

Certified Testing Services
 Indoor Air Quality (IAQ), Particulate Matter (PM)
 Mold, Asbestos, Carbon Dioxide (CO²),
 Hydrogen Sulfide (H²S), Carbon Monoxide (CO),
 Radon, Radiation, EMF (electric magnetic field)
 Remediation & Mitigation Consultation
Commercial and Residential



EPA -Environmental
 Protection Agency
 Radon Protocol
 EPA IAQ



Health Canada
 Radon - IAQ
 Its Your Health



NEHA
 National Environmental
 Health Association
 NRPP
 National Radon
 Proficiency Program



WHO
 IRP-International
 Radon Project
 WHO International
 EMF Project
 IAQ Guidelines



iEHO IAQ Standards and Guidelines

iEHO Certified Document

1 - IAQ Standards for Certification:

- 1) Mold (Airborne Spore Count per Cubic Meter (asc/m³): “not elevated” condition and 900 or less, or “not elevated” condition and 900 < less than baseline to a maximum of 2500 asc/m³.)
- 2) Particulate Matter (PM):
 - (a) Dylol preferred measurement (Total Particles > 0.5 microns including PM 2.5 and PM 10 particles per cubic foot (p/ft³) of air): less than 100,000;
 - (b) Substitute measurements (non Dylol instrument in micrograms (µg/m³)): PM 2.5 = 9 µg/m³ or less, and PM 10 = 9 µg/m³ or less.
- 3) Carbon Monoxide (CO - ppm): less than < 1.
- 4) Carbon Dioxide (CO² - ppm): 950 or less.
- 5) Hydrogen Sulfide (H²S - ppm (common component in sewer gas): less than < 1.
- 6) Combustible Gas: Should be not detectable, or less than < 0.5% LEL.
- 7) Total Volatile Organic Compounds (tVOC - ppm): less than < 1.
- 8) Formaldehyde (HCHO/CH₂O - ppm): less than < 1.
- 9) Asbestos Particulate:
 - (a) AOC (Air-O-Cell cassette sample media): not detectable in air samples;
 - (b) TEM (transmission electron microscopy cassette sample media): limit 0.1 f/cm³ (fibres/cm³).
- 10) Radon Gas (Rn222) (picoCurie per litre (pCi/L) of air): less than < 7.
- 11) Electric Magnetic Field (EMF, MF, EF), Electro Magnetic Radiation (EMR):
 - (a) Magnetic Field 5hz - 100khz: less than < 10mG (milliGauss);
 - (b) RF(radio frequency) Electric Field 100khz - 3ghz: less than < 0.03kV/m(kiloVolts per meter).
- 12) Background Radiation (mR/hr (mRem)): less than < 0.8.

Reference:

ppm = parts per million;

mR/hr = milliRoentgen per hour; mRem = milliRem; Rem = Roentgen Equivalent Man or mammal.

2 - Perspective and Context of iEHO Standards:

- 1) These Standards and Guidelines have been developed from field testing for a period of 8 years. Accordingly, they are based on best practical field applications.
- 2) The Standards are established and revised by iEHO based on most current and best known research and information.
- 3) These Standards are effected to support iEHO certifications, which specifically and only certify that the standards have been met or exceeded.

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3 - iEHO Certification Program Levels for Property:

iEHO focuses on the constituents that most commonly contribute to poor indoor air quality (IAQ) and unhealthy indoor environments...

iEHO Certification provides assurance that standards for certain levels and limits are met or exceeded.

1) **Basic iEHO Certification** requires indoor testing for Mold, Particulate Matter (PM), Carbon Dioxide (CO²), Hydrogen Sulfide (H²S, component in sewer gas), Carbon Monoxide (CO), combustible gas, temperature, relative humidity (RH%).
iEHO Standard levels and limits must be met or exceeded.



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2) **Plus+ Certification** requires “Basic iEHO Certification” plus additional indoor testing for Total Volatile Organic Compounds (tVOC), Formaldehyde (HCHO/CH₂O), Asbestos particulate.
iEHO Standard levels and limits must be met or exceeded.

