



Healthy Schools Index

Environmental safeguard for your school & childcare centre



TOGETHER WE CREATE SOLUTIONS THAT SHAPE THE FUTURE



“Children are especially harmed by air pollution for both environmental and biological reasons. Children breathe more air per unit body weight and, therefore, inhale more airborne toxicants than adults exposed to the same amount of air pollution...”

Chest (American College of Chest Physicians) 2019, Air Pollution and Noncommunicable Diseases
A Review by the Forum of International Respiratory Societies' Environmental Committee
Part 1: The Damaging Effect of Air Pollution, Vol 155 Issue 2, Feb

Environmental safeguard for your school

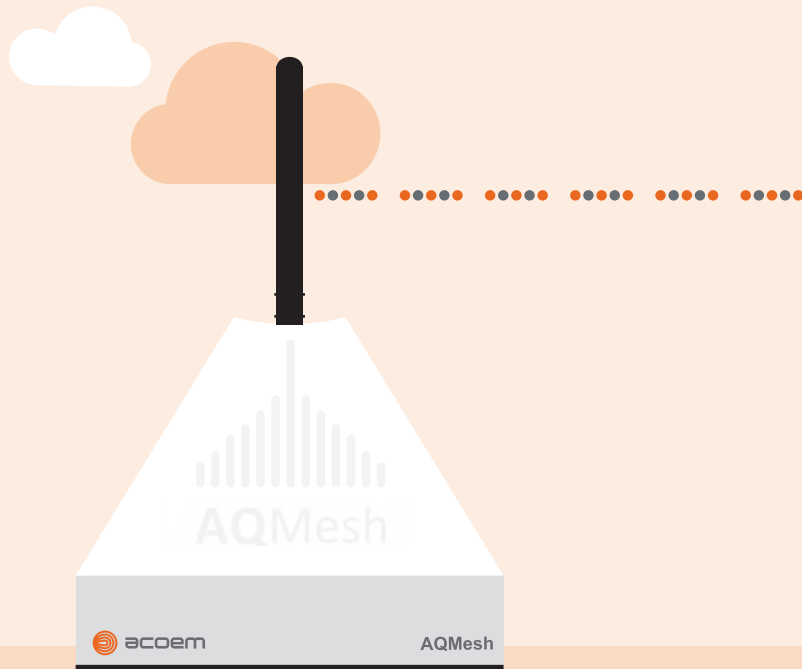
ACOEM Healthy Schools Index (HSI) is an easy-to-use application (app) that gives you immediate access to precise data about environmental conditions in and around your school via any connected device (computer, tablet or smartphone).

ACOEM HSI uses hyperlocal AQMesh™ sensor technology supported by GATOR™ software to report accurate, real-time information about both air and noise quality.

It measures five essential pollution parameters in a single app to determine overall environmental health:

- Nitrogen Dioxide (NO₂)
- Ozone (O₃)
- Particulate Matter 2.5 (PM_{2.5})
- Particulate Matter 10 (PM₁₀)
- Noise





HOW DOES THE ACOEM HEALTHY SCHOOLS INDEX WORK?

AQMesh™ environmental monitoring pods are a sensor-based instrument specifically designed to measure hyperlocal environmental trends in real time.

ACOEM will install one or more AQMesh™ pods on your school grounds or childcare centre. The units are relatively small and unobtrusive, and can be mounted in various locations to suit your individual needs.

You can add, subtract, or relocate individual AQMesh pods when and where required giving you greater monitoring flexibility and scalability.

Data from the AQMesh™ pods is captured wirelessly and processed using specialised GATOR™ software. The data is then analysed and presented accurately in an internet browser window on your desktop, smartphone or other mobile device.

Even small variations in air quality and/or noise levels can be easily identified.

WHY YOUR SCHOOL NEEDS THE HEALTHY SCHOOLS INDEX

Every child deserves to feel safe and healthy at school. Parents and caregivers want to be reassured that their child is protected against environmental conditions that could potentially threaten their health and safety.

While typical environmental scales separate air and noise pollution, the ACOEM Healthy Schools Index combines them to create one easy-to-understand index that ranges from 0 to 100+.

ACOEM Healthy Schools Index is a single, easy to use application that gives you a wide range of environmental information in one place and allows you to fulfill your duty of care and make critical decisions regarding your school and students quickly and efficiently.

It can also help you define and develop your school's policies regarding children's exposure to acceptable pollution levels in much the same way as you currently have wet weather or excessive temperature guidelines.

Used correctly, the ACOEM Healthy Schools Index is an accurate, simple and effective solution that provides peace of mind for both the educators and parents.

