Case Study

Transforming Indoor Air Quality at a Leading IT Services Company in South Asia

A 360° IAQ Enhancement Using Airborne Molecular Purification (AMP) Technology

Curtain Raiser

Metric	Before	After
PM2.5	36.43 µg/m³	0.2 µg/m³
PM10	55 µg/m³	0.3 µg/m³

Contaminant	Before	After	Reduction
Formaldehyde	>5 ppm	0.5 ppm	95%
Toluene	0.1 ppm	0 ppm	~100%

Industry

IT Service Company

Executive Summary

In a large corporate environment, indoor air quality (IAQ) directly impacts employee health, cognitive performance, and operational efficiency. In this building elevated levels of particulate matter (PM2.5), gaseous contaminants, and energy-intensive filtration systems posed a significant challenge.

PuriFi deployed the patented Cold Plasma Ioniser (CPI) technology as a Proof of Concept (POC), delivering:

- >99% reduction in PM2.5 and PM10
- 95% reduction in formaldehyde
- Elimination of fine filters
- Significant energy savings
- Improved workplace health & productivity

The Challenge

Modern office environments face a complex IAQ problem:

Key Issues Identified

- High **PM2.5 levels (~36.43 µg/m^3)**
- Elevated **formaldehyde (>5 ppm)** — far above safe limits
- Dependence on **dense fine filters (MERV 13 / F7)**
- High **pressure drop → increased fan energy consumption**
- Maintenance-intensive filtration systems

Health & Operational Impact

- Poor air quality affecting employee well-being
- Reduced cognitive performance
- Increased HVAC operating costs

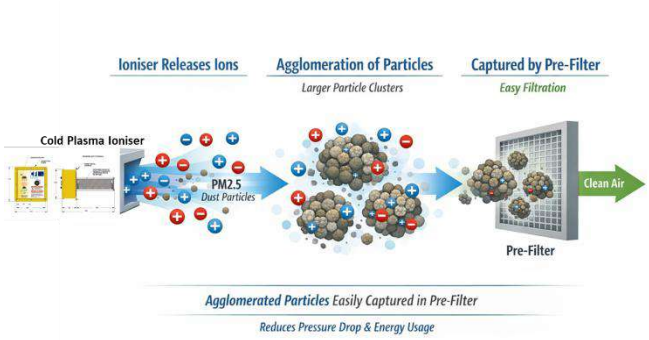
The Solution

PuriFi implemented its air purification solution using AMP technology, with Cold Plasma Ionisers installed within the AHU system.

Technology Highlights

- 28 patents across 40 countries
- Advanced ion wave pattern generating high ion density
- Catalyst-based ozone-to-oxygen conversion **(zero residual ozone)**
- Proven reliability with 30,000+ installations

How Technology Works



Step 1: Ionisation

The system releases a controlled mix of **positive and negative ions** into the air stream.

Step 2: Agglomeration

- PM2.5 particles get electrically charged
- Fine particles cluster into larger aggregates

Step 3: Filtration

- Larger particles are captured by basic pre-filters (MERV 8 / G4)
- Eliminates the need for fine filters / HEPA systems

