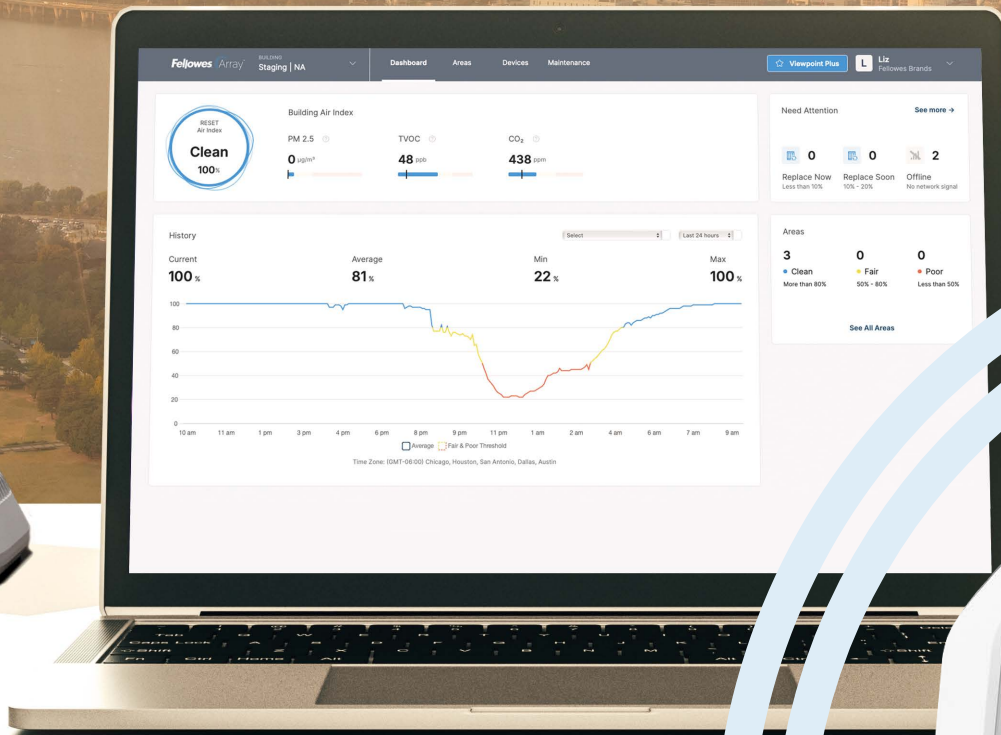


# Mitigating the Threats of Wildfire Smoke



**Fellowes**  
AIR QUALITY MANAGEMENT

# Wildfire Smoke is Affecting More Individuals Than Ever Before

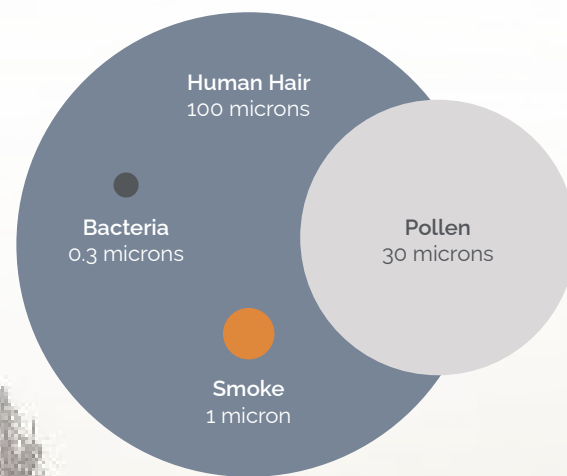
## Protect Your Indoor Air from Outside Influences

Wildfires wreak havoc not only through the devastation they cause on the ground but also through their harmful secondary effects on air quality. With wildfires expected to be some of the worst in recorded history, understanding what you need to consider to safeguard your indoor air quality has never been more important.

Wildfire smoke is a complex mixture of dangerous particles including sulfur dioxide, nitrogen dioxide, carbon monoxide, volatile organic compounds (VOCs), ozone, and fine particulate matter (PM2.5). PM2.5 is the most significant health risk, as each particle is so tiny that it can easily get through the body's usual defense mechanisms, penetrating deep into the lungs and causing serious physiological harm.

