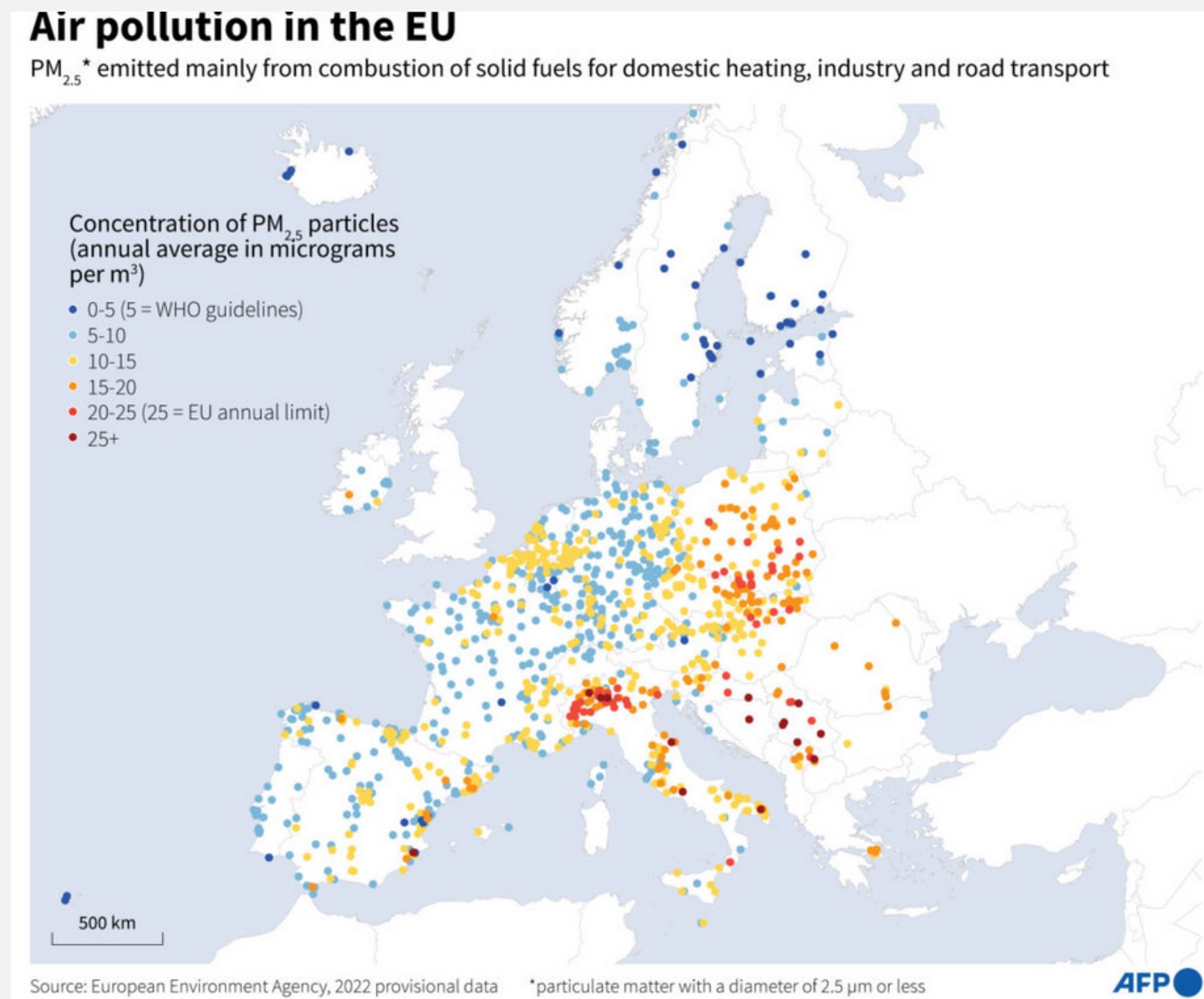


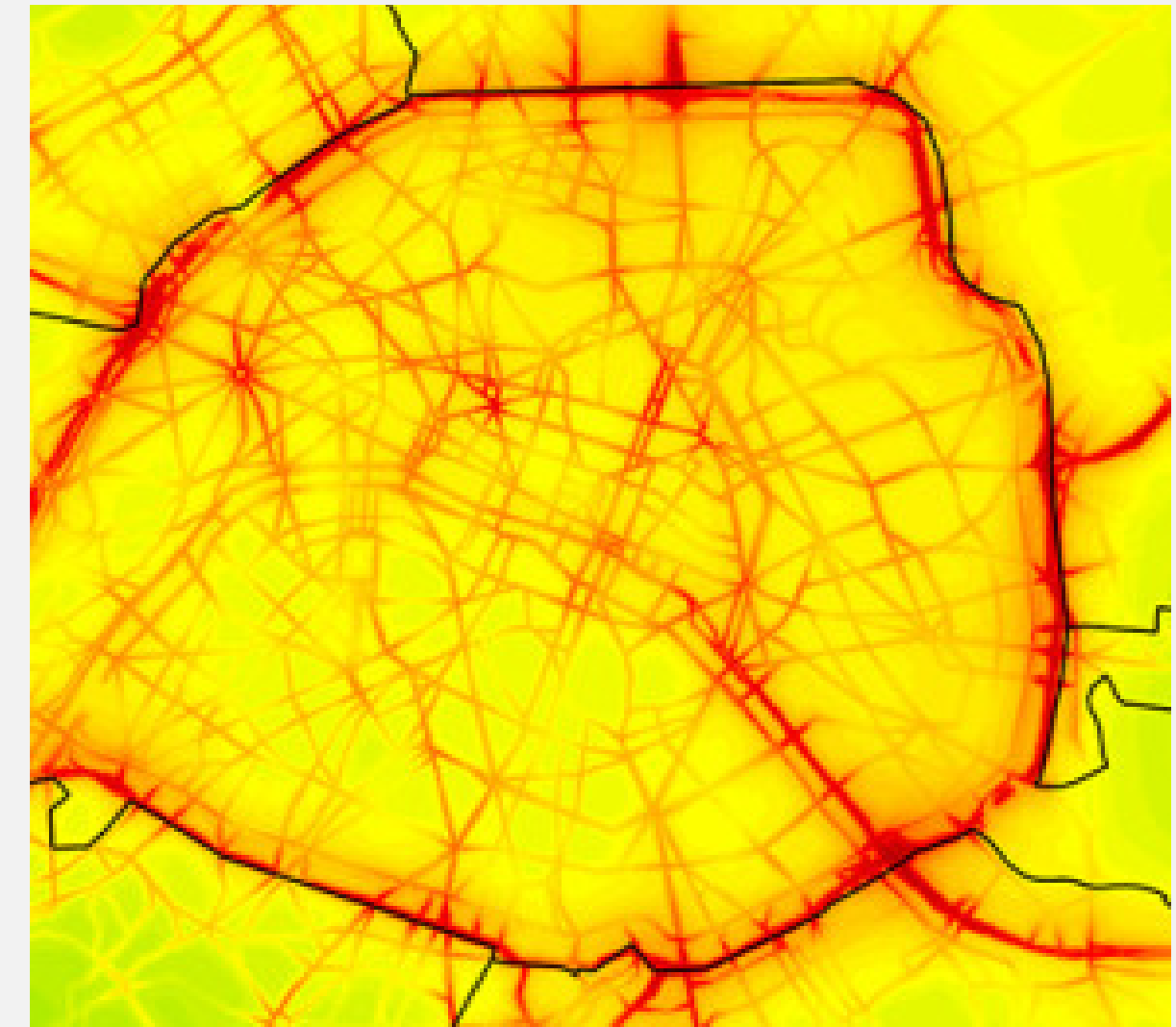


A filtering air inlet
for single-flow ventilation
in residential buildings

Ultrafine particles still are a major public health issue in many countries



Pollution is unevenly distributed, with traffic proximity being a major exposure factor



Source: AirParif, 2022

"Exposure to ambient air pollution by fine particles (PM2.5) represents on average a loss of life expectancy of 8 months for people aged 30 years and over."

