

Portfolio/s: Education and Youth Affairs**VENTILATION IN SCHOOLS****Talking Points**

- Improving air quality in ACT public schools is a priority to enable onsite learning and teaching in accordance with COVID-19 Health Advice.
- All learning spaces (about 3500) across the school network have been checked to ensure adequate ventilation.
- Every school has its own **Indoor Air Quality Plan** which lists actions undertaken by EDU (e.g. HVAC systems change) and actions for schools to undertake each day to improve air quality. The Indoor Air Quality Plans have been updated for the start of the 2022. Where required, the Plans provide information of actions undertaken over the summer break. The Plans can be found on each school's website.
- Ventilation is one component of a multilayered approach that has been implemented to prevent transmission of COVID-19 in schools.
- In line with expert advice, ventilation is being maximised by opening windows in classrooms, adjusting HVAC systems and turning on exhaust fans in rooms that have them. The message to the community from schools is, *If you would like to make a contribution to your school, please speak with your principal about which types of donations would be most welcome.*
- IAQ actions are being prioritised at preschools due to the potential vulnerability of this cohort.
- Supply chain delays and stock availability has delayed the commencement of works at some schools.
- UV-C light units have been installed in air conditioning systems at priority sites where mechanical ventilation does not introduce fresh air. UV-C lights installed in Heating, Ventilation and Air Conditioning systems have been used extensively in health settings to inactivate viruses as they pass the light unit. Units are installed inside the casing of the air conditioning systems. Units have been selected that do not produce ozone to ensure the safety of students.
- Winter ventilation systems are currently being scoped for sites where ventilation is predominantly via opening of windows. Solutions include Heat and Energy Recovery Ventilation (ERV and HRV). These units allow fresh air to be provided while windows are closed. The units are a feature of all new schools. The first retrofit will commence at Macquarie Primary School the week commencing 27 January 2022.
- \$2.1 million of priority works committed at 27 January 2022.
- \$1.7 million of ventilation works are out for quote/tender at 27 January 2022.
- The routine use of portable HEPA filters and portable carbon dioxide (CO₂) monitors across all ACT schools is not supported at this time, as the evidence for the additional public health benefit of these units over other public health measures and maximising fresh air is currently limited.

Cleared as complete and accurate: 28/01/2022
Cleared for public release by: Executive Group Manager
Contact Officer name: Andrew Parkinson
Lead Directorate: Education
TRIM Ref: FOL22/125

QUESTION TIME BRIEF

- EDU will continue to be guided by ACT Health and AHPPC advice and the evolving evidence on the specific benefit of these devices in addition to other public health measures in a school setting.

Key Information

- An important part of ACT public schools' return to on campus learning is to ensure that there is proper ventilation in line with Health advice for managing COVID-19.
- It's important to note that ventilation is part of the broader suite of controls to reduce the risk of COVID-19 transmission in school settings including vaccination, physical distancing, good hygiene, cleaning and mask use, and should not be considered in isolation of other mitigation strategies.
- The CHO, AHPPC, World Health Organisation and Safe Work Australia recommend ensuring fresh air ventilation is optimised in all settings, including through adjusting mechanical systems to increase fresh (external) air supply and reduce air recirculation, and use of natural ventilation such as opening windows and doors.
- EDU has developed an Indoor Air Quality (IAQ) framework to assess the IAQ of all public schools commencing with ACT public colleges.
- All public school learning areas have been assessed under the IAQ framework with immediate actions implemented to optimise fresh air flow. There are 3500 learning areas in ACT public schools (including approx. 3000 classrooms).
- Every school has had an IAQ Plan (see example at end of brief) completed under the framework for the return to on-campus learning – this includes a list of actions already undertaken by EDU (including increasing fresh air ventilation via HVAC systems) and actions for schools to undertake each day (including opening windows to promote natural ventilation and turning on exhaust fans). These school actions will be carried out by non-teaching staff like Building Services Officers.
- Site specific IAQ plans were provided to all ACT public colleges on 1 October 2021.
- Site specific IAQ plans were provided to all ACT public schools on 22 October 2021.
- From this work, EDU is confident that fresh air flow can be increased in all public school classrooms to improve ventilation.
- IAQ Plans for all school sites have been updated to include actions undertaken in term 4 and over the summer break.
- Cooler classroom temperatures during cool weather and warmer classroom temperatures during hotter weather are expected to result from increasing fresh air to learning environments.
- Higher energy bills are anticipated to result from the increase in fresh air as a greater volume of air needs to be heated or cooled.
- EDU is investigating technologies to improve air quality in classrooms including modern ventilation systems for toilets and bathrooms and air purification systems and securing the supply of these where appropriate.

