Thrive

Thrive is an ARC Training Centre for Advanced Building Systems Against Airborne Infection Transmission

NEWS

4 September 2025

Thrive Forum: Indoor Air Quality in Schools

The interdisciplinary "Thrive Forum: Indoor Air Quality in Schools" was held at QUT on 17 July 2025, and aimed to discuss how to achieve a balance between all the requirements for clean indoor air and thermal comfort while consuming the least amount of energy possible and using resource efficiently. The presenters and panellist included: Professor Lidia Morawska (QUT, THRIVE), Ms Robyn Meldon (Department of Education Queensland), Professor Prof Geoff Hanmer (ARINA, UTS ,THRIVE), Mr David Thornton (COO, Somerset College), Associate Professor Wendy Miller (THRIVE, QUT), Professor Priyadarsini Rajagopalan (RMIT University), Professor Jason Monty (University of Melbourne , THRIVE), The Hon Ted Baillieu (Former Premier of Victoria), The Hon Robin Scott (Former Member of Victorian Parliament), Mr Nicholas Burt (CEO, Facility Management Association of Australia). The big questions discussed at the forum included:

1. What do we know about the quality of air in Australian school buildings? What pollutants are of concern? How are they linked to health and cognitive outcomes?
2. Can we achieve a balance in building performance with respect to indoor air quality, thermal comfort, and the energy needed to support this for specific school / classroom types and specific climate(s).?
3. What additional risks will climate change pose with the increased frequency of episodic pollution events, rainfall intensity, and frequency and duration of heat waves? What is the impact of these changes on indoor air quality? What additional efforts will be required to protect students and staff?
4. Can school building mechanical systems be optimised to address dynamic IEQ risk and carbon emissions?
5. Should new school buildings be mechanically ventilated?
6. Do we need more R&D? More regulation? More collaboration between all stakeholders, including occupants?

The forum was attended by over 130 people between in person and online participants, and concluded with some clarity on how we can implement solutions to improve IAQ in schools, with discussions on regulation and what is needed to ensure government is able to create the change our children desperately need.

We are compiling a summary document of the Forum for publication in a journal.

Thrive team visits Somerset College

On 24 July, members of the Thrive team travelled to the Gold Coast to visit Somerset College. The program included presentations by Mr David Thornton (COO, Somerset College), Mr Peter Evans (Managing Director, b2bResourceSmartSchools), Mr Bob Sharon (Founder and CEO, BlueIoT), Dr Mike Woodrow (Business Manager, Airofresh International), and Professor Lidia Morawska of QUT (Director, Thrive).

(L t R: David Thornton and Lidia Morawska)

The visit also included a comprehensive site tour showcasing the College's real-time CO_2 monitoring, air purification technology and emerging smart detection systems designed to support student wellbeing. These programs not only contribute to a healthier school environment, but they also create rich, STEM-focused learning opportunities for our students and demonstrate how schools can lead by example in creating safer, more sustainable communities.

We are excited to be part of this collaboration with QUT, Somerset College, Blue IoT, Airofresh International and b2bResourceSmartSchools for their shared interest and expertise.

Overall, it was a successful site visit to Somerset College, who are leading the pack for indoor air quality (IAQ) monitoring and practical application in schools. A big thank you to Somerset College for hosting us! 🎥 View a short video created by Somerset College of the visit

New ARC Future Fellowship grant awarded: “Naturally occurring retirement communities: our future for ageing in place?”

Congratulations to Professor Bo Xia, our Associate Director for Industry Engagement, on the award of a $1.23 million Australian Research Council (ARC) Future Fellowship grant titled “Naturally occurring retirement communities: our future for ageing in place?”. More than 90% of older Australians wish to age in place for as long as possible. However, aging in our current community environments is not easy for older people with reduced mobility and strength because these communities are mainly planned, designed and managed for young families. The project aims to understand how naturally occurring retirement communities (NORCs), a new option for ageing in place favoured by an increasing number of older Australians, influence their independent living and wellbeing. This project will generate new knowledge about the origin, evolution and dynamic behaviour of NORCs in Australia, and will help develop government policies to support the future growth of NORCs, leading to improved quality of life for older Australians. More information

Thrive PhD research visit: Bioaerosols for the quantification of indoor airborne infection risk

