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NSW Department of Education

**Indoor Air Quality Risk
Assessment Summary
Report – Q1 2025**

Cringila Public School – 35
Sheffield Street, Cringila
NSW

wsp

April 2025

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Indoor Air Quality Risk Assessment Summary Report – Q1 2025

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WSP acknowledges that every project we work on takes place on First Peoples lands.

We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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1 Introduction

At the request of the Department of Education (DoE), WSP was engaged to undertake indoor air monitoring utilising real-time monitoring devices at Cringila Public School, 35 Sheffield Street Cringila NSW 2502. The aim of this monitoring program was primarily to investigate concerns raised by school employees and the DoE regarding the potential exposure to elevated concentrations of air pollutants, specifically carbon dioxide (CO₂) and carbon monoxide (CO), during the normal occupation of rooms within the school.

2 Objectives

Based on the correspondence provided by the DoE, the objective of this assessment is to undertake an assessment of the indoor air quality to determine the concentrations of CO₂ and CO within buildings at Cringila Public School.

This report presents the results relating to the Q1 2025 indoor air quality monitoring investigation carried out on 27 March 2025 within the Entry (Room 7R0008) in Building B007 for at Cringila Public School. The locations of the monitoring are displayed in **Error! Reference source not found..**

3 Assessment Criteria

The following paragraphs list the relevant standards and guidelines used as a reference in this assessment. These reference sources included Approved Methods for Modelling and Assessment of Air Pollutants in NSW (NSW EPA 2016), Workplace Exposure Standards for Airborne Contaminants (SWA, 2013), ASHRAE Standard 62.1 Ventilation for Acceptable Indoor Air Quality (2016), or equivalent publications as a point of reference. For the purpose of this assessment, these criteria values will be referenced as they are deemed to be the most conservative levels based on the monitoring works undertaken.

3.1 Carbon Dioxide (CO₂)

Carbon dioxide (CO₂) measurements were compared against the ASHRAE Standard 62-2010 *Ventilation for Acceptable Indoor Air Quality* (American Society of Heating, Refrigeration and Air-Conditioning Engineers).

CO₂ measurements provide an indication of the adequacy of fresh air levels supplied to rooms within a building. A person's comfort and health may be affected by high concentrations of CO₂.

For the purpose of this assessment, the recorded CO₂ measurements were referenced against the ASHRAE Guideline value of 1,000 parts per million (ppm). This criterion is set for human comfort factors and is deemed to be the most conservative level to adopt.

CO₂ is a normal constituent of exhaled breath and is commonly measured as a screening tool to evaluate whether adequate volumes of fresh outdoor air are being introduced into indoor air.

The outdoor level of CO₂ usually ranges from 300 ppm to 400 ppm. The CO₂ level is usually greater inside a building than outside, even in buildings with few complaints about indoor air quality. If indoor carbon dioxide levels are more than 1,000 ppm, there is probably inadequate ventilation; and complaints such as headaches, fatigue, and eye and throat irritation may be prevalent.

3.2 Carbon Monoxide (CO)

Sampling for carbon monoxide provides an indication of the level of combustion by-products that may impinge on air quality.

The National Environment Protection (Ambient Air Quality) Measure (EPA 2016) specifies an indoor air quality standard of 9.0 parts per million (ppm) as a maximum concentration. This is considered the most relevant concentration for carbon monoxide and is consistent with other international guidelines such as the World Health Organisation (WHO).

4 Indoor Air Quality Monitoring Methodology

4.1 Indoor Air Quality Monitoring

Indoor air quality (IAQ) monitoring was conducted at a single location over the course of a school day to study the concentrations of CO₂ and CO within school buildings while they are occupied. Quarterly monitoring was conducted within the Entry (Room 7R0008) in Building B007 on the 27 March 2025 for approximately 6 hours.

In this assessment, RAE Systems Multi RAE Gas Detectors were used with a specific sensor configuration to target CO₂ and CO concentrations to be assessed against the relevant guidelines as detailed above.

4.2 Data Analysis and Reporting

The MultiRAE Gas Detector units are configured to log data at one-minute intervals and left to run over a representative period. Logged data was downloaded from the device and tabulated in this report to present the results. Refer to Section 5.

5 Indoor Air Quality Monitoring Results

5.1 Carbon Dioxide (CO₂)

The carbon dioxide (CO₂) concentration results for the monitoring period are summarised below in Figure 1. Monitoring locations are displayed in **Error! Reference source not found.**.

