

# Impacts and benefits of Indoor Air Quality



**Mr Stanley O Mathew**  
National Head-Sales-India &  
SAARC  
AAF India

# Contents of the presentation

## Impact of IAQ

- On Health
- On Equipment
- On Process

## Benefits of IAQ

- On Health
- On Equipment
- On Process

## Achieving IAQ

- Summary

## Mumbai Air Quality Index (AQI) | India

Real-time PM2.5, PM10 air pollution level in Maharashtra

Last Updated: 25 Sep 2024, 03:52pm

**GOOD**

**44**  
(AQI-IN)



## Air Quality Map

Mumbai

[View Map](#)



### Most Polluted Cities in India

Real-time worst city rankings

RANK	CITY	AQI-IN
1	Coimbatore, India	340
2	Palghat, India	201
3	Noida, India	168
4	Ghaziabad, India	144
5	New Delhi, India	143
6	Vadodara, India	142
7	Sonipat, India	134
8	Faridabad, India	130
9	Bhiwani, India	126
10	Hisar, India	126

### Major Air Pollutants in Mumbai

17 (PM2.5)

40 (PM10)

3 (SO2)

252 (CO)

7 (Ozone)

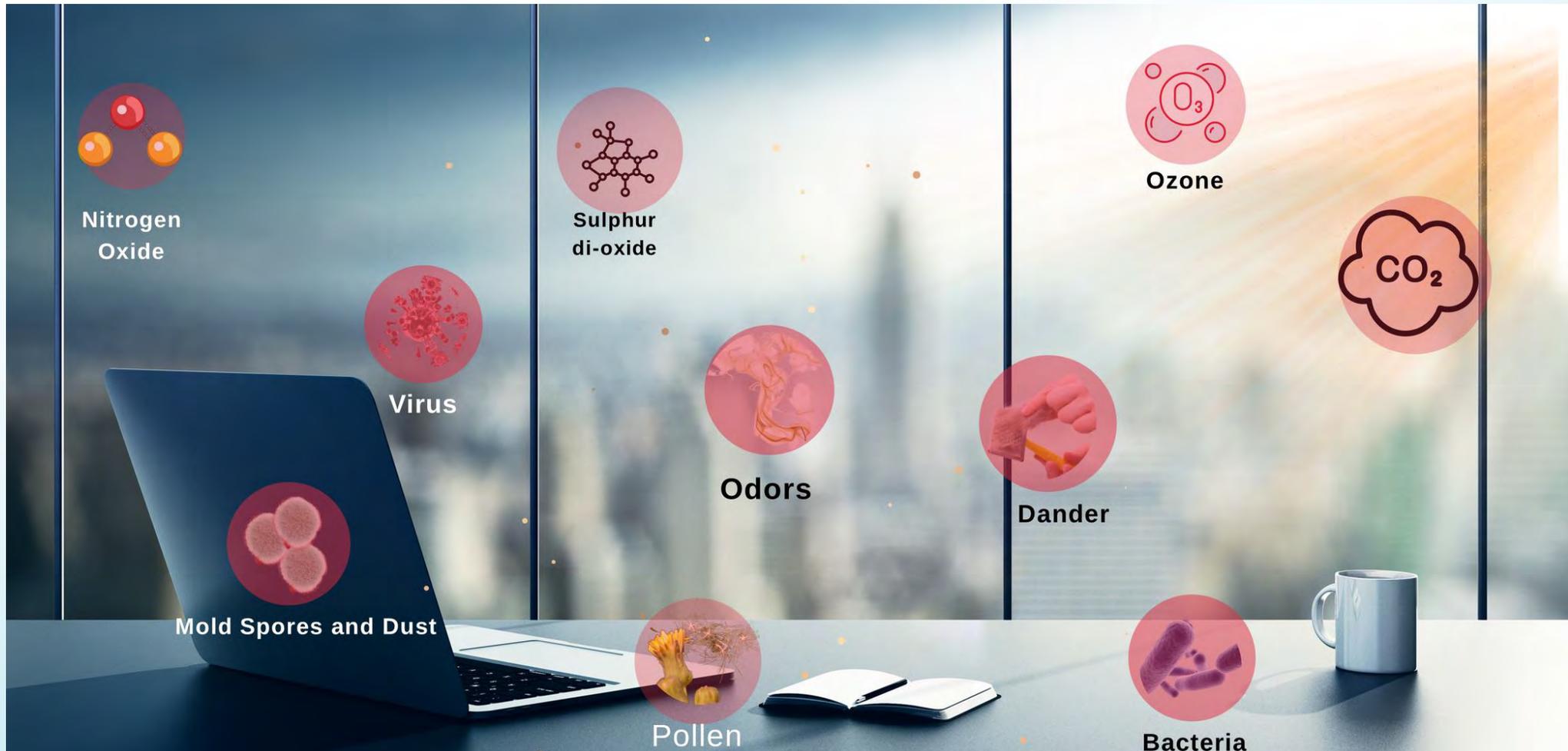
8 (NO2)