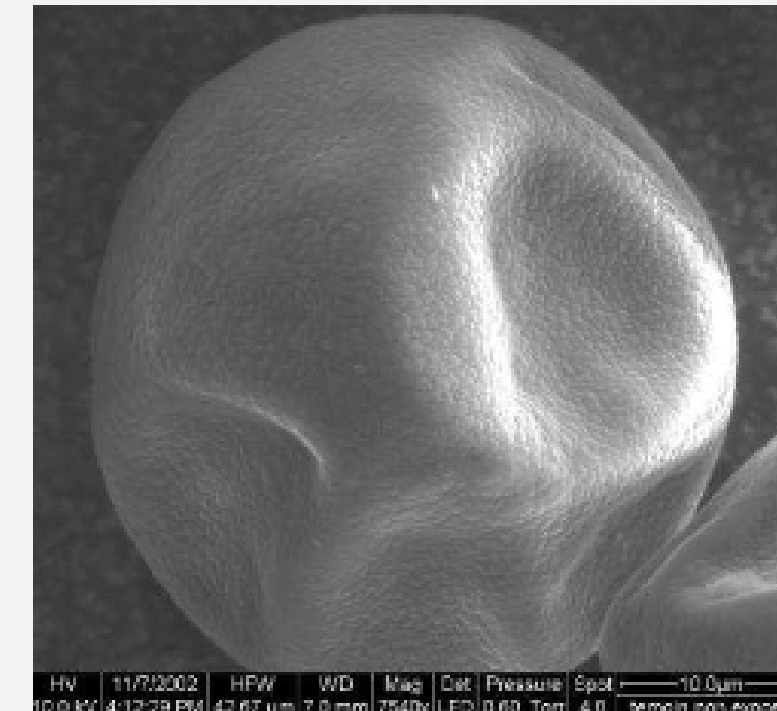
Sébastien Denys
Director of Health-Environment-Work
Santé Publique France, 2022

Pollen and respiratory allergies grow

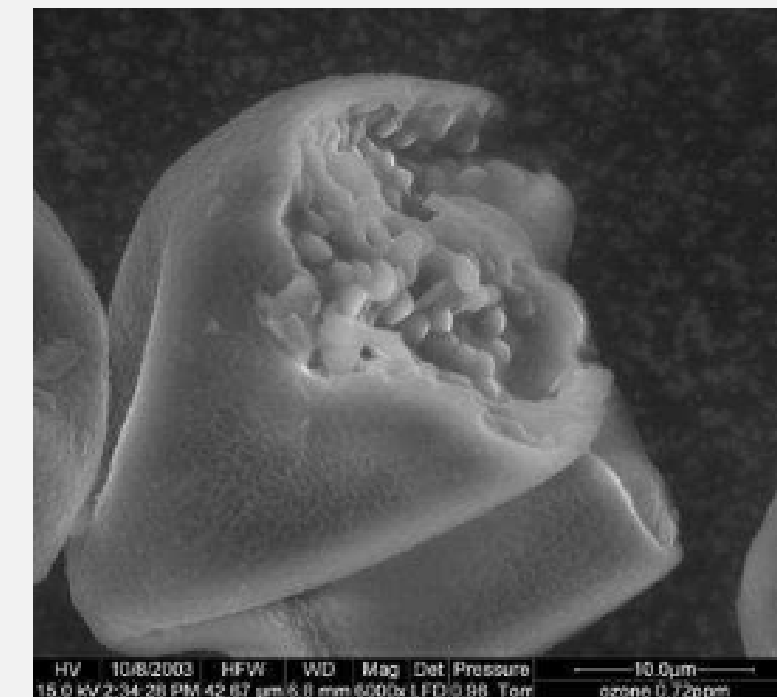
- Respiratory allergic diseases, such as seasonal rhinitis and asthma, have almost doubled in the last 20 years in industrialized countries.
- Pollen rhinitis had tripled in France in 25 years.
- Current CO₂ concentrations have increased pollen production by 131% compared to the pre-industrial period.
- The overall rise in temperatures is influencing the length of pollen season.