QUESTION TIME BRIEF

- EDU is monitoring air quality in learning spaces to further refine the strategy to provide the best ventilation for ACT public schools including pre-schools.
- Where access to natural ventilation is limited and where mechanical ventilation can not be provided in the short term, germicidal UVC light units are being installed to existing air conditioners. These units are safe and are used to reduce transmission of viruses and bacteria in health settings. The units have been implemented predominantly in preschools.
- Heat Recovery Ventilation (HRV) systems have been purchased to provide a long term energy efficient solution to ventilation of learning environments. These are scheduled to arrive in January 2022. The units are specifically designed for classrooms and control fresh air automatically in response to CO₂ levels.
- \$2.6 million of additional funding has been allocated to undertake short term actions across the public school portfolio to maximise fresh air in learning spaces in term 4.
- A further \$2.6 million of additional funding has been allocated to undertake additional actions to maximise fresh air in learning spaces in term 1 and 2 of 2022.

Background Information

- ACT public schools are very well placed as there has been an extensive program of work underway to improve school ventilation since the 2019-2020 bushfires.
- EDU has been progressively upgrading building controls in 65 schools in order to have better control of the air intake sources for the Heating, Ventilation and Cooling (HVAC) systems.
- Many schools have building controls with CO₂ sensors which provides a proxy for ventilation in a room. CO₂ monitoring will be expanded across schools in 2022.
- In 2018, EDU commenced a program of installing CO₂ sensors in schools. To date, more than 326 CO₂ sensors with remote monitoring and management systems have been installed across 40 public schools. Additional CO₂ sensors are being installed at approximately 25 ACT public schools with suitable building control systems. This will mean 73 per cent (65 of 89) schools will soon have CO₂ sensors to the monitor and manage indoor air quality.
- Not all classrooms are connected to large HVAC systems with CO₂ sensors, however these rooms typically have external natural ventilation and split system air conditioning units so that fresh air can be introduced and air flow maintained.
- Longer term, EDU will look to introduce additional mechanical ventilation in spaces that require it. This may include installation of new building control/management systems with CO₂ sensors that can remotely monitor and control HVAC systems and windows as well as installing supplemental ventilation such as modern exhaust fans in bathrooms and toilets.

Canberra High School Indoor Air Quality Plan	
Background:	<p>As part of the return to on campus learning in Term 4 2021, ACT Health has advised that schools optimise fresh air circulation as one of the controls to reduce the risk of COVID-19 transmission in schools.</p> <p>The risk of COVID-19 transmission is higher in crowded and poorly ventilated spaces where people spend long periods of time together in close proximity. Good ventilation is one part of a suite of controls to minimise transmission in schools, like vaccination, physical distancing, student cohorting, good hygiene, cleaning and mask use.</p> <p>This Plan identifies actions that have been undertaken at your school by the Education Directorate and provides additional measures for the school to undertake to optimise the fresh air ventilation in the school in Term 4.</p>
Health Advice:	<p>The Chief Health Officer, the Australian Health Protection Principal Committee, World Health Organisation and Safe Work Australia all recommend good indoor air quality to reduce the chance of COVID-19 transmission.</p>
Advice:	<p>The ventilation systems at Canberra High School have now been assessed by the Directorate in accordance with the WHO guidance.</p> <p>Fresh air ventilation will be achieved through a mix of natural (opening windows and doors) and mechanical (cooling and ventilation systems).</p> <p>The settings for the Heating, Ventilation and Air Conditioning systems have been reset to achieve good fresh air supply and <u>should not be altered by the school</u>.</p> <p>Increasing the fresh air to classrooms may increase energy costs. Classrooms are also likely to experience lower room temperatures during cooler weather and higher room temperatures in warmer weather.</p> <p>Learning and teaching spaces with fresh air ventilation from either natural or mechanical systems meet the COVID-19 Health Advice. The school is to prioritise the use of these spaces for indoor teaching and learning along with outdoor spaces.</p>
Daily actions to be undertaken by the school in Term 4:	<p>Additional daily measures the school will undertake include:</p> <ul style="list-style-type: none"> • Opening windows and doors in teaching spaces and other shared spaces of the school to supplement fresh air. Windows above ground level are to be opened only where window restriction is in place to ensure student safety. In line with the National Construction Code, window opening is to be 125mm or less. • Improving air circulation through use of ceiling fans and split system air-conditioning units, only when windows are open. • Ensure bathroom, kitchen and any other exhaust fans are on and operating at full capacity while the school or program is operating and for some time before and after occupancy.