PM2.5  
**1.1X**

The current PM2.5 concentration in **Mumbai** is **1.1 times above** the recommended limit given by the WHO 24 hrs air quality guidelines value.

**!** PM2.5 air pollution in **Mumbai** is causing an estimated deaths of **14,000 lives** since January 1, 2021. It has cost the city's economy around **US \$2.1 billion** so far this year. (Source: Greenpeace)

Indoor Air Quality (IAQ) refers to the air quality within the buildings and structures, especially as it relates to the health and comfort of building occupants.



# Impact of IAQ on HEALTH!

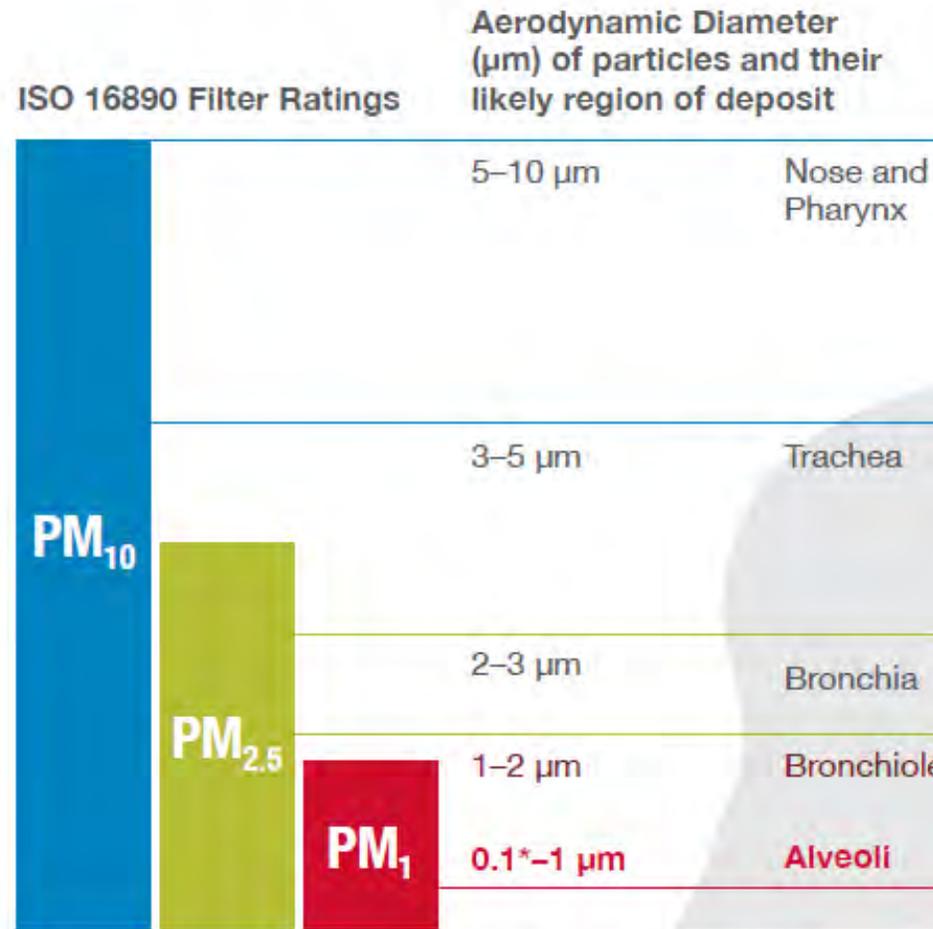
**The world's leading health-related organizations consider PM10, PM2.5, and PM1 fine dust fractions as the most important and dangerous for humans.**