Source: Le Monde, 2023

Ozone breaks pollen into ultrafine particles



untreated pollen grain

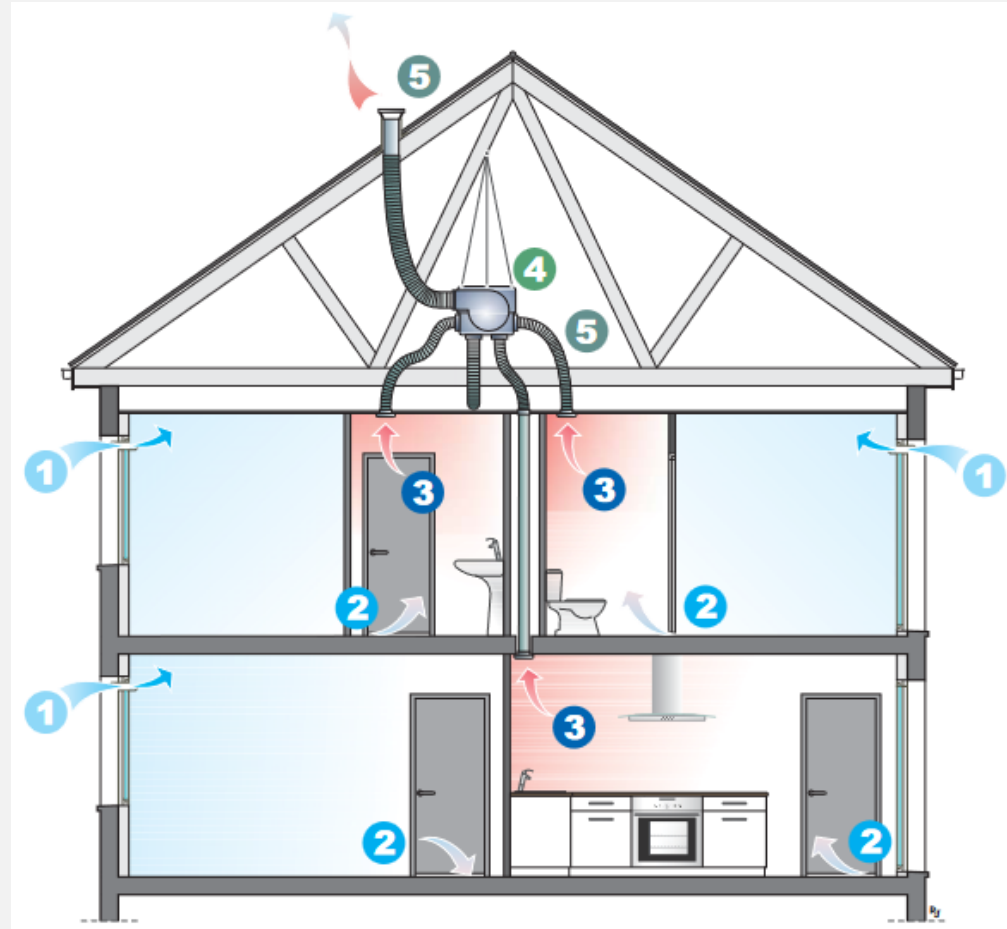


Pollen grain
exposed to ozone
for 4 hours.
Note the presence
of granules in the
pollen.

Source: INERIS, 2014

Single-flow ventilation dominates in domestic buildings

France 2022: ~120k houses + 170 flats constructed
+ 300k renovation



PM2.5 penetration ratio is high in domestic buildings

PM2.5 internal/outdoor usual rate in France (OQAI, 2006):

I/E~1.6

Highly depends on internal sources and air renewal.

Unoccupied apartment in Paris close to périphérique (CSTB, 2001):

