



Indoor Air Contamination Detection Decontamination Remediation Testing Protocol



Testing is the key component to find the optimum balance between achieving cleaner indoor air sustainably while not materially increasing the cost of energy and HVAC maintenance and supplies in the process.

On-site testing vs chamber testing is TransAct's preferred approach. A device's realistic capabilities can best be demonstrated in real time in a reference space. But, doing so comes with the increased challenge of external factors needing to be controlled.

Preliminary Step

Determine the device model/s, number thereof, placement, fan speed settings, etc., to do so the following needs to be considered:

- Conduct a risk assessment
- Document the businesses exposure scenarios
- Assure OSHA countermeasures (to be viewed only as a minimum)
- Apply additional hierarchy of controls
- Analyze the floor plan of the space/s to be tested
- Gauge number of people who will occupy said space; static or dynamic
- Document presence/positioning and state of HVAC, window/door ventilation access points, etc.
- Assess IAQ strategies based on the above.
- Determine positioning and sampling regime of the selected IAQ sensors
- Duration of the test

Testing Methodology

TransAct does not believe in a "one size fits all" approach to air quality testing. Instead, we tailor testing protocols to each client situation and condition.

IAQ units display data on an online dashboard, real time, 24/7, in easy-to-understand visual charts depicting the degree of contamination and contaminant characteristics which then will guide later remediation steps.

Standard IAQ monitor sensor options include:

- T/RH: Temperature/Relative Humidity
- CO₂: Carbon Dioxide
- TVOC: Total VOCs
- CO: Carbon Monoxide
- PM: Particulate matter, 0.3-1.0, 2.5, 10

These additional sensors are available in our testing protocol:

- Ozone
- Formaldehyde
- Ion levels
- Mold
- Energy levels (e.g. AHU energy consumption related to MERV13/HEPA filtration use)

One client interested in our remediation technology wanted additional sensors as they heard an unintended consequence of earlier generation PCO technology was the formation of ozone (from free radicals interacting with O₂) and formaldehyde (from incomplete decomposing of long chain VOCs). Another party had installed Bipolar Ionization technology in many building locations and was concerned about the unwanted generation of ozone and formaldehyde as possible byproducts of ionization. Ozone, formaldehyde and Ion detection sensors were deployed to definitely answer their questions. For more information, [Contact Us](#).

Broadly, our air quality testing protocol includes the following steps:

1. Following the **Preliminary Step** above.
2. Assess client's present toolbox of monitoring IAQ, if any.
3. Assess client's present toolbox of remediating contaminants/pathogens which might include ventilation, filtration, UV light, other remediation technologies. This sets the groundwork.
4. Help client define an air quality index specific to its needs.

5. Work closely with client to lay out a comprehensive and validated testing plan.
6. Work with IAQ monitor manufacturer/s to define which bundle of sensors best suits to monitor air quality in accord with client purpose. This often entails using different sensor bundles in different zones (i.e., cafeteria, board room, open office configurations, classrooms, dormitories, etc.).
7. In keeping with above, collaborate with client to understand sensor technology and nuances. Example, how to deduce a spike in VOC level between an individual with perfume entering the test environment (a low-level risk) versus the cleaning staff use of a product which off gases (high-level risk), or a massage therapist applying a linen cover on a customer might product a spike in PM levels from the dust particles that are released; whereas, CO₂ levels might spike with an increase in room occupancy. The point spikes are tracked and guides to determination and resolution via the dashboard in real time.
8. Help the client define their Air Quality Dashboard Index incorporating OSHA and EPA standards

Remediation

1. Based on findings during the above Indoor Air Quality testing phase, TransAct then recommends a starter package of remediation tools such as ... ventilation techniques, filtration, standalone air purification equipment, personal level purification equipment, induct HVAC purification equipment, etc. TransAct's toolbox in the area is robust. Remediation technology is appropriately configured for the environment based on using above IAQ testing results as the guide.
2. The remediation toolbox is implemented on a test basis and IAQ sensors activated again, with and without, activation of the remediation toolbox. The hypothesis is ... with activation will come reduction in the air contaminates encountered. If the hypothesis is proved out, toolbox is rolled out in a full Building Management System approach to Indoor Air quality management and subsequently managed 24/7 by the numbers by the client IAQ team.