Cleared as complete and accurate: 28/01/2022
 Cleared for public release by: Executive Group Manager
 Contact Officer name: Andrew Parkinson
 Lead Directorate: Education
 TRIM Ref: FOL22/125

QUESTION TIME BRIEF

Actions undertaken:	<p>The following actions have been undertaken by the Directorate and its service providers to increase fresh air ventilation in the indoor teaching and learning spaces at the school:</p> <ul style="list-style-type: none">• air handling units have been programmed to supply additional fresh air via the mechanical ventilation systems• evaporative cooling in the school will provide full fresh air when operating in either cooling or fan mode. When not in operation, fresh air is to be provided by opening windows• contractors will continue work to audit and enhance the operation of the ventilation systems.
Support or further advice:	<p>For further advice, schools can contact their ICW Network Officer or email ACT.Education@act.gov.au</p>

Yapp, Phillip

From: Mitchell, BethL
Sent: Thursday, 3 February 2022 1:13 PM
To: Graham, Cathy; Yapp, Phillip
Cc: Kidney, Greg; OConnell, Chris
Subject: FW: PureAir Fans in ACT Schools - Promotion
Attachments: CAC_Spec Sheet_REME-ION_DIGITAL.pdf; CAC_brochure_withQR_SCHOOLS_01.pdf; CAC_SpecSheet_HaloRove_DIGITAL_2021.pdf; CAC_SpecSheet_MiniSplit v3_DIGITAL_2021.pdf; CAC_SpecSheet_REME Halo LED_DIGITAL_2021.pdf

OFFICIAL

Hi All,

Please find attached some supplier information on solutions with ion and UV-C technology. The Minisplit could provide an alternative to the SterilAir systems that we are installing on splits.

Our recent installs of the UVC-Fans (Pure Air) are proving very effective at destratification also – great for summer air flow and winter destratification without the need to reverse the fan – I did quite a bit of research on this system and they have been used in the education sector in conjunction with both heating and cooling systems to significantly reduce costs while increasing thermal comfort.

Worth a look.

Beth Mitchell | Director – Asset Strategies, Sustainability and Environment

Phone: +61 2 6207 8364 | Fax: +61 2 6205 9333 | Email: bethl.mitchell@act.gov.au
 Infrastructure and Capital Works | Education | ACT Government
 Level 4 220 London Circuit | GPO Box 158 Canberra ACT 2601 | www.det.act.gov.au

From: Sam Rochaix <sam@airius.com.au>
Sent: Thursday, 3 February 2022 9:55 AM
To: Mitchell, BethL <BethL.Mitchell@act.gov.au>
Cc: John Brodie <johnbrodie@airius.com.au>
Subject: PureAir Fans in ACT Schools - Promotion

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Beth,

Happy new year and hope you have been well.

It has been great news that we are rolling out the PureAir fans in our first few schools. I understand Theodore Primary has been completed along with Monash, Mt Rogers and Myles Franklin. Feedback so far has been positive and we are looking forward to rolling out more systems to more schools and keep the students and staff safer during the pandemic.

The reason for my e-mail today is that I was wondering if you can offer any referrals to counterparts in other state Education Departments. The current fascination with HEPA filtration is a knee jerk reaction to use old outdated systems which have obvious limitations. In particular the fact that they are standalone system usually located in a corner and reliant on germs and microbes to be picked up by the system. Airius and The Clean Air Company firmly believe that Australia is 2 years behind foreign markets with the adoption of ACTIVE air treatment systems like the PureAir fans and PHI systems (brochure attached). They are a proven effective and safe solution that should have broad adoption within AU education systems.

