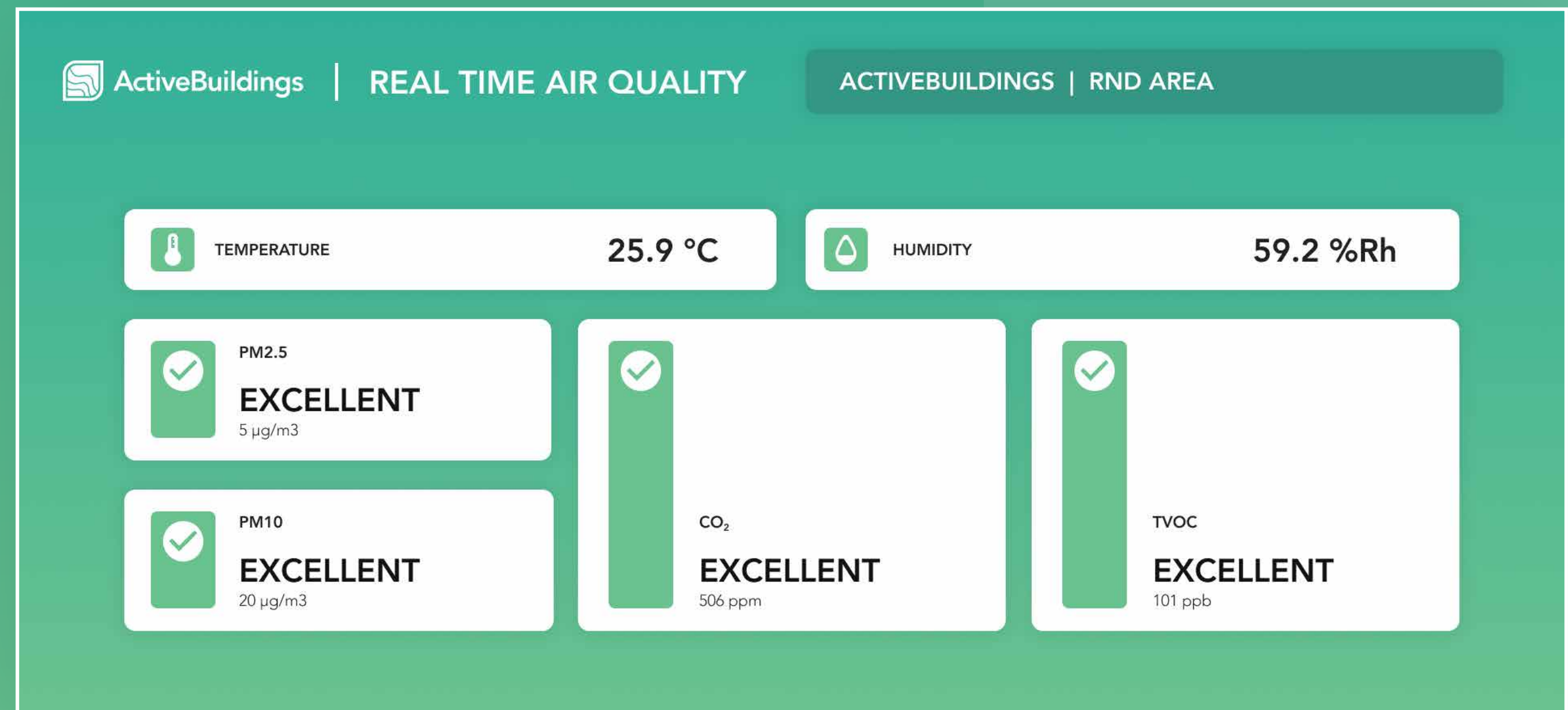


# Piloting the ActiveBuildings IEQ solutions at the ActiveBuildings office, Mumbai.



## LOCATION: ACTIVEBUILDINGS OFFICE, MUMBAI

ActiveBuildings has been working towards indoor environment and air quality management for years now with self-supporting data, research and technology. When we started operations **at our current office, we noticed fluctuations in the indoor air quality data collected by our air sensors**. We had to ensure that **we practise what we preach and provide clean and healthy air to all** employees and guests at the ActiveBuildings workspace.