I/E~0.8

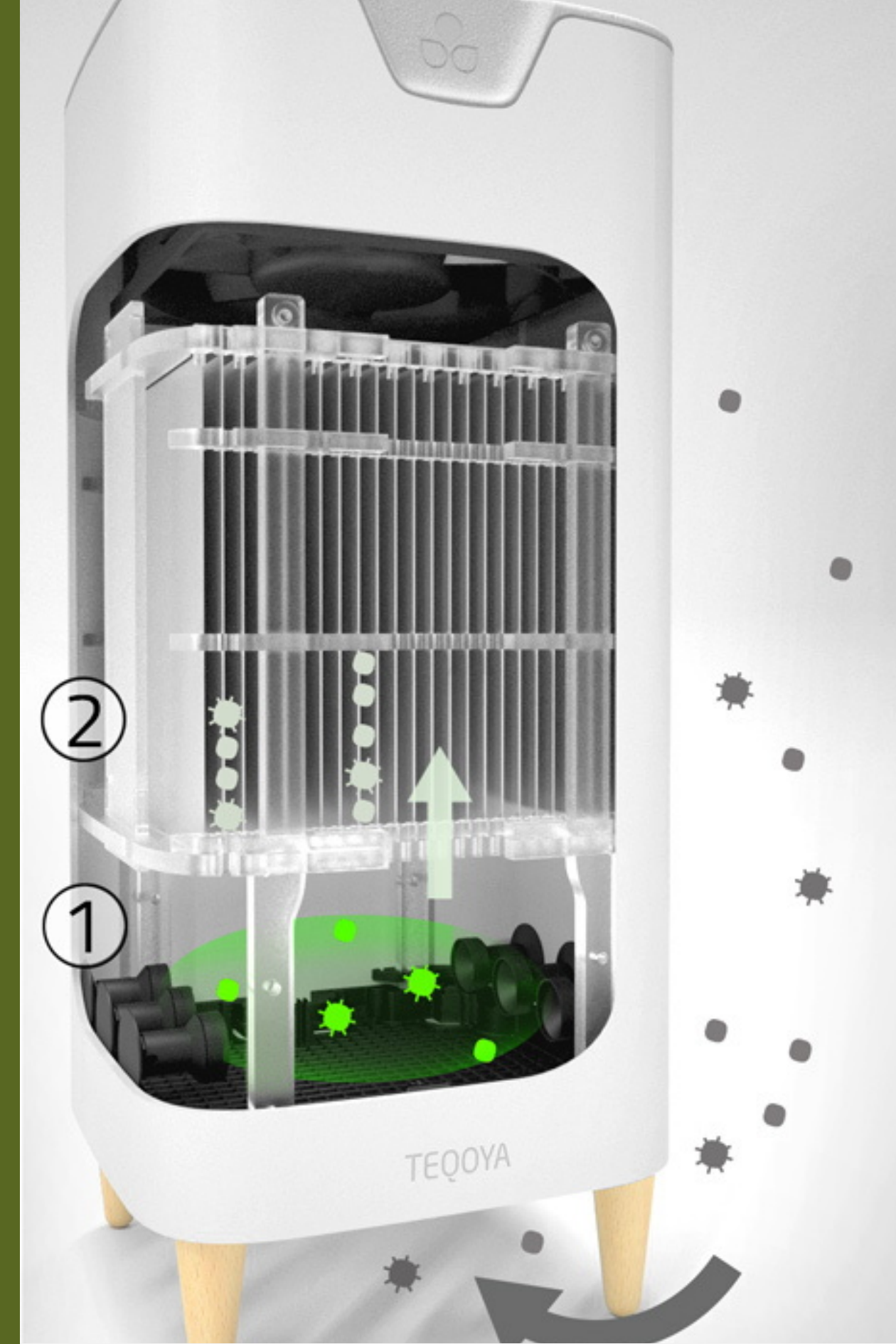
Consistent with ~50% outdoor pollution contribution, US estimate.

While air renewal is essential to healthy buildings,
how do we protect occupants from ultrafine particles?

Our technology: e-filtration

TEQOYA's patented e-filtration technology leverages electrostatic precipitation for energy-efficient air filtration:

- air ionization + polarized collection plates
- electrical insulation for safe and comfortable use (no ozone, no sparks)
- energy-efficient, low pressure drop
- high mass storage and reliability for long-term use