<https://www.airiusfans.com/using-filter-systems-for-indoor-air-purification/>

Any assistance with helping me spread the word in your and other state departments would be much appreciated.

I was also hoping that we may be able to promote the installation of the systems in the ACT schools via PR and newsletters. Is this possible and if so what is the approval process and would we be able to secure a comment from you or another representative of your department?

The race is on right now and we believe that we have the very best solution for schools and we seek your assistance.

PS – I have also attached our classroom AC compatible systems that we now have in stock and ready to deplot. These PHI systems are either standalone active ionised hydro peroxide emitters or retro fitted onto ANY type of AC system.

Thanks so much Beth – I look forward to hearing from you.

Kind regards,

Sam Rochaix
 Regional Sales Director (AU, NZ & SE Asia)



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THE CLEAN AIR COMPANY

Revolutionary Active Air Purification
cleanairco.com.au

Tested to inactivate **99.9%** of SARS-CoV-2 in the air and on surfaces

Protection From

BACTERIA VIRUS MOULD SPORES VOC'S DUST POLLEN DANDER

REME-ION™

Portable Plug-in Active Air Purifier

Fresh Air Indoors



RECORD 52



World leading active air purification technology, independently tested to inactivate 99.9% of known viruses including SARS-CoV-2 in the air and on surfaces

- ✓ Improves air quality in spaces up to 20sqm
- ✓ Neutralises viruses, germs & bacteria
- ✓ Reduces odours, mould & VOCs
- ✓ Have fresh, clean & healthy air

The REME ION™ portable air and surface purifier is the latest advancement in air purification, using charged ions and an Advanced Oxidisation Process to clean air and eliminate odours.

The REME ION™ improves air quality by efficiently neutralising pathogens, allergens, odours, mould, bacteria, and airborne chemicals (VOCs).

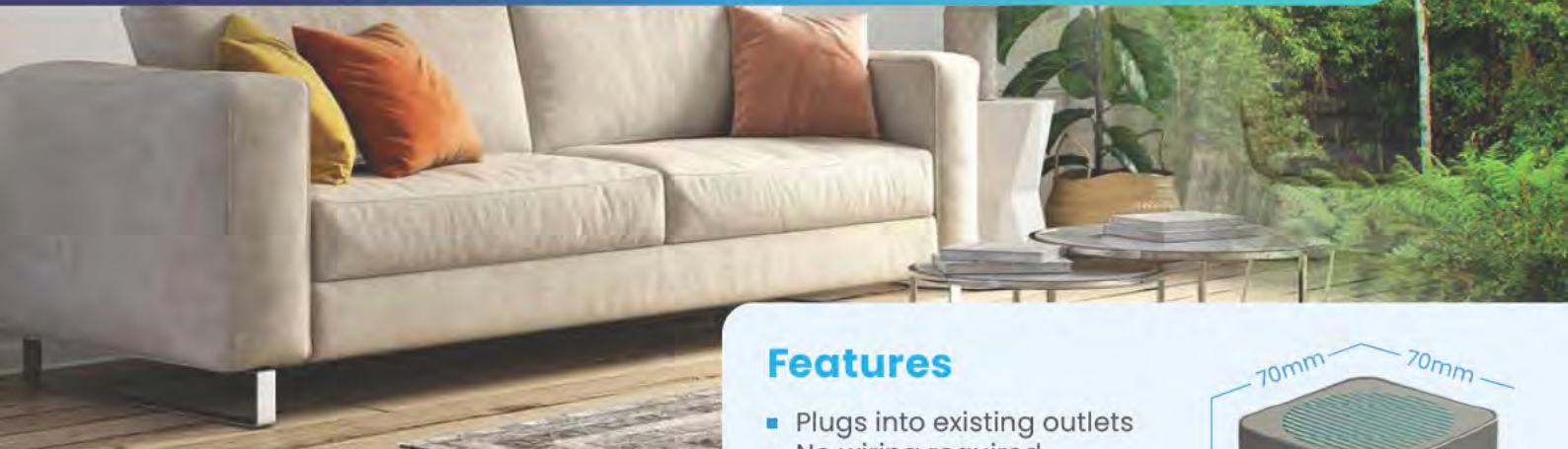
Employing REME-LED PHI™ technology, advanced oxidation and bipolar ionisation, the REME ION™ quietly cleans the air you breathe, whilst also sterilising all surfaces.