Our five pollution parameters

ACOEM Healthy Schools Index (HSI) measures five pollution parameters to determine environmental health:

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| Nitrogen Dioxide (NO₂) | Nitrogen Dioxide is a common pollutant usually formed by burning fossil fuels, including coal, oil and gas. Breathing air with a high concentration of NO ₂ can irritate the human respiratory system. |
| Ozone (O₃) | Ozone at ground level is a harmful air pollutant. It is formed when pollutants emitted by cars, power plants, refineries, chemical plants and other sources react chemically in the presence of sunlight. When inhaled, ozone can damage the lungs. Relatively low amounts of ozone can cause chest pain, coughing, shortness of breath and throat irritation. |
| Particulate Matter 2.5 (PM_{2.5}) | PM _{2.5} are fine particles from vehicle exhausts or burning of fuels. They reduce visibility, can travel into the respiratory tract to the lungs, and may cause eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath. Exposure can also worsen medical conditions like asthma and heart disease. People with breathing and heart problems, children and the elderly may be particularly sensitive to PM _{2.5} . |
| Particulate Matter 10 (PM₁₀) | PM ₁₀ is a combination of both fine and coarse particles and includes all particles up to 10 micrometres (µm) in diameter. Sources include those for PM _{2.5} , crushing or grinding operations and dust stirred up by vehicles on roads. Exposure leads to respiratory symptoms, especially coughing. Long-term exposure has been associated with increased mortality rates. |
| Noise | Environmental noise is a product of transport or industrial activity on land, in the air and on waterways. It is a harmful pollutant that directly affects the health and well-being of people and wildlife. Exposure to high noise levels can cause stress, sleep changes and symptoms like hypertension and cardiovascular disease. Noise levels above 40 decibels (dB) can lead to negative health impacts and prolonged exposure has been linked to premature mortality. |

“Noise can pose a serious threat to a child’s physical and psychological health, including learning and behaviour. It can interfere with speech and language, impair learning and impair hearing.”

Environmental Protection Agency USA 2015, Noise and its effect on children, July



Understanding your HSI scores

Identifying the immediate and most dangerous pollution parameter is always going to be critical so the ACOEM Healthy Schools Index purposefully does not combine environmental data to create an average environmental score. Instead the HSI score is an absolute value.

If any one of the five pollution parameters has a high reading, it will automatically change the current HSI score and colour to match, alerting you of the potential hazard. This ensures faster threat identification so appropriate action can be taken to protect the health of students, staff and visitors.

VERY LOW

ACTION RECOMMENDED:

- **No action required**
- **All outdoor areas are safe**

Minimal levels of air/noise pollutants currently in the area. Environmental conditions in and around your school are considered very good and healthy.

LOW

ACTION RECOMMENDED:

- **No immediate action required**
- **However, prolonged exposure may have a future impact on health**

Low levels of air and/or noise pollutants currently in the area. Environmental conditions in and around your school are considered moderate and acceptable within a standard range according to the authorities.

MEDIUM

ACTION RECOMMENDED:

- **Staff and students with sensitivities to noise and/or air pollution should remain indoors with air conditioning systems operating that do not circulate outdoor air**
- **Avoid prolonged outdoor exposure for all students and staff**

Medium levels of air and/or noise pollutants currently in the area. Environmental conditions in and around your school are considered unhealthy for sensitive groups including the very young, the very old and those with hearing, lung or respiratory conditions.

HIGH

ACTION RECOMMENDED:

- **Staff and students should remain indoors with air conditioning systems operating that do not circulate outdoor air**

High levels of air and/or noise pollutants currently in the area. Environmental conditions in and around your school are considered unhealthy for all people and wildlife.

VERY HIGH

ACTION RECOMMENDED:

- **Evacuate all staff and students in the quickest, safest way possible**
- **Move people to a safer environment**

Air and/or noise quality at the school is hazardous.

“There is a 14% increase in childhood asthma risk for every 2µg/m³ incremental increase in chronic exposure to traffic related particulate matter.”

Bowatte et al 2015, European Journal of Allergy and Clinical Immunology, The influence of childhood traffic-related air pollution exposure on asthma, allergy and sensitization

HOW ACCURATE IS THE DATA?

AQMesh™ is the tried and tested name in small sensor technology for commercial use, with thousands of hours of real-world trials and placements in 30+ countries. No other commercially available small sensor system demonstrates better accuracy.*

Pollution levels can vary greatly over short distances – even 50 metres can make a big difference to data accuracy.

When it comes to detecting potentially hazardous air and noise pollution levels, having one or more AQMesh™ pods at your school ensures that the data is ‘hyperlocal’ and far more representative than data from a government-operated environmental monitoring station that might be located kilometres away.

CONTACT US

To learn more about how ACOEM's HSI can help you better protect your school community, visit healthyschoolsindex.com or contact us at email@acoem.com



* Environmental Instruments Ltd 2016, "Looking for a 'low cost' air quality monitoring solution?"



“A 2019 UK study found that 65% of parents of 4-11 year olds were concerned about the effects of air pollution on their child’s health and 40% were specifically concerned about the level of air pollution around their child’s school.”

Air Quality News 2019, 10 Aug

ABOUT ACOEM

ACOEM is a global leader in providing sustainable solutions that reduce environmental impact. It has been pioneering innovative solutions in environmental monitoring for over 40 years, helping to protect the environment and ensure the wellbeing of communities.

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