Question today
Imagine tomorrow
Create for the future

Indoor Air Quality Risk Assessment Summary Report – Q4 2024
Cringila Public School – 35 Sheffield Street, Cringila NSW

NSW Department of Education

WSP
104 Market Street
Wollongong NSW 2500
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
wsp.com

	Name	Date	Signature
Prepared by:	Hamish Cowan	10/01/2025	
Reviewed by:	Andres Grigaliunas	13/01/2025	
Approved by:	Andres Grigaliunas	13/01/2025	

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.

Table of Contents

List of figures

List of appendices

1 Introduction

At the request of the Department of Education (DoE), WSP (Formerly Greencap) were 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 (CO_2) 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 CO_2 and CO within buildings at Cringila Public School.

This report presents the results relating to the Q4 2024 indoor air quality monitoring investigation carried out on 5 December 2024 within the Entry (Room 7R0008) in Building B007 for at Cringila Public School. The locations of the monitoring are displayed in Appendix A.

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 (CO_2)

Carbon dioxide (CO_2) measurements were compared against the ASHRAE Standard 62-2010 *Ventilation for Acceptable Indoor Air Quality* (American Society of Heating, Refrigeration and Air-Conditioning Engineers).

CO_2 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 CO_2.

For the purpose of this assessment, the recorded CO_2 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.

CO_2 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 CO_2 usually ranges from 300 ppm to 400 ppm. The CO_2 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 monitoring was conducted at a single location over the course of a school day to study the concentrations of CO_2 and CO within school buildings while they are occupied. Quarterly monitoring was conducted within the Entry (Room 7R0008) in Building B007 on the 5 December 2024 for approximately 5 hours.

In this assessment, RAE Systems Multi RAE Gas Detectors were used with a specific sensor configuration to target CO_2 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 (CO_2)

The carbon dioxide (CO_2) concentration results for the monitoring period are summarised below in Figure 1. Monitoring locations are displayed in Appendix A.

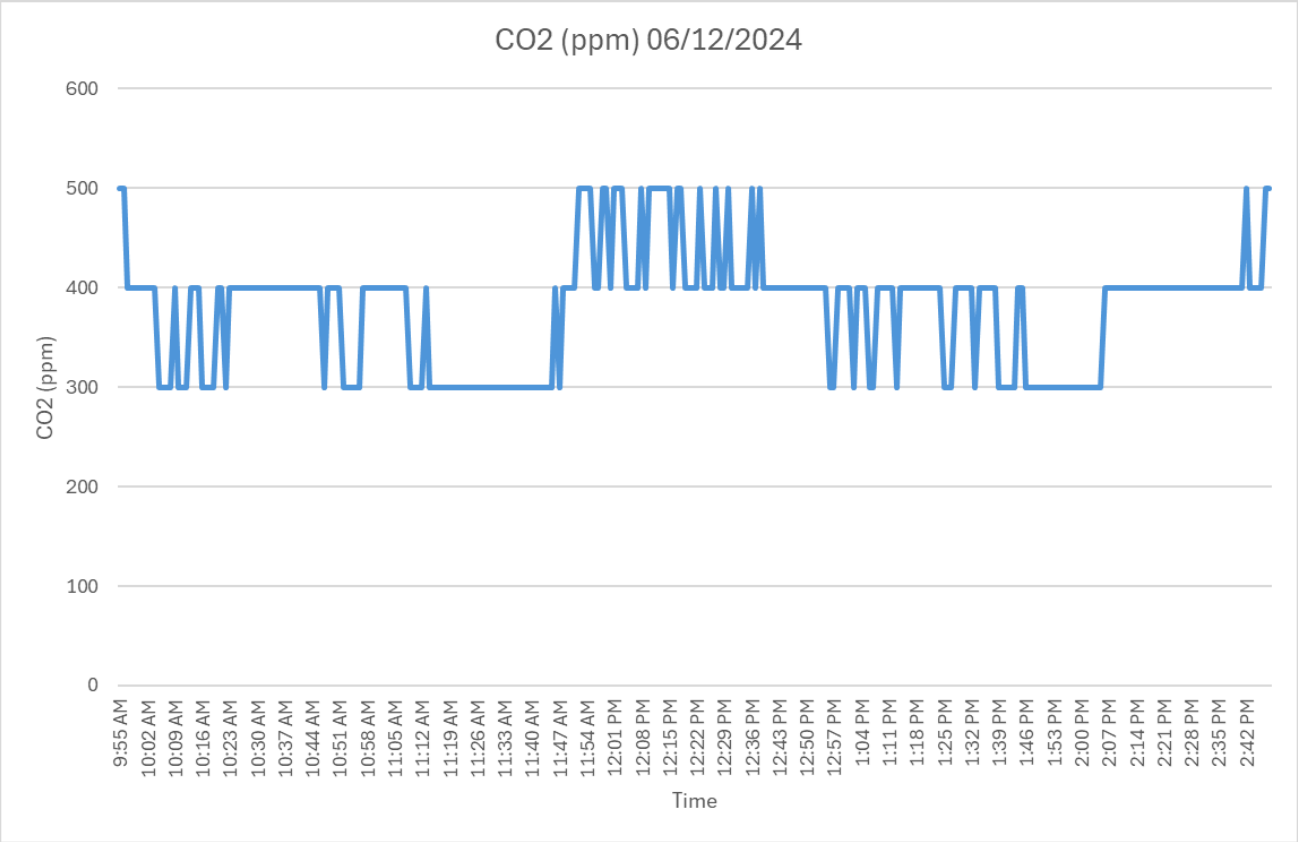

Figure 5.1 Carbon Dioxide (CO_2) monitoring results

5.2 Carbon Monoxide (CO)

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

6 Discussion

6.1 Carbon Dioxide (CO_2)

The monitoring results for CO_2 within the Entry (Room 7R0008) in Building B007 at Cringila Public School showed concentrations of 300-500ppm 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. 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 CO_2 in these locations.