CONTACT US
TODAY

The Clean Air Company

Phone: +61 (0) 2 8034 0598 | Ema : nfo@c eana rco.com.au | cleanairco.com.au

Bring the outside in!



Clean your air in the same way as Mother Nature with the REME ION™ by RGF Environmental air and surface purifier.

Using Bi-Polar Ionisation and an Advanced Oxidation technology, the REME ION™ actively floods spaces with friendly ions and natural cleaning agents.

Many people are nervous and apprehensive about their living or working environments after months of living with COVID-19, particularly as we return to work and offices. This innovative product helps improve the living conditions of the home and office, by safely and effectively cleaning the air you breathe.

In independent tests RGF's REME™ technology and Advanced Oxidation Process was shown to significantly

Features

- Plugs into existing outlets
- No wiring required
- Economical and portable
- Low maintenance
- REME-LED™ Technology
- Ozone Free
- Ideal for small spaces
- Advanced catalyst
- Bi-Polar Ionisation
- Washable filters
- Low power, long life
- Ultra-quiet operation



Actively fighting



Viruses



Bacteria



Mould Spores



Pollen



Dust



Dander



VOC's

Specifications

Product Weight: 0.4kg | **Electrical:** 12 VDC 0.4 A
Power Consumption: 5 watts | **Treatment Area:** 20sqm
Technology: REME-LED™ with B-po ar



or more information or to order your REME-ION™ Plug-in Purifier call us today on: **+61 (0) 2 8034 0598** Or aternative y email us at: **info@cleanairco.com.au**
cleanairco.com.au

Disclaimer: Tests were performed on the RGF Environmental Advanced Oxidation system with Advanced Oxidation Process of less than .02 ppm. They were conducted by independent accredited labs and university studies. They were funded and conducted by major RGF Environmental clients to assure this product's edibility. REME-ION™ products are not medical devices and no medical claims are made.



Revolutionary Active Air Purification FOR SCHOOLS

How can poor air quality in classrooms and schools put students health at risk?

Breathing fresh air protects our health and improves our wellbeing. An active air purification system from *The Clean Air Company* uses proven technology to provide the cleanest air - without the use of harmful chemicals or energy consuming, high maintenance and often ineffective filters.

The majority of a school day is spent indoors. Most schools have poor ventilation and keeping windows open throughout the year is not always an option. This leads to high levels of indoor air pollution, meaning that students are more likely to pass on viruses to one another and have poor concentration and focus.

Unlike outdoor air pollution, nature cannot purify the air inside a building, so it needs a little help. With RGF's proven and world leading active purification technology you will have peace of mind that you are providing the best possible indoor air quality for your students and staff.

Used in hundreds of schools worldwide **RGF's REME** and **PHI-CELL** patented technologies reduce pollutants and microbes in the air **and** on surfaces, in all types of air conditioning systems or inside the unique Airius fan systems.



PHI Technology has been proven to inactivate SARS-CoV-2 virus by 99.9% in independent testing*

- ✓ 'Search and Destroy' Technology
- ✓ Removes contaminants at the source
- ✓ Easy to install & low maintenance
- ✓ Low cost & low energy use
- ✓ Air conditioned and non air conditioned spaces
- ✓ significantly reduces **classroom absenteeism**
- ✓ used in **hundreds of schools** world wide

Protection From Major Contaminants



Viruses



Bacteria



Mould Spores



VOC's



Pollen



Dust



World leading active air purification technology, independently tested to inactivate 99.9% of known viruses including SARS-CoV-2 in the air and on surfaces

*PHI Technology testing undertaken by Innovative Bioanalysis Laboratories, California, USA in 36 CBM test chamber with actual SARS-CoV-2 virus, with REME HALO, HALO LED and PKG Units all achieving the 99.9% inactivation rate.



RGF® Patented PHI Technology

- Photohydroionization® or PHI is a **patented** Indoor Air Quality (IAQ) technology suitable for both air conditioned and non air conditioned spaces.
- The PHI CELL® uses proven innovative technology with over **4 million units** in use in **over 60 countries**.
- PHI active air purification distributes aerosolised hydrogen peroxide throughout indoor spaces at low levels, similar to those **found in nature**, killing viruses, bacteria, mould spores and odours at the source.
- A **naturally occurring sanitiser** in our environment, hydrogen peroxide is incredibly effective at reducing contaminants inside, just as it is outside.



