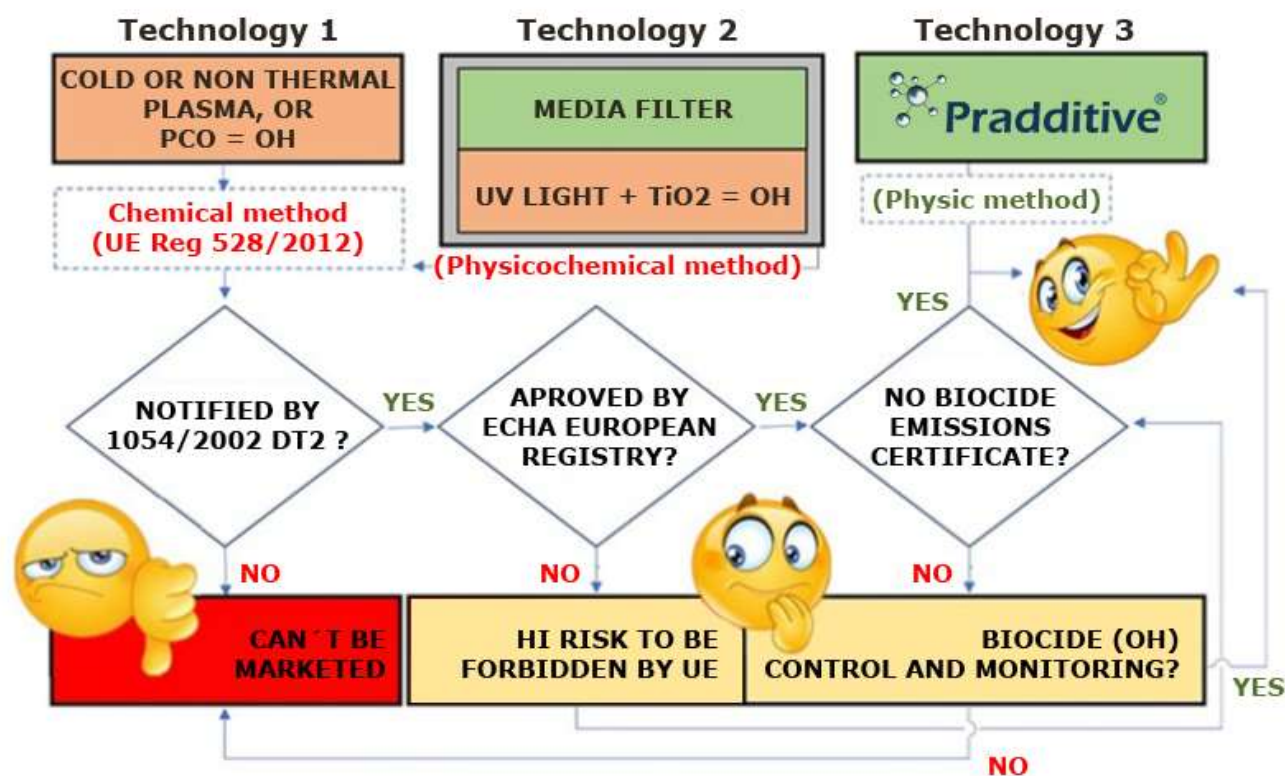


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TRAINING: Regulatory compliance of air purification systems in TERTIARY BUILDINGS (EUROPE)



TRAINING: Suitability of air purification systems in TERTIARY BUILDINGS..



Physical action equipment is not restricted by European and American regulations.



Chemical or physicochemical action equipment. They can never come into direct contact with people.

DOCUMENTATION TO BE REQUESTED:



ZERO-OZONE GENERATION CERTIFICATION.



NO BY-PRODUCTS GENERATION CERTIFICATION.

WARNING:



Certifications must always be carried out in an accredited laboratory, in accordance with current regulations, in an airtight chamber and on the equipment marketed. Not on its components, independently.