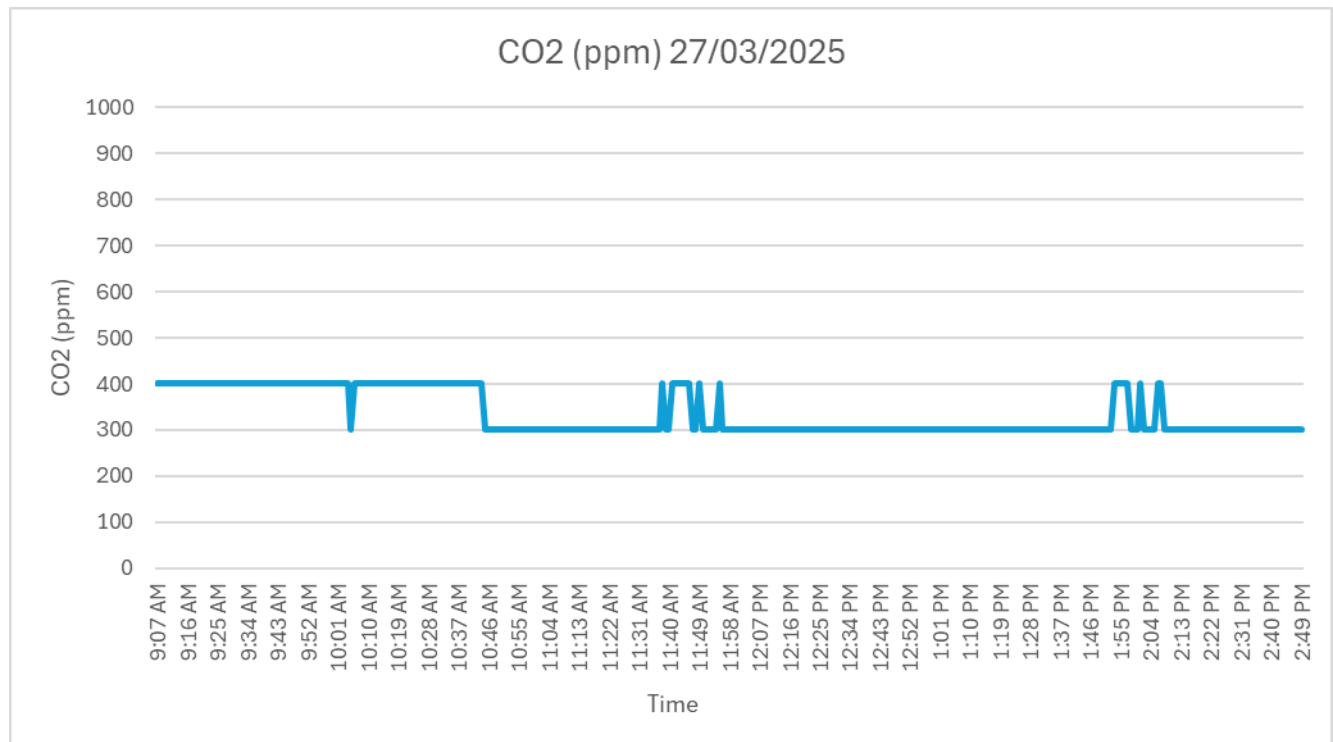


Figure 5.1 Carbon Dioxide (CO₂) monitoring results

5.2 Carbon Monoxide (CO)

The carbon monoxide (CO) concentration results for the monitoring period were consistently 0 ppm.

6 Discussion

6.1 Carbon Dioxide (CO₂)

The monitoring results for CO₂ within the Entry (Room 7R0008) in Building B007 at Cringila Public School showed concentrations of 300-400ppm during the period of monitoring. No results were found to exceed the ASHRAE guideline level of 1,000 ppm.

It should be noted that the adopted ASHRAE Guideline of 1,000 ppm is set for comfort only. A time weighted average (TWA) of 5,000 ppm has been set by Safe Work Australia for health purposes as a workplace standard. It should also be noted that short term static monitoring results cannot be compared to exposure monitoring criteria and therefore may be used as guidance only with regard to concentrations of CO₂ in these locations.

Adequate supply of fresh air is required to dilute CO₂ and other pollutants to acceptable levels for human comfort and health considerations.

6.2 Carbon Monoxide (CO)

The peak monitoring results for CO within the Entry (Room 7R0008) in Building B007 at Cringila Public School were consistently 0ppm during each period of monitoring. All results were below the adopted maximum guideline level of 9 ppm.

7 Conclusion

The indoor air quality monitoring summary report for Q1 2025 for CO₂ and CO showed the concentration for both gases are within guidelines set by ASHRAE for CO₂ and the adopted guideline for CO. It is recommended that ongoing assessments are continued in order to ensure that IAQ readings remain consistent.

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business opportunity, site depredation costs, business interruption or economic loss) of any kind whatsoever, suffered on incurred by a third party.

Appendix A

Site Map and Sampling Locations