A PhD student from Polytech Clermont in France, Antoine Geray, conducted a visit with Thrive from 1 April to 31 July 2025. The title of Antoine’s project was “Study and collection of bioaerosols for the quantification of indoor airborne infection risk”. Bioaerosols (airborne particles that carry microorganisms) are highly variable particles, being generated from a range of sources, both anthropogenic and environmental. Depending on their origin, they can range in size from less than 100 nm to more than 100 µm and be composed of anything from soil to saliva. Collecting bioaerosols is an essential technique in aerobiology, enabling us to quantify the amount of particular bioaerosols (i.e respiratory particles) present within different environments, and to characterise various aspects of them such as their size and composition. Using bioaerosol sampling to target respiratory particles within indoor environments can improve our understanding of the transmission of respiratory diseases, which can potentially aid in the development of improved infection control measures. In this work a novel bioaerosol sampling method was developed, in which air was drawn air through ice, with the particles being sampled into the meltwater. Microbial culture and PCR can then be used to quantify and characterise the microbial content of this meltwater, with the assays either targeting pathogens of interest, or microflora common to the human respiratory tract. Initial testing of this approach yielded positive results, although there is scope for further optimisation to enable its practical application.

I want to say that this internship was an unforgettable experience, forever etched in my memory, and this is thanks to all of you.

I wish to express my deep gratitude to Distinguished Professor Lidia Morawska for hosting me in her laboratory and offering this unique opportunity. I also thank Chantal Labbe, who took the time to exchange with me through numerous emails before my arrival, answering each of my questions regarding life in the laboratory and thus putting me in the best conditions to come to Australia.

I would like to extend a huge thank you to Dr. Henry Oswin, who accompanied me throughout this internship. His pedagogy, patience and clear explanations allowed me to progress not only from a professional point of view, but also on a personal level. Thanks to him, I was able to gain autonomy, confidence, and deepen my scientific reflection.

I also thank each of you, members of the laboratory. I will really miss you. Here, I discovered a true work atmosphere, driven by a mentality that I will not forget. A true spirit of mutual aid, respect and kindness reigns there.

This internship also allowed me to open my eyes to the beauty of diversity. No matter where we come from, no matter our cultures, our origins or our personal stories: in the end, we are part of the same world. And it is precisely this diversity that makes the wealth of our world. Our differences are strengths, they allow us to learn from each other, grow, open our minds and build greater things together.

By leaving, I keep in myself not only knowledge and skills, but above all this deep conviction: it is by valuing our differences and working together that we build a better world. In four months, I tried to learn a little from each of you and I thank you for everything you have given me. You are truly wonderful people, never change. I sincerely hope that our paths will cross one day.

– Antoine Geray

Achieving Healthy Air at Scale: What We've Learned from Global Rollouts – What Works and What Doesn't

Founder of Kaiterra Liam Bates, a global leader in air quality monitoring, management and analytics, gave a presentation at QUT on 18 August 2025. Liam is a seasoned expert on air quality, sensor technologies, standard development, and building code, he oversees technology and data analytics at Kaiterra. Liam serves on the International WELL Building Institute's technical advisory boards for both the Performance and Air Concepts as well as the American Industrial Hygiene Association's Indoor Air Quality Task Force. He frequently speaks at international conferences on air quality monitoring and management, including USGBC, ASHRAE, IAQA, and the World Economic Forum. Liam has a deep passion for storytelling and knowledge sharing – prior to working in environmental monitoring, he spent several years traveling the world as a documentary producer and presenter. 🎥 Watch the webinar

The 2025 Clean Indoor Air for ALL Conference, 13–15 October 2025, Melbourne, Australia, is shaping up to be a landmark event for the IAQ community!

We're excited to support the **2025 Clean Indoor Air for ALL Conference**, organised by the **Clean Air Society of Australia and New Zealand (CASANZ)**, taking place in Melbourne on **13–15 October 2025.** This conference will bring together global experts to tackle the critical challenges of indoor air quality (IAQ).

CASANZ is thrilled to announce that **Dr Maria Neira, Director of the Department of Environment, Climate Change & Health of the World Health Organization** will join the conference as a plenary speaker! A global leader in public health, Dr Neira brings international insight to this vital discussion. A sneak peek of the 2025 program is now live—explore key themes like:

- 👉 Health impacts of indoor air
- 👉 Climate change and disaster recovery
- 👉 Low-cost monitoring technologies
- 👉 Governance and systemic change
- 👉 Plus a special forum led by Distinguished Professor Lidia Morawska, and the release of **Thrive IAQ's State of Indoor Air in Australia Report.**

The full program is now live. For more information and to register

Canadian Standards Association releases draft revision of respirator and respiratory protection standard

