BLACKBIRD FOR TRAINING

Indoor Air Quality Auditor for Green Compliance Certification

4 – 8 April 2027
Cairo (Egypt)



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Introduction

Indoor Air Quality IAQ is a critical component of healthy, sustainable, and high-performing buildings. Poor indoor air quality can affect occupant health, comfort, productivity, and overall building performance. Effective IAQ auditing enables organizations to identify potential pollutants, assess ventilation effectiveness, monitor environmental conditions, and implement practical measures to improve indoor air quality.

This course provides participants with a structured and practical approach to conducting Indoor Air Quality audits across different types of buildings. It covers ventilation measurement, sampling strategies, indoor air pollutants, moisture and mold, and healthcare airflow considerations where applicable.

Participants will learn how to assess ventilation performance, develop appropriate sampling strategies, identify potential sources of indoor pollutants, collect and interpret IAQ measurements, and evaluate temperature and relative humidity conditions.

The course also introduces the principal instruments and equipment used during IAQ assessments, including calibrated particulate matter monitors, NDIR CO_2 monitors, electrochemical CO/NO_2 instruments, formaldehyde/VOC sampling equipment, temperature/RH loggers, airflow hoods, and pressure meters. Through practical exercises, demonstrations, case studies, and audit simulations, participants will develop the skills required to perform effective indoor air quality audits and prepare practical improvement recommendations.

Course Objectives

By the end of this course, participants will be able to:



- Understand the fundamentals of Indoor Air Quality and its importance in green building compliance.
- Apply structured methodologies for conducting Indoor Air Quality audits.
- Assess ventilation performance and airflow conditions in buildings.
- Develop appropriate IAQ sampling strategies.
- Identify common indoor air pollutants and their potential sources.
- Understand the health and comfort implications of poor indoor air quality.
- Assess particulate matter and carbon dioxide concentrations.
- Understand the measurement of carbon monoxide and nitrogen dioxide.
- Assess formaldehyde and volatile organic compounds VOCs.
- Evaluate temperature and relative humidity conditions.
- Identify moisture problems and conditions that may contribute to mold growth.
- Understand healthcare airflow considerations where applicable.
- Apply appropriate IAQ measurement and monitoring techniques.
- Use calibrated PM monitors and NDIR CO_2 monitors.
- Apply electrochemical CO/NO_2 instruments and other pollutant measurement equipment.
- Use formaldehyde/VOC sampling equipment appropriately.
- Apply temperature/RH loggers, airflow hoods, and pressure meters.
- Interpret IAQ measurement results and identify potential problem areas.
- Develop practical recommendations for improving indoor air quality.
- Prepare professional Indoor Air Quality audit reports supporting green compliance.

Course Outlines

Day 1: Indoor Air Quality Auditing Fundamentals and Green Compliance

- Fundamentals of Indoor Air Quality.
- The role of IAQ in green building compliance.
- Relationship between IAQ, occupant health, comfort, and productivity.
- Common indoor air quality problems in buildings.
- Major categories of indoor air pollutants.
- Sources of indoor pollutants.
- Types and levels of IAQ audits.
- Objectives, scope, and methodology of an IAQ audit.
- Key stages of an Indoor Air Quality assessment.
- Building walkthrough and preliminary IAQ assessment.
- Identifying potential pollutant sources.
- IAQ baseline development and performance indicators.
- Introduction to IAQ monitoring and measurement.
- Health, comfort, and environmental considerations.
- Case study: Initial Indoor Air Quality assessment of a building.



Day 2: Ventilation Measurement and IAQ Sampling Strategy

- Fundamentals of building ventilation.
- Natural and mechanical ventilation systems.
- Ventilation rates and airflow requirements.
- Assessing ventilation effectiveness.
- Air distribution and airflow patterns.
- Airflow measurement techniques.
- Airflow hoods and their applications.
- Pressure measurement and pressure relationships between spaces.
- Developing an Indoor Air Quality sampling strategy.
- Selection of sampling locations.
- Sampling frequency and duration.
- Representative versus targeted sampling.
- Occupancy and operating conditions during sampling.
- Data quality and measurement reliability.
- Practical exercise: Developing an IAQ sampling and ventilation assessment plan.

Day 3: Indoor Pollutants, Measurement Instruments and Data Analysis

- Particulate matter and indoor particle sources.
- PM measurement principles and monitoring.
- Calibrated particulate matter monitors.
- Carbon dioxide as an indicator of ventilation performance.
- NDIR CO_2 monitors and their applications.
- Carbon monoxide and nitrogen dioxide.
- Electrochemical CO/NO_2 measurement instruments.
- Formaldehyde and volatile organic compounds VOCs.
- Formaldehyde/VOC sampling equipment and procedures.
- Instrument selection, calibration, and field verification.
- Measurement accuracy and quality control.
- Recording and documenting IAQ measurements.
- Interpretation of pollutant concentration data.
- Identifying abnormal or elevated pollutant levels.
- Practical exercise: Conducting and analyzing an indoor air quality measurement survey.