### How Small are Smoke Particles?

A strand of human hair is 100 microns while wildfire smoke particles average around 1 micron, about 25 times smaller than what we can physically see. Not only invisible to us, but incredibly difficult to exhale from our lungs.



### Impacts of Wildfire Smoke on the Human Body



#### Short-Term Effects

- Stinging eyes
- Irritated sinuses
- Wheezing
- Shortness of breath
- Headaches
- Itchy skin
- Coughing



#### Long-Term Effects

- Heart attack
- Stroke
- Lung cancer
- Decline in cognitive function

## Ensuring Healthy Indoor Air Quality During Wildfire Events

While ventilation is crucial for minimizing indoor respiratory pathogens, it can be counterproductive when outdoor air quality suffers due to wildfires. Standard HVAC systems generally do not account for poor outdoor air quality. This becomes especially challenging as wildfire smoke is expected to continue affecting vast regions of the United States and Canada. Even when HVAC systems are set to reduce the amount of outdoor air intake, outdoor air can still seep into indoor spaces through cracks in the building envelope.

Given this, a critical component of wildfire smoke mitigation is advanced filtration. A H13 True HEPA filter offers the most protection by removing 99.95% of airborne particles as small as 0.1 microns, including the most dangerous contaminants found in wildfire smoke such as PM2.5, Polycyclic Aromatic Hydrocarbons (PAHs), and VOCs.

Another essential element of maintaining healthy spaces during wildfire smoke events is having powerful localized air purification units that can work alongside existing HVAC systems. Even when the HVAC system is turned off to reduce the intake of outdoor air, these units can introduce additional air changes per hour to help reduce contaminants introduced by occupants. Furthermore, these units should be equipped with technology that can adapt to changes in occupancy density and environmental conditions to ensure efficient and effective air purification.

Real-time monitoring is also critical for maintaining healthy indoor air quality to identify when wildfire smoke is present. This monitoring provides building operators with insights so they can act if needed. Ideally, these insights should be available on an easy-to-use dashboard that can visualize data and provide precise air quality status.

Lastly, displaying the current indoor air quality (IAQ) of any space reassures occupants that the air they are breathing is safe and demonstrates the organization's commitment to ensuring a healthy indoor environment.

As a pioneer in indoor air purification, Fellowes' comprehensive range of air quality solutions features cutting-edge technologies and advanced filtration to create healthy spaces, even during wildfire events.

### Components of an Impactful Indoor Air Quality System

- H13 True HEPA Filtration
- Automatic Air Quality Monitoring
- Proactive Response to Changes in IAQ
- Increased Air Changes per Hour (ACH)
- Access to Real-Time Data



## Breakthrough Innovation for Protection Against Wildfire Smoke

### Fellowes Array™

Designed to address the very challenges that organizations are now facing with increased wildfire smoke, Fellowes Array™ is the most advanced networked air quality system. Array is a breakthrough solution that improves indoor air quality faster and more efficiently than ever before. Array uses its proprietary technology to combine the benefits of H13 True HEPA filtration, a full suite of indoor air quality sensors and monitoring with real-time data to monitor, track, and improve building-wide air. With Array, building managers have complete visibility into the air quality throughout their spaces, including where and to what extent wildfire smoke is degrading IAQ.

Array is the first system of its kind, where networked air purifiers and commercial HVAC work in complementary harmony throughout your entire space.

Our patented EnviroSmart+™ Technology continuously monitors the environment for changes in occupancy density and conditions of the space and automatically adjusts units to ramp up or down to address a change in contaminants. Array is also powerful enough to deliver an additional 3 to 5 eACH depending on room size, helping to resolve wildfire smoke quickly. Our thoughtful design pulls contaminants up and out of the breathing zone while simultaneously pushing clean air out throughout the room to improve ventilation effectiveness, delivering an increase in equivalent room air changes - reducing the stress on your HVAC system and your energy costs.

