

Environmental assessments must integrate a variety of environmental factors for a comprehensive understanding. While precise measurements play a crucial role, it's vital to acknowledge that results are limited to the parameters tested. For instance, if occupants feel unwell in a residence and the monitoring includes CO₂, formaldehyde, temperature, and humidity—commonly recognized in environmental monitoring—it might overlook carbon monoxide, which could be the real health threat.

Monitoring data forms the cornerstone of all environmental assessments, yet this alone might not suffice. Subtle insights from occupants about temporal and spatial nuances—such as the operation times of HVAC systems, pets, or the daily management of these systems—can shed light on underlying issues.

The interpretation of site-specific factors is key, yet the critical next step involves actual monitoring. This should ideally cover different areas and times, including both affected and unaffected zones, in both domestic and commercial settings. The challenge lies in making comparisons, whether across different times of day, days of the week, or between various areas.

For homes affected by building-related illnesses, a comprehensive set of measurements in both suspect and non-suspect areas would include temperature, specific humidity, particle counts, dew point, ventilation and AC system operation, and moisture mapping. Further investigations in suspect areas might involve sampling and analysis for various moulds, bacteria, chemicals, and gases.

There's a common misconception that objective sampling and analysis can easily be compared to published Maximum Exposure Levels (MELs). However, with over 100 million known chemicals and only about two thousand assessed for Threshold Limit Values (TLVs) and Occupational Exposure Levels (OELs), most chemicals remain unassessed. This gap highlights a significant challenge: many chemicals cannot be identified or measured for safety, and the introduction of two chemicals can lead to completely unknown synergistic effects. Moreover, most chemical exposure limits are established for occupational settings and may not apply to domestic environments.

This situation becomes even more complex when considering different environments, exposure durations, and the realization that Occupational Standards are designed for healthy employees working 8 hours a day, not for the sick, elderly, or young with compromised immune systems. In such cases, these standards may not be applicable.

The role of the Indoor Environmental Professional (IEP) becomes crucial as they compile data from both occupants and the environment, and possibly consult with medical professionals, to provide a risk and hazard assessment based on the available information. This multidisciplinary approach ensures a more accurate and holistic assessment of environmental health risks, underscoring the importance of considering a wide range of factors beyond just chemical exposure levels.

Building Forensics utilise robots, on site labs and a variety of specialist equipment and off site labs to provide a full assessment based on data. Limitations are possible to fit with budgets.