Day 4: Moisture, Mold, Environmental Conditions and Healthcare Airflow

- Fundamentals of moisture management in buildings.
- Temperature and relative humidity relationships.
- Temperature/RH loggers and monitoring techniques.
- Identifying excessive humidity and moisture conditions.
- Sources of moisture intrusion and condensation.
- Conditions contributing to mold growth.
- Recognizing visible and potential mold-related issues.
- Relationship between moisture and indoor air quality.
- Preventive measures for moisture and mold.
- Introduction to healthcare ventilation and airflow requirements.
- Pressure relationships in healthcare environments.
- Airflow direction and contamination control.
- Healthcare airflow considerations where applicable.
- Pressure meters and airflow assessment.
- Case study: Assessment of moisture, mold, and airflow conditions.

Day 5: IAQ Improvement Strategies and Audit Reporting

- Identifying Indoor Air Quality improvement opportunities.
- Improving ventilation effectiveness.
- Source control and pollutant reduction strategies.
- Filtration and air cleaning considerations.
- Managing particulate matter and gaseous pollutants.
- Moisture and mold prevention strategies.
- Optimizing temperature and relative humidity.
- Improving airflow and pressure relationships.
- Developing practical IAQ corrective actions.
- Prioritizing improvement measures based on risk and impact.
- Evaluating potential health, comfort, and operational benefits.
- Preparing a professional Indoor Air Quality audit report.
- Presenting audit findings to management and stakeholders.
- Developing an IAQ improvement implementation roadmap.
- Supporting green compliance through effective IAQ management.
- Final case study: Complete Indoor Air Quality audit of a building.



Why Attend this Course: Wins & Losses!

- Develop practical skills for conducting Indoor Air Quality audits.
- Understand the relationship between IAQ, occupant well-being, and green compliance.
- Learn how to assess ventilation performance and airflow conditions.
- Develop effective IAQ sampling strategies.
- Identify common indoor pollutants and their sources.
- Gain practical knowledge of IAQ measurement instruments.
- Learn how to use calibrated PM and NDIR CO_2 monitors.
- Understand the application of electrochemical CO/NO_2 instruments.
- Learn appropriate approaches to formaldehyde and VOC sampling.
- Assess temperature and relative humidity conditions.
- Identify moisture and mold risks affecting indoor air quality.
- Understand healthcare airflow considerations where applicable.
- Improve the ability to interpret IAQ measurement data.
- Develop practical recommendations for improving indoor air quality.
- Improve IAQ audit reporting and support green building compliance.



Frequently Asked Questions

1. **Who should attend this course?**
   - Facility and building managers, HVAC professionals, mechanical engineers, HSE and environmental professionals, sustainability specialists, IAQ consultants, maintenance and operations personnel, healthcare facility professionals, green building specialists, and professionals responsible for building performance and compliance.
2. **Is previous experience in Indoor Air Quality auditing required?**
   - Previous experience is beneficial but not mandatory. The course provides a structured introduction to IAQ auditing, ventilation assessment, sampling, measurement instruments, data analysis, and reporting.
3. **Does the course cover ventilation measurement?**
   - Yes. It covers ventilation fundamentals, airflow assessment, ventilation effectiveness, airflow measurement, airflow hoods, pressure measurement, and the development of ventilation assessment strategies.
4. **Will participants learn how to use IAQ measurement instruments?**
   - Yes. Participants are introduced to calibrated PM monitors, NDIR CO_2 monitors, electrochemical CO/NO_2 instruments, formaldehyde/VOC sampling equipment, temperature/RH loggers, airflow hoods, and pressure meters.
5. **Does the course cover moisture, mold, and healthcare airflow?**
   - Yes. The course covers moisture and humidity conditions, factors contributing to mold growth, moisture prevention, and healthcare airflow considerations where applicable.
6. **Can this course be customized for a specific organization?**
   - Yes. It can be customized according to building type, HVAC and ventilation systems, IAQ concerns, regulatory requirements, healthcare applications, sustainability objectives, and green compliance requirements. It can also be delivered in-house.

Conclusion

Effective Indoor Air Quality management begins with systematic assessment, appropriate sampling, accurate measurement, and reliable interpretation of environmental conditions. A structured IAQ audit enables organizations to identify pollutant sources, assess ventilation performance, detect moisture-related risks, and implement practical corrective measures.

This course provides participants with a practical framework for assessing ventilation, indoor pollutants, sampling strategies, temperature and relative humidity, moisture and mold, and healthcare airflow considerations. It also develops practical skills in using key IAQ measurement and monitoring instruments.



By combining IAQ auditing methodologies, ventilation measurements, pollutant monitoring, environmental assessment, data analysis, and improvement strategies, the course enables participants to develop actionable recommendations that support healthier buildings, occupant comfort, operational performance, sustainability, and green compliance.

