How to prioritise health and safety during office reopenings





In today's session we'll cover

- Key IAQ benchmarks for organisations to aim for
- A demonstration of the relationship between occupancy levels and IAQ
- How to identify trends in your workplace
- Guidance on arming yourself with the necessary information to effect

change in your workplace's ventilation

• Insights into the further benefits of prioritising safe IAQ levels

Today's host



David Thomas OpenSensors



The three pillars of Environment & Indoor Air Quality

Increase fresh air



Minimises the risk of inhaling virus-laden aerosols when breathing

Maximise immune response



Gives individual bodies the best conditions to stave off infection

Minimise viral survivability



Reduces the amount of time a virus can survive and be transmitted



Added bonus: Improving cognitive ability with IAQ

"The study found that response times on the color-based test were slower as PM2.5 and CO2 levels increased. They also found that accuracy on the color-based test was affected by PM2.5 and CO2 levels. For the arithmetic-based test, the study found that increases in CO2 but not PM2.5 were associated with slower response times. As concentrations of both pollutants increased, however, participants completed fewer questions correctly in the allotted test time."

Office air quality may affect employees' cognition, productivity Harvard School of Public Health



Critical Indoor Air Quality benchmarks



The impact of occupancy on air quality



Avg seats occupied per hour over time

How to leverage occupancy data to improve air quality

Redistribute occupancy

Trends in peak occupancy throughout the week



Understand which floors and spaces are regularly busiest





How to leverage occupancy data to improve air quality

Redistribute occupancy

Understand which workplace assets are in highest demand



Departmental behaviours which lead to high occupancy





How to leverage occupancy data to improve air quality

Control how much fresh air is needed for each person



Provide 10 litres per
person, per second of
fresh air

Calculate required air changes per hour per person



- **rp =** ventilation rate per person = 10 litres per person, per sec
- **d =** occupant density = square metre per occupancy
- <mark>h =</mark> ceiling height (metres)



Control air change through ventilation systems

Calculate required volumetric flow rate of air



- **q =** volumetric flow rate (L/s)
- **v** = volume of space in cubic metres
- acph = air changes per hour per person





Gathering air quality & environmental data

Environmental Sensors monitors CO2, Temperature & Humidity







Dashboard





Our approach to gathering Indoor Air Quality

Understand how often workspaces or assets are being utilised

- Desks
- Focus rooms
- Meeting rooms

Encrypted data

Understand the changes in indoor air quality data throughout the day





. 0 20-479 9 40-50% Compare AD-80% ao-100% Rooms Environment Total TOS Compare workspaces and asset usage DeenSensors ion@open Seats by team P 01/02/2020-01/03/2020. M-E. 9am-7pm ava seat utilisation by tea By other-sub-team By all-sub-team By project-sub-tear By department By out the students as Search Compare Avo seat utilis

Monitor social distancing

ive View Analytics

Maintenance jon@opense

By ava utilisation ra



Thank you



David Thomas OpenSensors david.a@opensensors.com