Most **office spaces are designed with the intent of blocking outside noise and disturbance**. This closed architecture can hinder the circulation of fresh air from outside. This causes a **build-up of Carbon Dioxide** from human metabolism and lack of ventilation. High CO<sub>2</sub> levels can **lead to reduced ability to focus, nausea and physical discomfort** in the occupants, affecting their productivity.

But **allowing fresh oxygen from outside into the indoor space also means allowing the outside particulate pollution** into the lungs of the employees. Since our office is located in a **heavily industrialized area, the ambient air quality is very poor**.

**It was time to utilize data, analytics and technology for our own office.**

# CHALLENGES

## POOR AIR QUALITY OUTSIDE

- Poor air in Mumbai city
- Industrial fumes around office building
- PM2.5 - 278
- PM10 - 423
- CO<sub>2</sub> - 409

## INDOOR AIR POLLUTION

- CO<sub>2</sub> build-up from occupants
- Fresh air from outside polluted
- Soldering pollution from product manufacturing
- CO<sub>2</sub> - 1500
- PM2.5 - 260



## VENTILATION MANAGEMENT SYSTEMS

To prevent build-up of CO<sub>2</sub> and shared air-borne pathogens, we installed the **VentMate, automated mini DOAS ventilation management system** in the office to allow fresh oxygen from outside into the closed building.



## HEPA FILTRATION SYSTEM

Since the air outside has fresh oxygen but is still polluted, we installed the **PureQI HEPA filtration system** on the ventilation ducts that cleans the air before introducing it into the office space.



## INDOOR AIR MONITORING

Air Sensors for indoor air with real-time data being displayed at the office helps us note the dip in air quality and identify the source behind it so we can immediately fix the problem.



## OUTDOOR AIR QUALITY MONITORING DEVICE

The device keeps a check on parameters such as PM2.5, PM10 in ambient air in real-time so we know if we need an anti-pollution mask to step outside the office.

## OVERCOMING STRUCTURAL DOGMAS WITH CONSCIOUS DECISIONS

# 1

**False Ceilings** are widely used in interior designing of buildings but in reality they are **bad for health** because:

- They **promote the growth of mold**
- Increase the **surface area for housing pollutants**
- Can be **dangerous in areas with heavy rains or that are earthquake-prone** as the ceiling might fall off

Despite the popularity, we consciously decided to **refrain from including false ceilings** from our interiors, thanks to which:

- We are able to **maintain the apt levels of humidity for healthy air and thermal comfort**
- It is easier to keep the **ceilings clean from dust and pollutants**
- The **office is safer from accidents during heavy rains** in Mumbai.

## OVERCOMING STRUCTURAL DOGMAS WITH CONSCIOUS DECISIONS

# 2

**VRV Air Conditioning** systems face dissent due a popular **dogma that they restrict fresh air**, which is untrue:

- **VRVs can allow fresh air** through engineering support
- They are **energy-efficient**
- They can **precisely regulate the temperatures** in commercial buildings

We decided to **utilize VRV air conditioning for our office and with minor civil work**, we managed to:

- **Incorporate circulation of fresh air** from outside
- **Save on our air-conditioning bills**
- **Improve the thermal comfort** of our employees and enhance productivity

## OVERCOMING STRUCTURAL DOGMAS WITH CONSCIOUS DECISIONS

### 3

**Nature of ownership of buildings** is also a barrier for implementing solutions for healthy air:

- **Tenants might consider the short-term cost** more important than the long-term benefit
- **Owners leasing the property refrain from the effort**, as they are not the end-beneficiaries of healthy air

Tenants or owners, **good air quality is important from health, sustainability, productivity as well as investment perspective.**

With minor costs and informed decisions, we now have:

- **Better indoor environment**
- **Higher employee productivity**
- **Energy-efficient building**
- **Lower health-risks**