Particles with an aerodynamic diameter of:

**10 micron (ePM10)** deposit in the **nose and pharynx** of the human respiratory system

**2.5 micron (ePM2.5)** are small enough to reach the **human lung** and deposit in the bronchia

**1 micron (ePM1) or smaller** are small enough to find their way through the cell membranes of the alveoli into the **human blood stream** and cause life-threatening diseases



\*Efficiency on particles smaller than 0.3 micron is not defined by ISO 16890.

# AIR AND OUR BODY: AN UNSEEN CONNECTION





## Building Related Illnesses

- Influenza
- Infections
- Allergies & Asthma
- Legionnaires' Disease
- Cancers
- Humidifier Fever
- Mold Related Illness
- Chemical Sensitivity

## Sick Building Syndrome

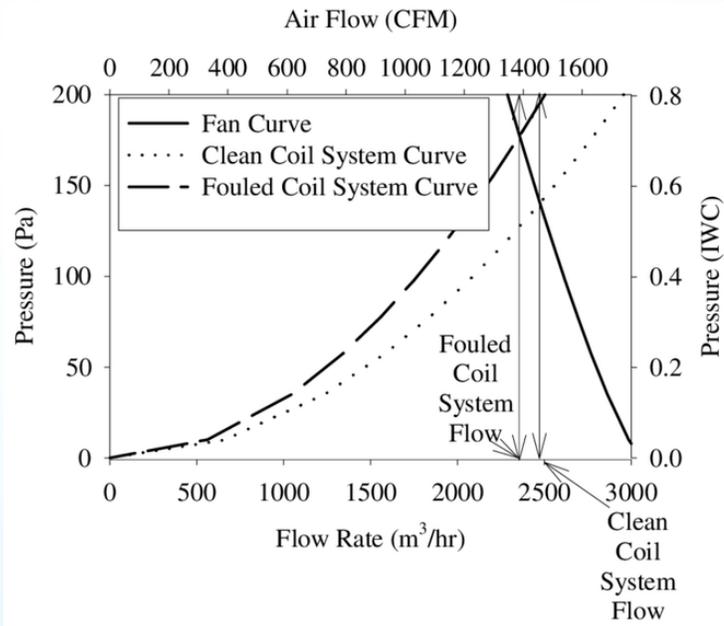
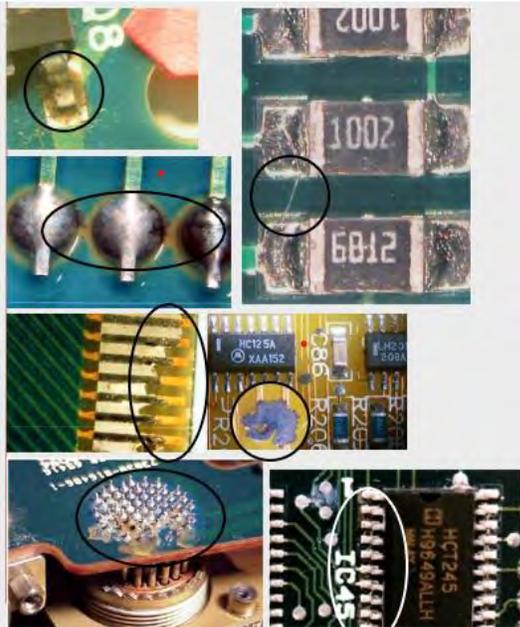
- Breathing Difficulty
- Eyes, Nose or Skin Irritation
- Nausea
- Fatigue
- Generally Unwell
- Weakens Immunity