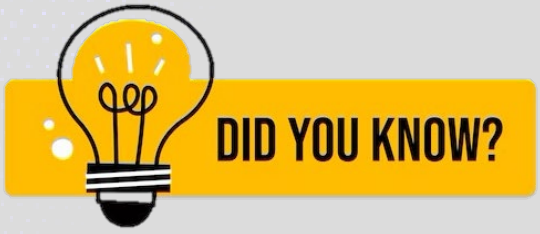
Canada's independent standards organisation (the Canadian Standards Association or CSA) has released a draft revision of its standard on respirators and respiratory protection (CSA Z94.4). Healthcare settings have been included for the first time (section 9). Did you know that the new standard specifies that N95 respirators are the default standard for continuous use for all staff and visitors in a hospital or clinic (also including patients who can tolerate an N95 mask)? Canada is setting an international first in the development of this standard. The draft was under public review until 19 August 2025, but is still available at https://publicreview.csa.ca/Home/Details/5674. For more information about the CSA Group.

Recent Thrive paper picked up by podcast

We are excited to see our recent publication, "Application of PM2.5 low-cost sensors for indoor air quality compliance monitoring", featured on the Air Quality Matters podcast hosted by Simon Jones. This research examines the potential for low-cost $PM_{2.5}$ sensors to support indoor air quality compliance frameworks. There are still challenges to overcome, but it's an important step toward more accessible, scalable monitoring in public and commercial buildings and ultimately, safer indoor air. Listen to the podcast | Read the paper

WHO calls for action for clean air and health

The world is at a turning point in the fight for clean air. Air pollution is a major threat to our health, the environment and the economy—but we have the power to change that. As a follow up to the WHO 2nd Global Conference on Air Pollution and Health, the WHO is calling on governments, cities, institutions and organisations to step up and commit to action. The goal? A 50% reduction in the health impacts of air pollution by 2040. For more information and to commit to clean air and health.



A new editorial was published by members of the team and the Centre for Safe Air Croaky Health Media titled “Australian classrooms have worse air quality protections than many pet shelters and greenhouses”. Did you know that Australian schools have such low standards for air quality monitoring, ventilation and filtration than pet shelters?

Read the article at https://www.croakey.org/australian-classrooms-have-worse-air-quality-protections-than-many-pet-shelters-and-greenhouses/

Team member spotlight

Ms Kavindi Gunasinghe, Thrive PhD student, Queensland University of Technology

My name is Kavindi Yaggaha Hewage and I am a PhD student of Thrive at QUT. I'm from Sri Lanka originally, an island known for its natural beauty, rich biodiversity and warm hospitality. I was born near the capital city of Colombo, and completed my early education there.

My research journey began at the University of Kelaniya, where I pursued a special degree in microbiology. During my undergraduate research, I became increasingly motivated and engaged in scientific research. After completing my bachelor's degree, I began a MPhil at the University of Kelaniya to further develop my skills and refine my expertise. My MPhil research focused on indoor plants that can remove volatile organic compounds (VOCs) from indoor air. I identified the most effective plant species for VOC purification and studied how plant-associated bacteria contribute to breaking down harmful VOCs. This work sparked my curiosity about airborne bacterial behaviours.

I completed my Research Master's degree with First Class Honors. Since then, I have been eager to explore how airborne bacteria behave indoors and how they interact with their environment and their potential beneficial applications. I searched for a laboratory where I could continue this research, and that is when I discovered Thrive, which is dedicated to improving indoor air quality for all. Since joining Thrive, I have been working on healthy human salivary bacteria and studying how salivary bacteria behave in indoor environments. My aim is to identify indicator bacteria from the healthy salivary flora of humans that can represent human respiratory particles indoors. I believe this approach will improve the understanding of airborne microbial behaviours and pathogen dissemination, which can contribute meaningfully to Thrive's mission and vision.

New publications

McGarry, P., Morawska, L., Lekamge, S.A. and Witts, S. **Addressing actual and community expectations on CO_2 concentrations within indoor spaces – A reasonably practicable methodology using CO_2 concentration to assess ventilation quality to indoor spaces**. *Indoor Environments,* 2(3): 100101, 2025.

Shoubridge, A.P., Brass, A., Crotty, M., Morawska, L., Bell, S.C., Qiao, M., Woodman, R.J., Whitehead, C., Inacio, M.C., Miller, C., Wang, YU., Holden, C.A., Corlis, M., Larby, N., Worley, P., Elms, L., Sims, S., Wesselingh, S.L., Flynn, E., Papanicolas, L.E., Taylor, S.L. and Rogers, G.B. **Effect of germicidal UV light on the incidence of acute respiratory infection in long-term aged care**. *JAMA Internal Medicine*, Published online 28 July 2025.

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