[Learn more at new.fellowes.com/ca/array](https://new.fellowes.com/ca/array)



H13 True HEPA filter provides robust protection against wildfire smoke, as well as particles as small as 0.1 microns including viruses, allergens, and germs.

### EnviroSmart+™

Every Array purifier is equipped with patented EnviroSmart+™ Technology, which uses advanced sensors to proactively and continuously monitor the environment for changes in air quality such as increased PM2.5 due to wildfire smoke concentration, occupancy, and conditions of the space, automatically adjusting units to quickly clean the air when needed. Array will then adjust the fan speed once the air is clean - saving energy and filter life.

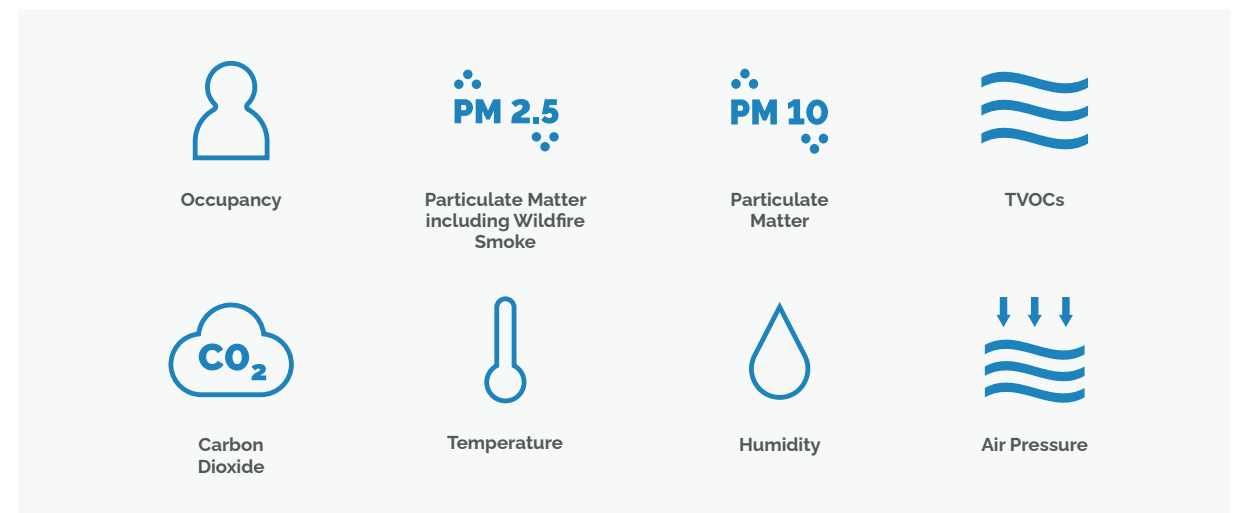


Seamless and scalable integration allows buildings to install Array units without extensive renovations or any connection to duct work. The range of units ensures there is a unit that can fit into any space and additional units can be added as your Indoor Air Quality strategy evolves.