# Impact of IAQ on EQUIPMENT!

## Issues due to Particles & Corrosive Gases

- Reduced Efficiencies – HVAC systems
- Corrosion on Electronic Parts
- Frequent Breakdowns – HVAC , Electrical and Electronic equipment



# Impact of IAQ on PROCESS!

# Issues due to Particles & Contamination

- Pharmaceutical – Lot rejections
- F&B – Contamination affecting products
- Micro-electronics – Product failures
- Healthcare – Cross infection in Hospitals



# Benefits of Good IAQ on HEALTH!

## AT WORK PLACE

- Higher Productivity
- Lower Absenteeism

## BETTER LIFE

- Reduced Airborne Illnesses
- Healthy Body



# Benefits of Good IAQ on EQUIPMENT!

## RELIABILITY

Lesser Breakdowns  
Better end Products



## EXTENDED LIFE

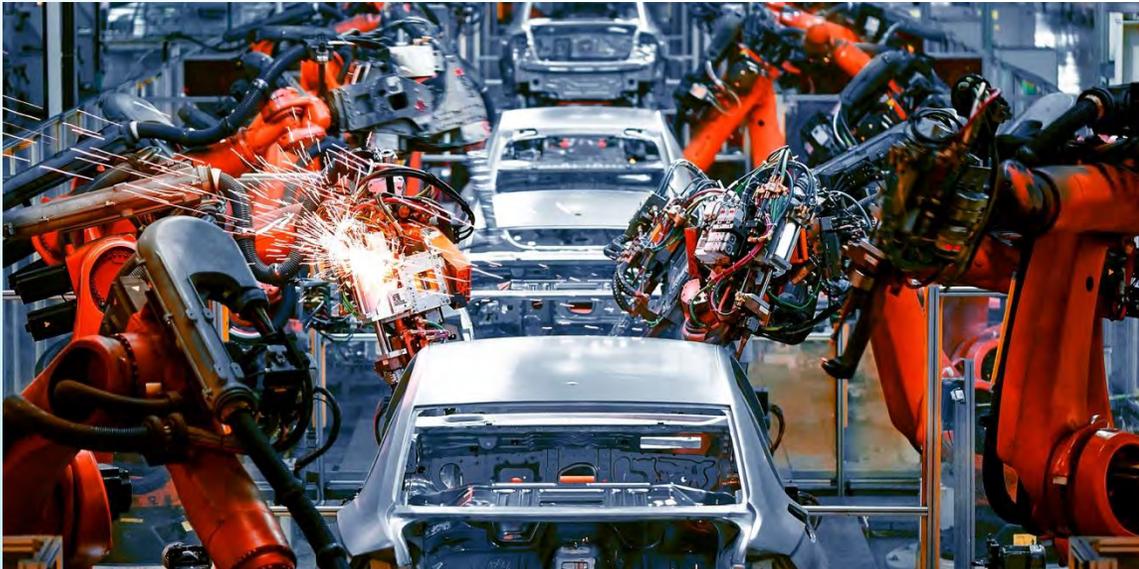
Costly equipment like servers,  
Gas turbines  
Manufacturing CNC Machines



# **Benefits of Good IAQ on PROCESSES!**

- Improved Productivity
- Higher Production
- Lesser Downtime
- Lesser Costs
- Higher Profits

- Better Quality End Products
- Lesser Rejections



# How to achieve the desired IAQ ?



- **Start following ISO 16890 guidelines** in design stage for Air Filtration in any project.
- **Governmental regulations** on Filter manufacturers for following certifications.
- **Select certified products** to ensure the standards.
- **Maintain the filter conditions as per the standards.** Disposable filters to be used instead of the washable filters which are commonly used in India.



**BRANDED**  
or  
**UNBRANDED**



# Thank You!

**Mr Stanley O Mathew**  
National HEAD-Sales-India & SAARC  
AAF India