Adequate supply of fresh air is required to dilute CO_2 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 Q3 2024 for CO_2 and CO showed the concentration for both gases are within guidelines set by ASHRAE for CO_2 and the adopted guideline for CO. It is recommended that ongoing assessments are continued in order to ensure that IAQ readings remain consistent.

8 Limitations statement

This Report is provided by WSP Australia Pty Limited (*WSP*) for Department of Education - Southern NSW AMU (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal.

8.1 Permitted purpose

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

8.2 Qualifications and assumptions

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information)*, those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

8.3 Use and reliance

This Report should be read in its entirety and must not be copied, distributed or referred to in part only. The Report must not be reproduced without the written approval of WSP. WSP will not be responsible for interpretations or conclusions drawn by the reader. This Report (or sections of the Report) should not be used as part of a specification for a project or for incorporation into any other document without the prior agreement of WSP.

WSP is not (and will not be) obliged to provide an update of this Report to include any event, circumstance, revised Information or any matter coming to WSP's attention after the date of this Report. Data reported and Conclusions drawn are based solely on information made available to WSP at the time of preparing the Report. The passage of time; unexpected variations in ground conditions; manifestations of latent conditions; or the impact of future events (including (without limitation) changes in policy, legislation, guidelines, scientific knowledge; and changes in interpretation of policy by statutory authorities); may require further investigation or subsequent re-evaluation of the Conclusions.

This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) any Conclusions contained within the Report and implement them in an appropriate, suitable and timely manner.

In the absence of express written consent of WSP, no responsibility is accepted by WSP for the use of the Report in whole or in part by any party other than the Client for any purpose whatsoever. Without the express written consent of WSP, any use which a third party makes of this Report or any reliance on (or decisions to be made) based on this Report is at the sole risk of those third parties without recourse to WSP. Third parties should make their own enquiries and obtain independent advice in relation to any matter dealt with or Conclusions expressed in the Report.

8.4 Disclaimer

No warranty, undertaking or guarantee whether expressed or implied, is made with respect to the data reported or the Conclusions drawn. To the fullest extent permitted at law, WSP, its related bodies corporate and its officers, employees and agents assumes no responsibility and will not be liable to any third party for, or in relation to any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of profit, loss of revenue, loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of 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 Location

Legend:

- Air Quality Monitoring Location
- Former Northwest Hotspot Investigation Area

Site	Cringila Public School
Monitoring Location	Entry (7R0008)
Job Number	PS210870
Version	1.0

Appendix B

Calibration Certificate

Calibration & Service Report
Gas Monitor

Company:	Active Environmental Solutions Hire	**Manufacturer:**	RAE Systems	**Serial #:**	MAA30048PB
Contact:	Aleks Todorovic	**Instrument:**	MultiRAE Lite	**Asset #:**	-
Address:	2 Merchant Avenue Thomastown Vic 3074	**Model:**	PGM 6208	**Part #:**	-
		Configuration:	CO, CO2	**Sold:**	-
Phone:	03 9464 2300 | **Fax**: 03 9464 3421	**Wireless:**	-	**Last Cal:**	-
Email:	Hire@aesolutions.com.au	**Network ID:**	-	**Job #:**	-
		Unit ID:	-	**Cal Spec:**	Std

Item	Test	Pass/Fail	Comments
Battery	Li Ion	✓	
Charger	Charger, Power supply	✓	
	Cradle	-	
Pump	Flow	✓	>400 mL/min
Filter	Filter, fitting, etc	✓	
Alarms	Audible, visual, vibration	✓	
Display	Operation	✓	
PCB	Operation	✓	
Connectors	Condition	✓	
Firmware	Version	✓	1.56
Datalogger	Operation	✓	
Monitor Housing	Condition	✓	
Case	Condition/Type	✓	
Sensors			
Oxygen		-	
LEL		-	
PID		-	
Toxic 1	CO	✓	
Toxic 2	CO2	✓	
Toxic 3		-	
Toxic 4		-	
Toxic 5		-	

Engineer's Report

Setup, service and calibration for hire

Calibration Certificate

Sensor	Type	Serial No:	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
Oxygen								
LEL								
PID								
Toxic 1	CO	SC03060692B1	Carbon Monoxide	100.0 PPM	WO451331-14		0.0	100.0 PPM
Toxic 2	CO2	SC03610059U9	Carbon Dioxide	5000.0 PPM	A01373 WO393493-1		0.0	5000.0 PPM
Toxic 3								
Toxic 4								

Calibrated/Repaired by: Jason Cheng

Date: 03/12/2024

Next due: 01/06/2025

About Us

WSP is one of the world's leading engineering professional services consulting firms, bringing together approximately 65,000+ talented people around the globe. We are technical experts who design and provide strategic advice on sustainable solutions and engineer Future ReadyTM projects that will help societies grow for lifetimes to come. wsp.com