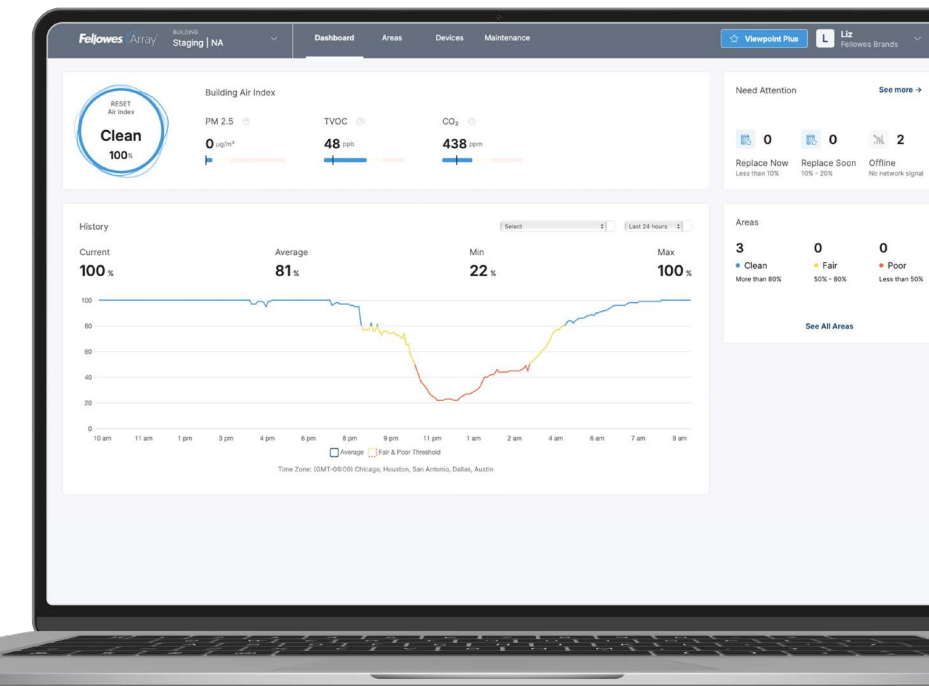
## Fellowes Array Viewpoint

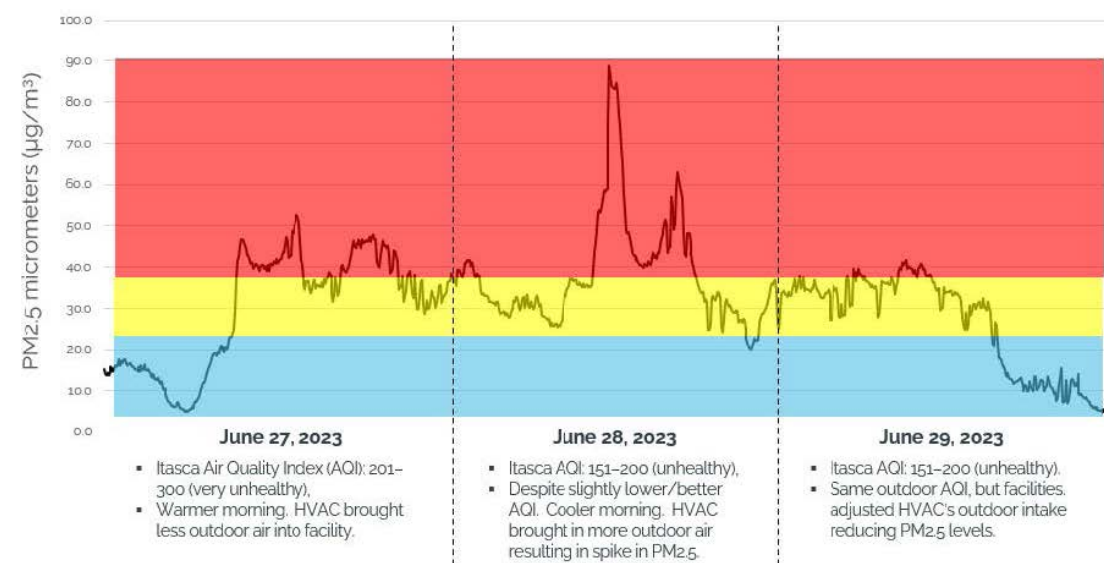
### Access Valuable Real-Time Insights

Designed with facilities and operations managers in mind, Viewpoint provides comprehensive air quality data for all of your connected spaces from an easy-to-use cloud-based dashboard, available with every Array device. Viewpoint allows decision makers to take control by scheduling maintenance needs, tracking air quality over time, and seeing how energy usage is correlated. Viewpoint is currently connected via LTE and continuously monitors and visualizes trends of the top 8 air quality factors:



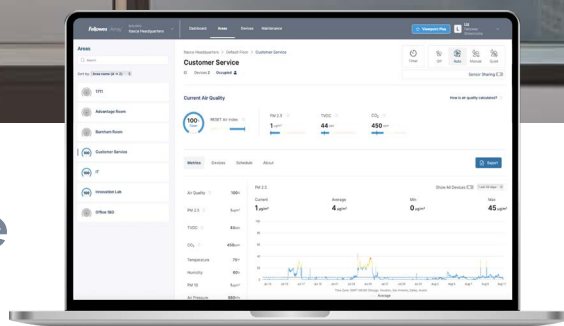
- Rapidly and accurately see a full picture of building-wide air quality with ability to access every area, regardless of your proximity within the space.
- Identify volume of smoke particulates and other contaminants within any space and how units are responding to mitigate those pollutants.
- Stay on top of filter life alerts to ensure affected areas are being efficiently remediated.
- Viewpoint's unique Community Dashboard allows owners to share real-time indoor air quality status to occupants, demonstrating that their wellbeing is actively being considered.