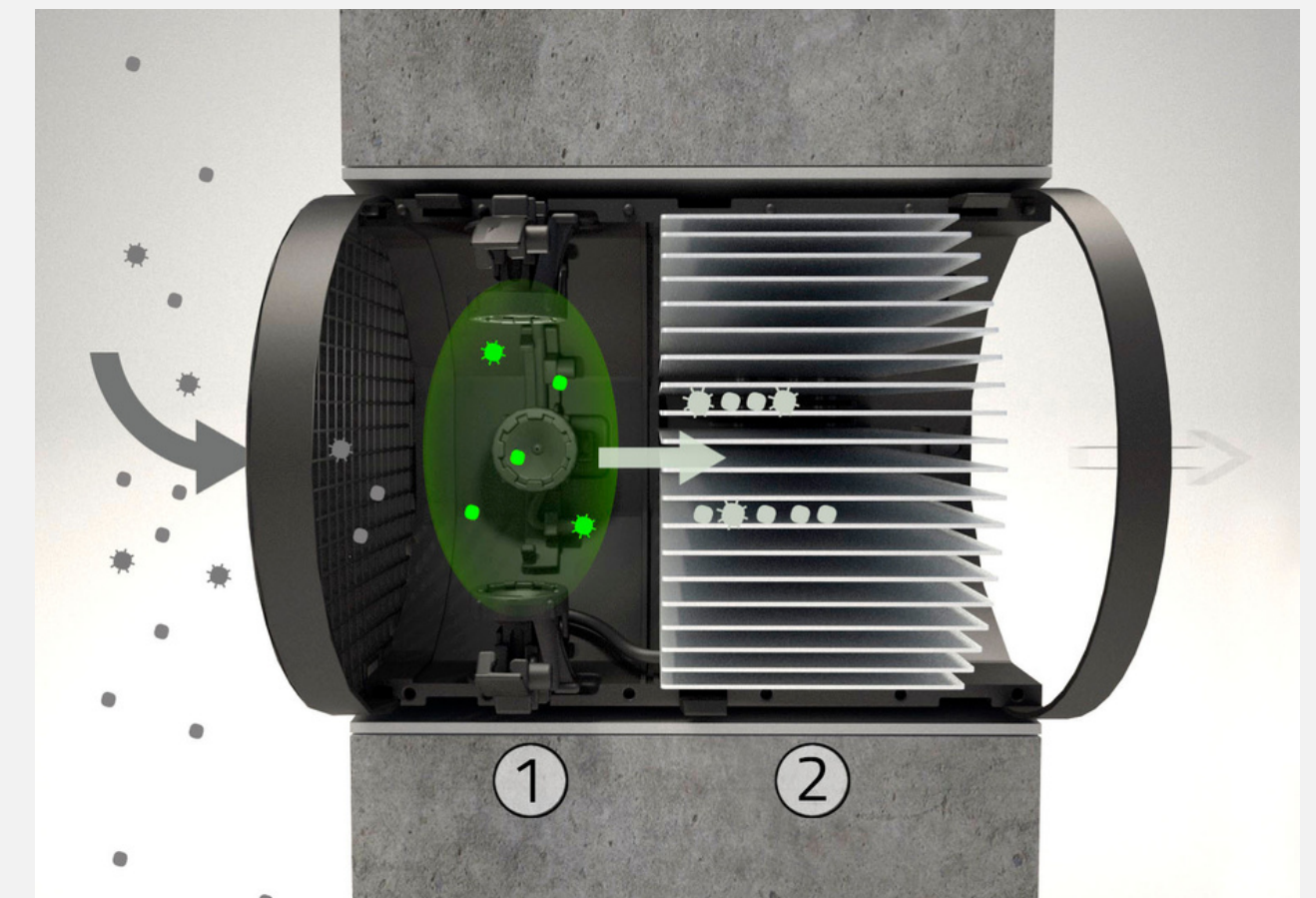
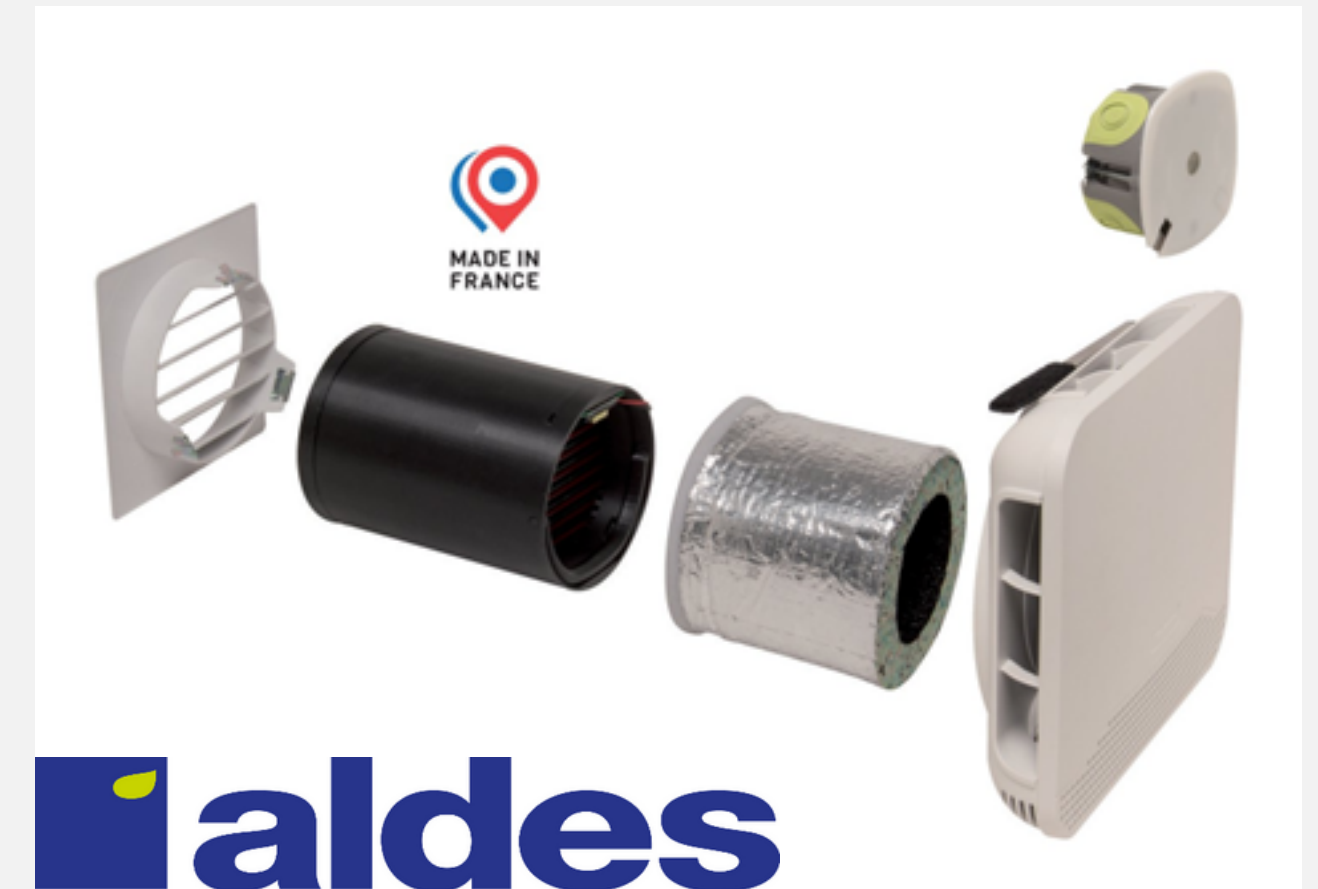
1- Particles electric load
2- Electrostatic capture