Outdoor Air Conditions



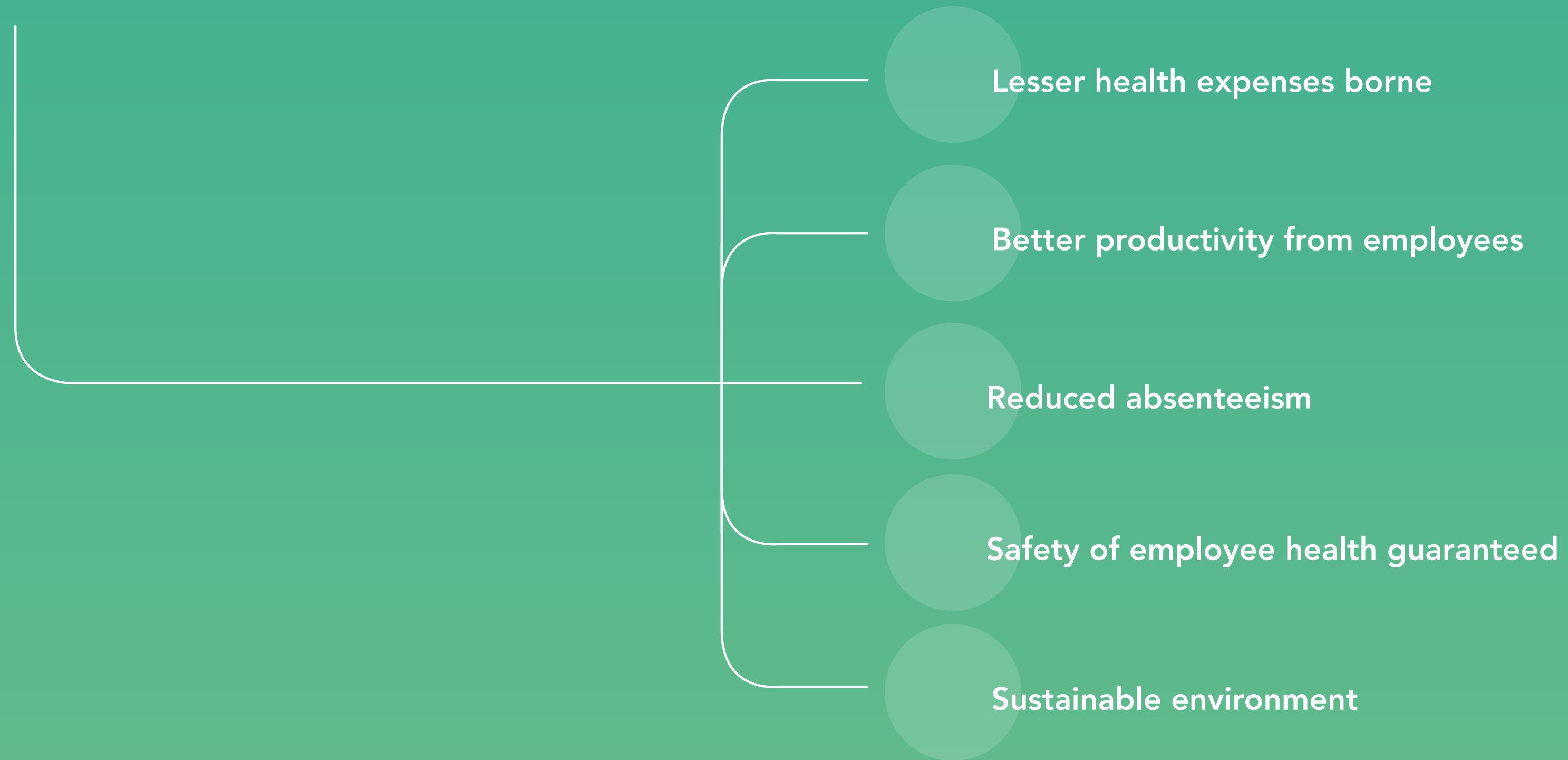
Rapidly Deteriorated Filters



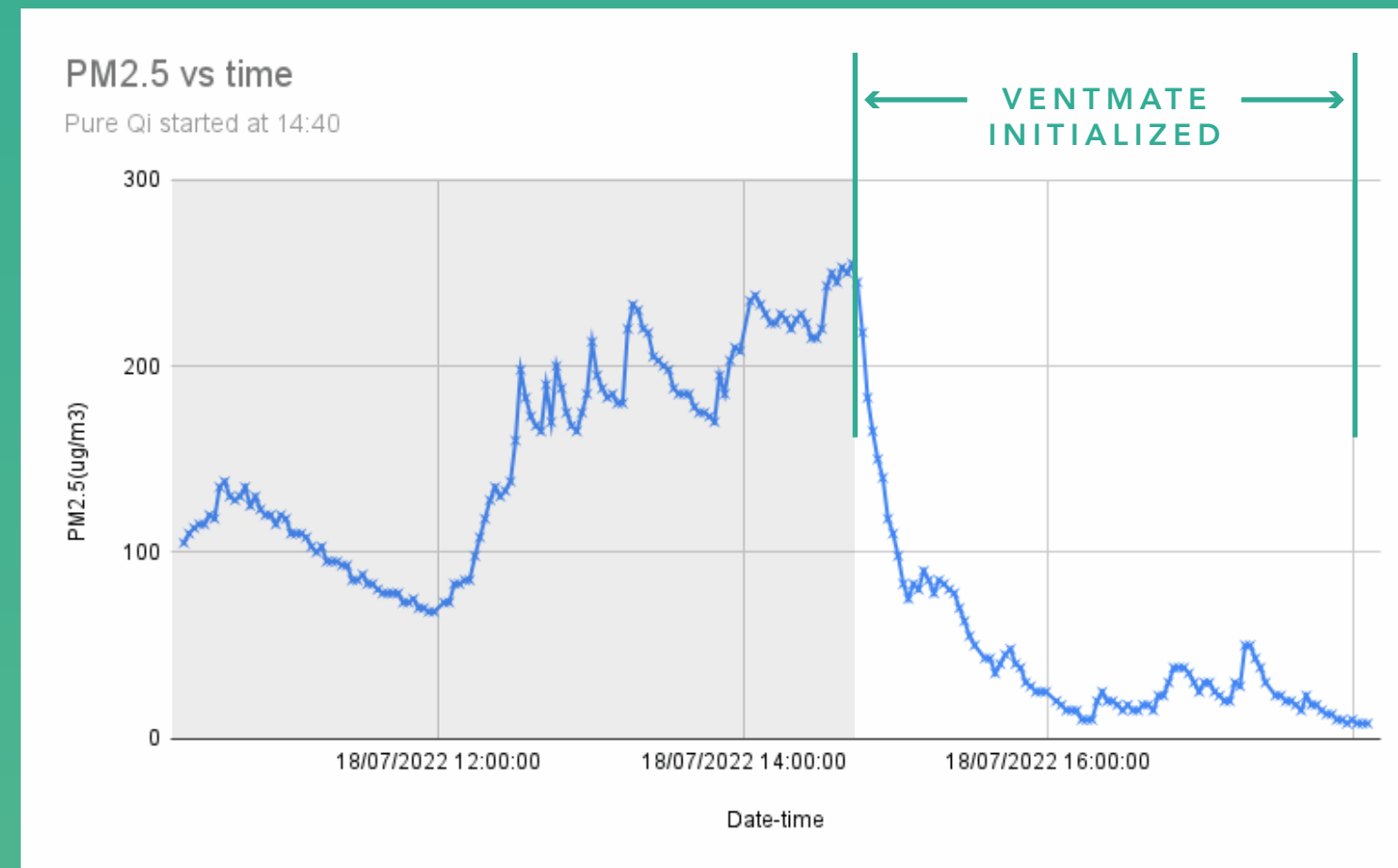
New vs Used Filters

With our own technology we were able to build the most efficient and effective indoor environment for our employees and there was no impact on occupancy thermal comfort, as compared to other office spaces in the area who are exposing their staff to unhealthy air.