3) **R Certification** requires indoor testing for for Radon Gas (Rn222), Background Radiation (mR/hr (mRem)), Electric Magnetic Field (EMF).
This is a standalone Certification that may be completed separately.
iEHO Standard levels and limits must be met or exceeded.



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4) **R+ Certification** includes “R Certification”, and “Plus+ Certification”.

5) **OPC Certification** requires indoor testing for Carbon Dioxide (CO²), Particulate Matter (PM), Total Volatile Organic Compounds (tVOC), Formaldehyde (HCHO/CH₂O), Hydrogen Sulfide (H²S, component in sewer gas), Carbon Monoxide (CO), combustible gas, temperature, relative humidity (RH%).
iEHO Standard levels and limits must be met or exceeded.

OPC Certification is for **occupied and post construction** commercial building space.
iEHO OPC certification is a more effective substitution for the LEED iaq specification, especially for non LEED projects.



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6) **Expiration** of iEHO Certifications:

There is no assigned “expiration” date for iEHO Certifications. Therefore technically, iEHO Certifications never really expire, they just naturally age. Which means, the older a certification becomes, the less valuable it is.

Accordingly, iEHO recommends retesting and recertification after 24 months.



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Examples of Professional Instrumentation and Test Equipment Required:

- (a) For testing - **Mold** (Airborne Spore Count per Cubic Meter (asc/m³):
Required - collection media Zefon Air-O-Cell;
Recommended - Zefon Z-lite IAQ Linear Sampling Pump (long life, reliable).
- (b) For testing - **Particulate Matter** (PM):
Recommended - Dylos DC1100 Pro Laser Particle Counter (very reliable accuracy).
- (c) For testing - **Carbon Monoxide** (CO - ppm):
Recommended or similar - Extech CO10 Carbon Monoxide (CO) Meter (reliable).
- (d) For testing - **Carbon Dioxide** (CO² - ppm):
Recommended or similar - Extech CO240 Measures CO², Temperature, Humidity (NDIR sensor, reliable).
- (e) For testing - **Hydrogen Sulfide** (H²S - ppm):
Recommended or similar - BW GasAlertMax XT II Multi Gas Detector (reliable).
- (f) For testing - **Combustible Gas** (% LEL):
Recommended or similar - BW GasAlertMax XT II Multi Gas Detector (reliable).
- (g) For testing - **Total Volatile Organic Compounds** (tVOC - ppm):
Recommended - Extech VFM200 VOC/Formaldehyde (CH₂O/HCHO) (unique combo meter, reliable).
- (h) For testing - **Formaldehyde** (HCHO/CH₂O - ppm):
Recommended - Extech VFM200 VOC/Formaldehyde (CH₂O/HCHO) (unique combo meter, reliable).
- (i) For testing - **Asbestos Particulate:**
 (i-1) **AOC** (Air-O-Cell method): not detectable in air samples:
Required - collection media Zefon Air-O-Cell;
Recommended - Zefon Z-lite IAQ Linear Sampling Pump (long life, reliable).
 (i-2) **TEM** (transmission electron microscopy method): limit 0.1 f/cm³ (fibres/cm³):
Required - collection media Zefon 25mm Asbestos TEM;
Recommended - Zefon Z-lite IAQ Linear Sampling Pump (long life, reliable).
- (j) For testing - **Radon Gas** (Rn222) (pCi/L) of air):
Recommended or similar - ProLab LS or AccuStar CLS-100 liquid scintillation vials (reliable accuracy).
- (k) For testing - **Electric Magnetic Field (EMF, MF, EF), Electro Magnetic Radiation (EMR):**
All Recommended - (reliable accuracy)
 (k-1) For testing - **Magnetic Field 5hz-100khz:** (mG): Trifield Broadband Meter Extended Range (ER).
 (k-2) For testing - **RF(radio frequency) Electric Field 100khz-2.5ghz** (kV/m): Trifield Broadband Meter ER
- (l) For testing - **Background Radiation** (mR/hr (mRem)): Recommended or similar - SEI M4 or SEI Ranger.