Filtering air inlet

- 80%-90% efficiency on PM1.0, PM2.5, PM10, virus and germs
- Ozone-free (<1 ppb) and NOx-free
- Low power (<1.5W)
- Ultra-low pressure drop (<2 Pa)
- Reusable filter (yearly cleaning), no spare parts
- Up to at 45 m³/h airflow rate
- Fits in 125mm ducts



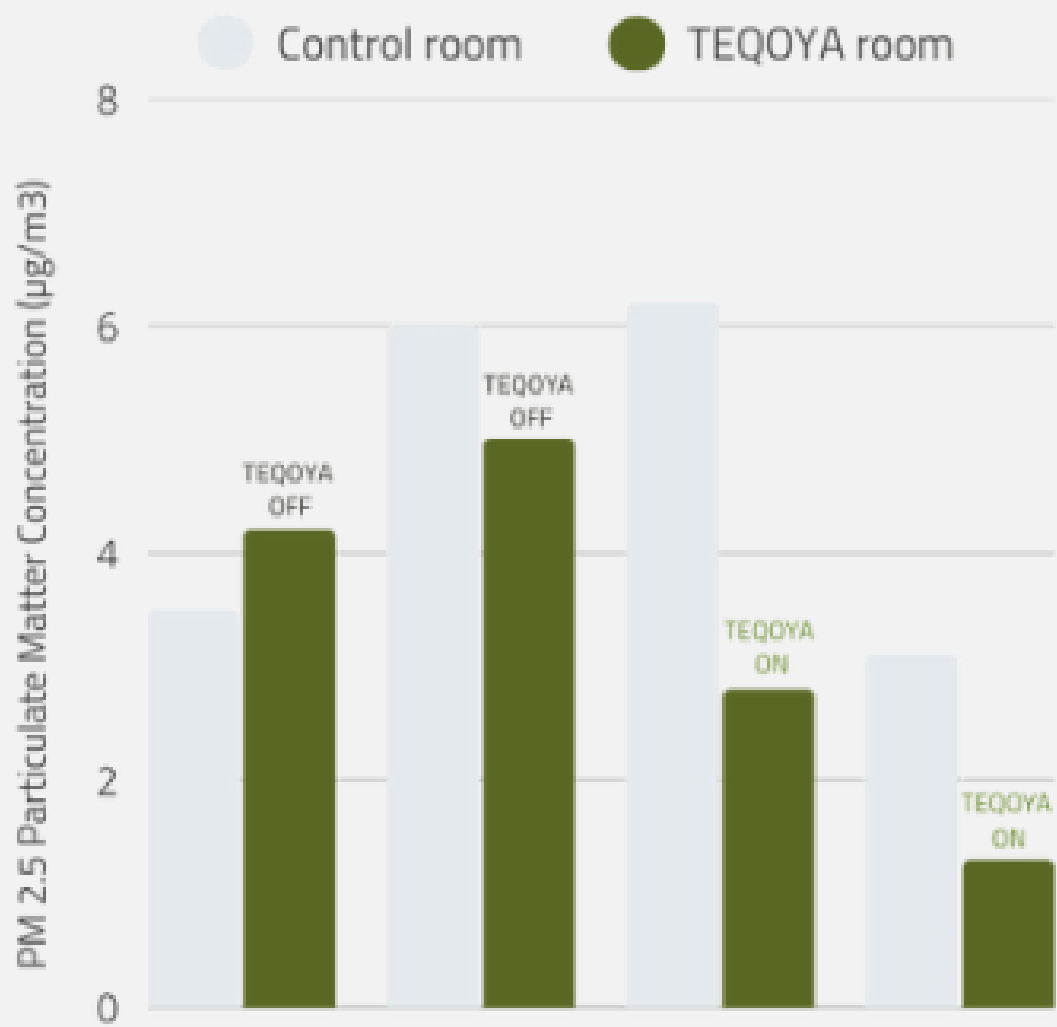
*La première entrée d'air hygroréglable
sous avis technique*



Tests NF EN ISO 16890 at CETIAT

Particles size (microns)	Filtration rate at 25 m3/h
0.3 - 0.5	86.5%
0.5 - 0.7	88%
0,7 - 1	89%
1 - 2	92.5%
2 - 3	96.5%
3 - 5	98%

Field tests



- control / pilot rooms comparison over 2+2 months
- 3 PM2.5 sensors per room
- ~50% particles reduction according to comparison control / pilot

Potential gain as smog-blocker

Usually in France:

$I/E \sim 1.6$

Unoccupied apartment (CSTB, 2001):

$I/E \sim 0.8$

Calculation with 0,25 vol/h unfiltered air renewal and 0,1 vol/h natural sedimentation (PM0.5):

$I/E \sim 0.7$

Theoretically with filtered air renewal (rate 90%):

$I/E \sim 0.07$ to $I/E \sim 0.9$

Calculation, no internal source

Based on 50% outdoor air contribution

ALDES-TEQOYA filtering air inlet selected to equip 2024 Athletes Village

1500 units, currently being deployed in Saint Denis - Saint Ouen village





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