How does it work?

- The PHI Cell® produces a Photohydroionization® advanced oxidation process.
- This is a simple oxidation reaction that changes water molecules (H₂O) into large numbers of active molecules of Hydrogen Peroxide.
- Molecules of Hydrogen Peroxide that are suspended in air are highly effective at inactivating single cell organisms by bonding to them, breaking down their molecular structure and rendering the cells back to inert oxygen and hydrogen.
- In addition, molecules of Hydrogen Peroxide fall out of the air and effectively reduce surface contamination.
- Hydrogen Peroxide molecules also reduce volatile organic compounds and odours in treated spaces.

Improve your air, improve your life

- 1** Breathing fresh air protects your health
- 2** Actively seeks and destroys contaminants in the air and on surfaces
- 3** Increased productivity
- 4** Creates a fresh, healthy feeling indoor environment
- 5** Significantly reduces the risk of virus transmission and bacteria etc
- 6** Reduced absenteeism in workplaces and schools
- 7** Ensures your environment is clean and healthy 24/7
- 8** Low energy with minimal impact on your energy bill

Keeping students and staff safe in the following Schools:

- Camberwell Girls Grammar School, V C
- Goulburn Valley Grammar School, V C
- Theodore Primary, ACT
- Monash Primary, ACT
- Mt Frank Primary, ACT
- St Martins Episcopal School, FL
- 320 Schools in Ontario, Canada [‘Cleaner Air for Schools’ Programme]
- Green Bay School Buses
- Tennessee Schools
- The ELS Center of Excellence, FL

and hundreds of other education facilities



From: [Matthews, David](#)
To: [EDU, EGMSG](#)
Subject: FW: FOR CLEARANCE: FILE2022/404 - MIN CORRO : Air Quality in Schools and shade sails - [REDACTED]
Date: Monday, 7 February 2022 2:57:43 PM
Attachments: [image002.png](#)
[GOVERNMENT & STAKEHOLDER RELATIONS - Partnerships & Collaboration - MIN CORRO - Air Quality in Schools and Shade Sails - \[REDACTED\] - 2022.tr5](#)
[FILE2022404 LETTER Indoor air quality & shade sails in schools \[REDACTED\].DOTX](#)
[FOR ACTION FILE2022404 - MIN CORRO Air Quality in Schools and shade sails - \[REDACTED\].msg](#)

OFFICIAL

Approved, with thanks.

Dave Matthews
Executive Group Manager, Business Services Group

From: Martinez, Catherine <Catherine.Martinez@act.gov.au> **On Behalf Of** EDU, EGMSG
Sent: Thursday, 3 February 2022 2:36 PM
To: Matthews, David <David.Matthews@act.gov.au>
Cc: EDU, EGMSG <EGMSG.EDU@act.gov.au>
Subject: FW: FOR CLEARANCE: FILE2022/404 - MIN CORRO : Air Quality in Schools and shade sails - [REDACTED]

OFFICIAL

OFFICIAL

Good afternoon David

Please find attached response letter to email attached for your clearance.

DUE to MO today 3 February.

Regards
Catherine

From: Stewart, Ell <Ell.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office
Sent: Wednesday, 2 February 2022 3:34 PM
To: EDU, EGMSG <EGMSG.EDU@act.gov.au>
Cc: ICW EBM Office <ICWEBMOffice@act.gov.au>
Subject: FW: FOR CLEARANCE: FILE2022/404 - MIN CORRO : Air Quality in Schools and shade sails - [REDACTED]

OFFICIAL

OFFICIAL

Good afternoon

Letter in TRIM for clearance please:

Date due to EGM	2.2.2022
Date Due to MO	3.2.2022

Thanks, Ell

From: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Sent: Wednesday, 2 February 2022 3:30 PM
To: ICW EBM Office <ICWEBMOffice@act.gov.au>
Subject: Fw: FOR CLEARANCE BY 4PM: FILE2022/404 - MIN CORRO : Air Quality in Schools and [REDACTED]