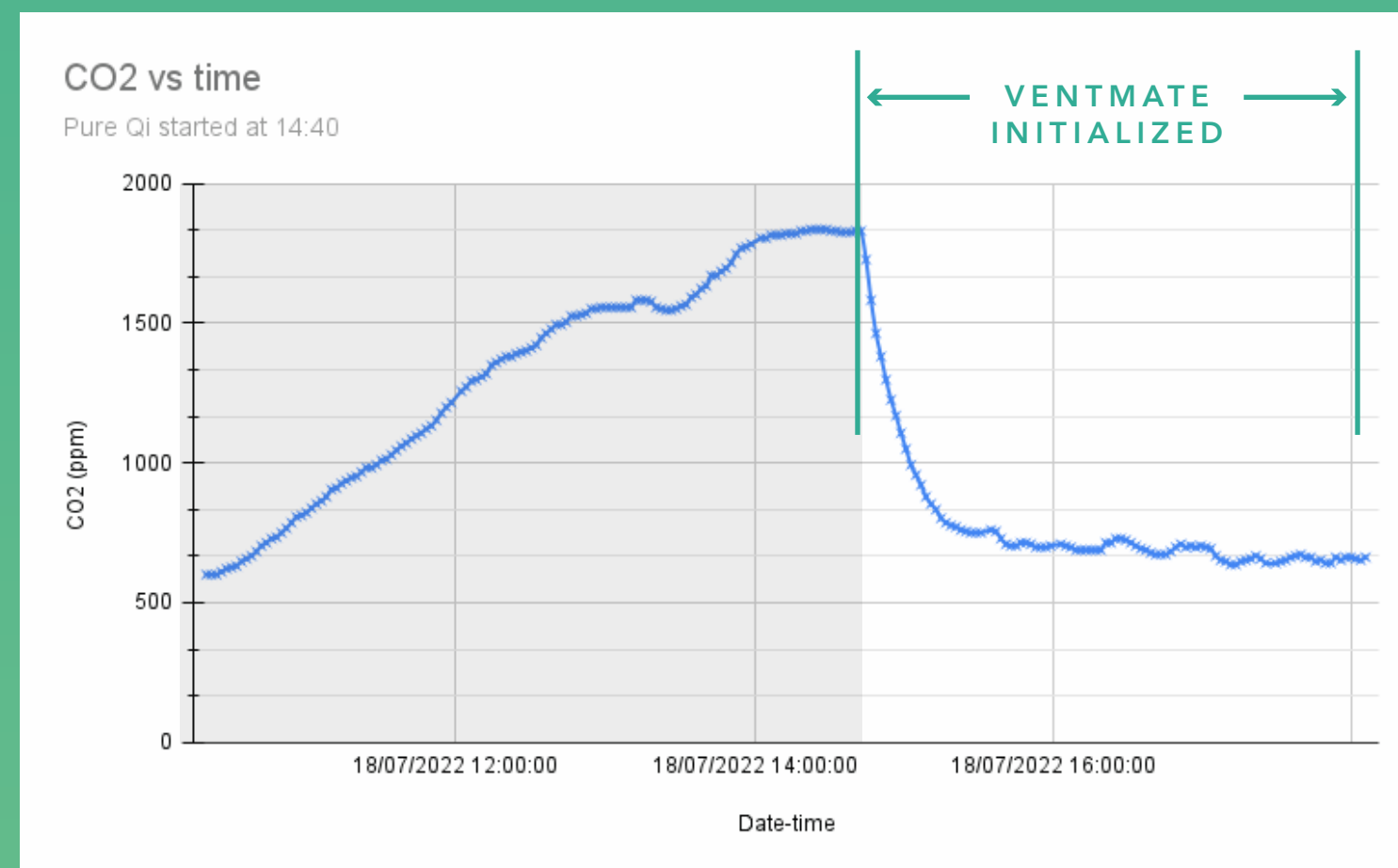
## QUALITATIVE



## QUANTITATIVE



PM2.5 levels of the room rising to 250, quickly drop when the **VentMate, automated mini DOAS** air filtration system is initialized.



CO<sub>2</sub> levels of the room touching 1800, steeply drops when the **VentMate, automated mini DOAS** air filtration system is switched on.

QUANTITATIVE

DAILY OCCUPANCY

77

PERSONS PER FLOOR

COST OF CLEAN AIR

₹6

PER PERSON PER DAY

PM2.5

5 ug/m<sup>3</sup>

EXCELLENT

PM10

20 ug/m<sup>3</sup>

EXCELLENT

CO<sub>2</sub>

506 ppm

EXCELLENT

TVOC

101 ppb

EXCELLENT

**GET IN TOUCH WITH OUR EXPERTS TO KNOW MORE**

**TALK TO US**

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