



Engineered Environments (IEQ) Pty Ltd

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AN INTRODUCTION TO INDOOR AIR QUALITY

What is Indoor Air Quality?

The quality of our environment is vital to the quality of our lives. This realisation drives our modern society to look for way of improving our environment and preventing anything that may adversely impact upon it.

In this same modern society, most of us spend perhaps 80% - 90% or even more of our time indoors. So the indoor environment is a critical part of our lives and the air indoors is a key part of that environment.

During the 1970s it was noticed that many people in air-conditioned buildings were complaining of a range of symptoms from runny nose and itchy eyes to headaches, lethargy, etc. Although the symptoms were unspecific, they tended to disappear when the individuals were away from the building for extended periods. This became known as "Sick Building Syndrome" and a common cause was identified as an accumulation of air pollutants.

The World Health Organisation defines a "sick building" as one in which at least 20% of the occupants experience adverse symptoms. They estimate that as many as 30% of new or refurbished buildings around the world are affected.

Why Test the Indoor Air Quality in Buildings?

There are many reasons to test and evaluate the indoor air quality (IAQ) in buildings. Obviously if there appears to be a problem and occupants are complaining, then testing and diagnosis will help to identify the nature and severity of the problem and help to solve it.

But what if there is no obvious problem? It makes sense to take steps to prevent any problem occurring in the first place. A properly conducted IAQ investigation can identify issues before they develop into serious problems.

Often, IAQ problems are not immediately apparent but may have an underlying influence on the health and well-being of people in the building.

Employers, building owners and managers are required by law to provide a safe environment for the occupants and visitors of a building. Ensuring good IAQ is a step to fulfilling this obligation.

An Outline of Testing Methods and Rationale

Comprehensive IAQ evaluations involve a range of tests and inspections designed to cost-effectively evaluate the indoor environment and locate the source of any problems or potential problems.

Indoor air quality investigations should include:

- Evaluation of the design, capabilities and performance of the air-conditioning and ventilation systems,
- Visual inspections of the air handling systems,
- Testing for air pollutants in the occupied areas,
- Assessment of ventilation effectiveness.

A properly conducted IAQ investigation involves more than just measuring a few components in the air. An understanding of the building's air handling systems forms an integral part of diagnosing possible problems and providing solutions.

Visual inspections of the air handling systems include the air handling units themselves, the air filters and sections of the ducts.

Air testing is also important both to quantify any air pollutants and to determine whether the air handling systems are performing properly.

Common indoor pollutants include dust (fine particulate), airborne micro-organisms, carbon monoxide, formaldehyde and volatile organic compounds.

Carbon dioxide is used as a surrogate indicator of ventilation effectiveness. Temperature and humidity should remain within defined ranges if the air-conditioning systems are dealing satisfactorily with the demands placed on them.

An Introduction to Engineered Environments (IEQ) Pty Ltd

Engineered Environments (IEQ) Pty Ltd specialises in testing and improving the indoor environment. Comprehensive indoor air quality analysis and early detection of potential problems are key areas of expertise.

Led by one of Australia's foremost experts on the indoor environment and indoor air quality, we provide the highest standards of testing and advice. In those cases where problems are identified, EE(IEQ) can assist in mitigation and improvements.

Using an integrated approach and providing support, co-ordination and advice through every step of the process, EE(IEQ) aims to assist customers achieve the most appropriate, effective, economical and safe improvements to the indoor environment. This is achieved through a program of testing and monitoring, diagnosis, remediation and improvement, then quantification of results.

With the assistance of our associate company, Engineered Environments Pty Ltd, we can provide mechanical design services and project management.

The customer's individual needs are carefully considered in developing the assessment and improvement plans for each building.

EE(IEQ) provides all you need to create a quality indoor environment that satisfies the needs of the people who inhabit it.