PM2.5 count in Customer Service area, Itasca, IL

- June 27, 2023**
  - Itasca Air Quality Index (AQI): 201-300 (very unhealthy).
  - Warmer morning. HVAC brought less outdoor air into facility.
- June 28, 2023**
  - Itasca AQI: 151-200 (unhealthy).
  - Despite slightly lower/better AQI. Cooler morning. HVAC brought in more outdoor air resulting in spike in PM2.5.
- June 29, 2023**
  - Itasca AQI: 151-200 (unhealthy).
  - Same outdoor AQI, but facilities adjusted HVAC's outdoor intake reducing PM2.5 levels.



## Taking Advantage of Real-Time Data During a Wildfire Event

When confronted with the influx of smoke from the Canadian wildfires during the summer of 2023, the offices of Fellowes displayed remarkable readiness thanks to their newly developed state-of-the-art Array networked air quality system and real-time data from Viewpoint.

Despite having a real-time-monitoring and remediation AQM system along with an updated HVAC system that included a dedicated outdoor air system to provide effective ventilation for even the most demanding applications, Fellowes noticed sustained higher levels of VOCs.

Using insights from their digital AQM system, Fellowes was able to quickly pinpoint the cause—their HVAC system was set to automatically pull

in more outdoor air on cooler summer mornings, inadvertently drawing in smoke-laden air at a rate that surpassed any air purification system's ability to remediate fast enough. Thanks to their digital monitoring system built into Array, Fellowes could identify the cause of the problem and reconfigure the HVAC system to account for this challenging air quality situation, allowing the one-two punch of HVAC and air purification to work together to improve IAQ. This example highlights Array's capability to not only improve human wellness related to air quality but empower businesses to have greater control over how their buildings are operating and optimized.

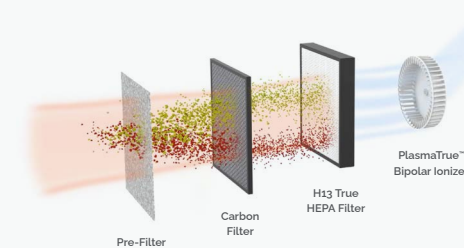
## Clean Air for Any Space

Fellowes' entire suite of air quality products has been proven effective in reducing the dangers of wildfire smoke. No matter the level of coverage or technology needed, you can protect your team's wellness from wildfire.



### AeraMax® Pro

AeraMax® Pro features H13 True HEPA filtration and advanced sensors to provide maximum localized protection from wildfire smoke and other airborne contaminants. A great collection of IAQ solutions when networked units is not desired.



4-stage H13 True HEPA filtration effectively removes at least 99.95% of particles as small as 0.1 microns, including wildfire smoke, allergens, pollen, dust, and pet dander



EnviroSmart™ Technology uses patented, self-regulating sensors to continuously monitor air quality, room occupancy, and noise levels to provide maximum protection, on demand



PureView™ Technology shows the percentage of particles captured and a live status of room air quality, for added peace of mind for building inhabitants



### Small Office Solutions

Fellowes AeraMax® air purifiers offer standalone, effective protection from wildfire smoke within smaller office environments.



3-stage filtration featuring True HEPA filter that captures up to 99.97% of particles as small as 0.3 microns, including wildfire smoke, allergens, pollen, dust, and pet dander



AeraSmart™ technology monitors the air quality and automatically adjusts the fan speed to keep air purified

Learn more at [fellowes.com/ca-air](https://fellowes.com/ca-air)