Case Study

Implementation Details

Location: Undisclosed city, South Asia

AHU Capacity: 9450 CFM

Units Installed: 2 CPI

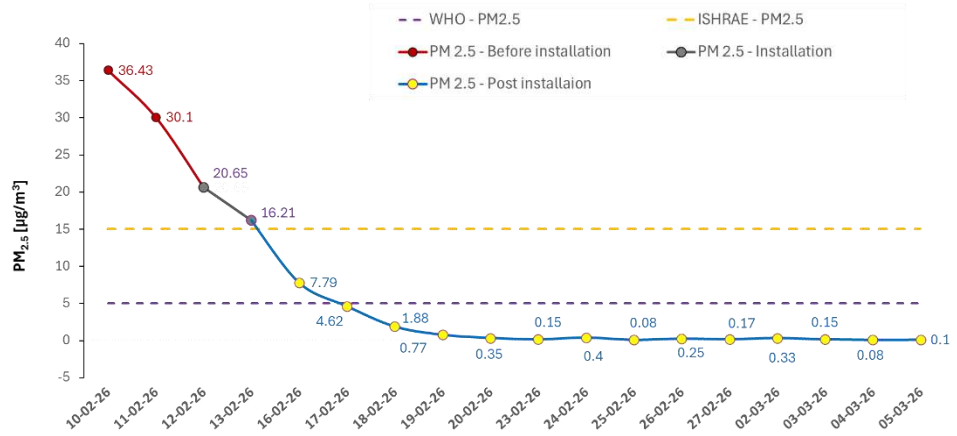
Coverage: 10000 Sq.ft area

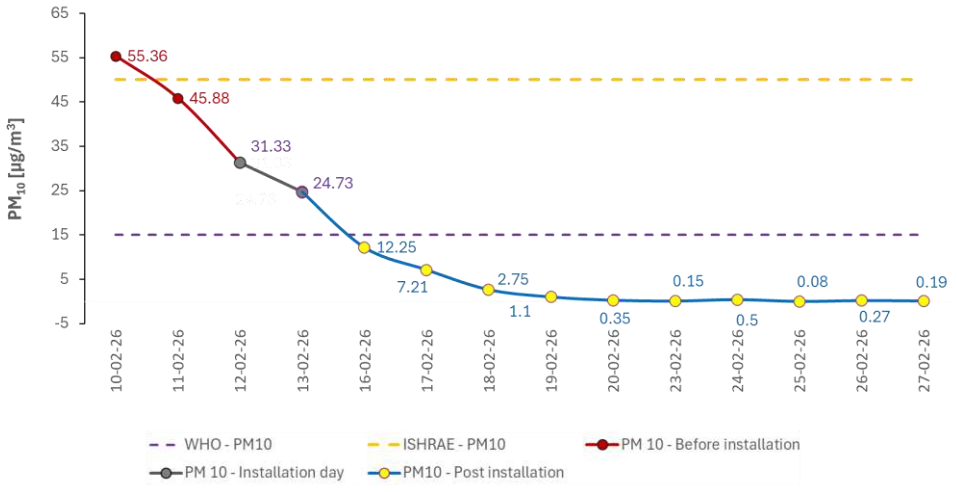
Occupancy: 120 – 150 employees per shift

Results

1. Particulate Matter Reduction

Metric	Before	After
PM2.5	36.43 µg/m³	0.2 µg/m³
PM10	55 µg/m³	0.3 µg/m³





2. Gaseous Contaminant Reduction

Contaminant	Before	After	Reduction
Formaldehyde	>5 ppm	0.5 ppm	95%
Toluene	0.1 ppm	0 ppm	~100%

3. Microbial Control

- Bacteria, viruses, mold, and pollen effectively neutralized
- Microbial counts maintained within acceptable limits

Energy Optimization

Conventional System without AMP technology ☹️

- Pre-filter (MERV 8) + Fine filter (MERV 13)
- High pressure drop → higher fan energy

Optimized System with AMP technology 😊

- Retain pre-filter
- Eliminate fine filter
- Achieve IAQ compliance without energy penalty

Impact

- Reduced fan power consumption
- Lower maintenance costs
- Extended filter life

Business Impact to the building

Operational Transformation

- PM2.5 reduced from **25 µg/m^3 → 0.2 µg/m^3**
- Harmful gases controlled
- Virus & bacteria neutralized
- Simplified HVAC operation

Health & Productivity Gains

Formaldehyde at **5 ppm** is considered hazardous globally. Reducing it to **0.5 ppm** delivers:

- Improved employee comfort
- Reduced irritation and health risks
- Enhanced cognitive performance

Clean air is not a cost — it is a **productivity multiplier**.

Return on Investment

Metric	ROI
Energy Savings	< 3 years
Productivity Gains	< 0.02 years

Sustainability Impact

- Reduced energy consumption
- Lower carbon footprint
- Contribution to greener buildings
- Alignment with ESG goals

Conclusion

The deployment of Cold Plasma Ionisation demonstrates a paradigm shift in IAQ management:

- From **filter-heavy systems → intelligent air treatment**
- From **high energy consumption → optimized efficiency**
- From **basic compliance → world-class indoor environment**

Key Takeaway

PuriFi's solution transforms indoor spaces into high-performance environments, delivering cleaner air, lower costs, and measurable business value.

Contact information:

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