

Interview with Cory Johnson: Wildfire Smoke, HVAC Systems, and County Facilities

After last year's wildfire smoke event, there is a new focus and urgency for maintaining healthy indoor air quality.

Cory Johnson is an Engineer Program Manager for Multnomah County Facilities and Property Management. The Engineer Program takes care of the HVAC and plumbing systems. We asked Cory a few questions about last year's wildfire smoke, the impact that had on County Facilities, and lessons learned for this year.

Give us an overview of Multnomah County Facilities.

Multnomah County has over 130 buildings totaling more than 3.5 million square feet. The type of buildings include office space, clinic space, childcare, shelters, jails, law enforcement, courthouses, animal shelter, garage, and storage space. These buildings are located throughout the County from Troutdale to West Portland. They range in size from 215 square feet single-story building to over 565,000 square feet 17-story building.

Tell us about last year's wildfire smoke intrusion event and the impacts that it had on your work.

Overseeing the HVAC system, with the wildfire smoke we wanted to close the outside air dampers and seal up the building as best as possible. But with the COVID-19 pandemic, the CDC and Oregon Health Authority were asking that the maximum amount of outside air be delivered into the buildings. The question we needed direction on was what is the greater hazard. As quickly as the wildfire smoke situation changed, when the direction was given to close up the buildings, the smoke was within the buildings.

The second issue was to train the occupants of the buildings that even though they were smelling smoke, the air filters were working. The challenge is that smoke can enter a building via the doors, windows, exhaust vents, elevator vents, and other building openings. With the magnitude of the wildfire smoke event we had, there was no way to stop smoke from getting into the building.

The final thing was the ability to find enough air filters to replace the ones getting full from the particulates. The clogged air filters were reducing the amount of air flow in the building and removing the haze in the buildings. But with everyone in the area needing air filters, they were in short supply. We focused on the location where people resided. These included the jails and shelters. We addressed the clinics next followed by all the office and admin buildings. When we received the air filters, we were able to address the jails and replaced 650 filters in one day. It took us nine days to replace an additional 1,200 filters.

What are the most significant lessons learned from the 2020 wildfire season that will change how County Facilities prepares for this year?

Funding was provided to have air filters in stock to be able to replace them. We are even looking at those filters to have carbon in them to help reduce the amount of smoke smell that would get in the building.

Another lesson learned was to provide more information regarding how Facilities and Property Management is responding to the event. This would include pre-written announcements with how buildings will be prioritized and the level of support. With the pandemic, some buildings had very limited occupancy, which lowered that location in priority.

What projects has County Facilities prioritized in preparation for the upcoming wildfire season?

At this time, the only prioritization is to purchase air filters to be able to replace air filters in the building more quickly. Again, we may look at them having carbon in the filters to help reduce the odor. The main goal is to help clean the air and reduce the amount of wear and tear on the HVAC system due to very clogged air filters.

Other preparations have been talked about but no decision has been made and funding has not been provided.

How have you become more prepared for the wildfire season in your personal life following last year?

To prioritize what I would want to take if I am required to evacuate. To prepare key documents so that they are easy to get to and carry. Pre-plan on what pictures and photos I want to take. I will try to get the photos scanned to become a digital copy. I do have an earthquake kit which I would use for any event.