OFFICIAL

cleared

Andrew Parkinson | Executive Branch Manager

Infrastructure & Capital Works | Education Directorate | **ACT Government**

Phone 02 6205 4593 | **Mobile 0478 301 085**

220 London Circuit, Civic | www.act.gov.au

Dhawura nguna, dhawura Ngunnawal

From: Stewart, Ell <Ell.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office
Sent: Wednesday, 2 February 2022 9:33 AM
To: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Cc: ICW EBM Office <ICWEBMOffice@act.gov.au>
Subject: FOR CLEARANCE BY 4PM: FILE2022/404 - MIN CORRO : Air Quality in Schools and shade sails - [REDACTED]

OFFICIAL

Thanks for preparing this Beth

Andrew, letter in TRIM for clearance please – due to EGM by 4pm today

Ell

From: Stewart, Ell <Ell.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office
Sent: Tuesday, 18 January 2022 3:46 PM
To: Mitchell, BethL <BethL.Mitchell@act.gov.au>
Cc: Ryan, JohnW <JohnW.Ryan@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>; ICW EBM Office <ICWEBMOffice@act.gov.au>; Yapp, Phillip <Phillip.Yapp@act.gov.au>; Peswani, Pragati <Pragati.Peswani@act.gov.au>; Hooper, Richard <Richard.Hooper@act.gov.au>; Hunter, Stuart <Stuart.Hunter@act.gov.au>
Subject: FW: FOR ACTION: FILE2022/404 - MIN CORRO : Air Quality in Schools and shade sails - [REDACTED]

OFFICIAL

Hi Beth

Please provide a response, with input from CUP if required, for EBM clearance by **4PM MON 31 JAN** on the template in TRIM

Thanks, Ell

From: Metherell, Skye <Skye.Metherell@act.gov.au> **On Behalf Of** Education DLO
Sent: Tuesday, 18 January 2022 3:03 PM
To: ICW EBM Office <ICWEBMOffice@act.gov.au>
Cc: EDUMCR <EDUMCR@act.gov.au>; EDU, EGMBSG <EGMBSG.EDU@act.gov.au>
Subject: FOR ACTION: FILE2022/404 - MIN CORRO : Air Quality in Schools and shade sails - [REDACTED]

OFFICIAL

Good Morning,

Please see below constituent enquiry requiring response. Please review the below table to provide the appropriate response type and note the due dates.

Title/Question	MIN CORRO: Air Quality in Schools and shade sails - Liz Sturgiss
Action	Please prepare a Ministerial response to the below correspondence
Responsibility	ICW
Response type	Ministerial response
TRIM	FILE2022/404
Date due to EGM	2.2.2022

Date Due to MO	3.2.2022
Clearance	Please refer to the Executive Clearance Protocol document for appropriate clearance levels/drop copy requirements: here
Comment	Please contact EDUDLO@act.gov.au if you have questions.

If you have any queries please don't hesitate to ask.

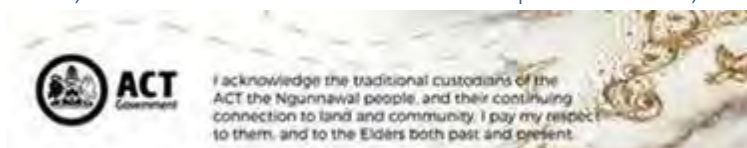
Kind Regards,

Skye Metherell | Directorate Liaison Officer

Ministerial & Commonwealth Relations | **Education Directorate** | ACT Government

T: 6213 3313 | E: skye.metherell@act.gov.au

Level , 220 Northbourne Avenue Braddon | GPO Box 158, Canberra, ACT 2601 |



From: BERRY <BERRY@act.gov.au>
Sent: Tuesday, 18 January 2022 9:22 AM
To: Education DLO <EDUDLO@act.gov.au>
Cc: Hobbs, Rebecca <Rebecca.Hobbs@act.gov.au>
Subject: FW: Contact my Minister - Correspondence: [REDACTED]

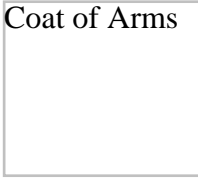
Hi Skye,

Please see below/ attached correspondence related to Education. For appropriate action please.

Thank you,
Harini

From: minister@act.gov.au <minister@act.gov.au>
Sent: Saturday, 15 January 2022 8:13 PM
To: BERRY <BERRY@act.gov.au>
Subject: Contact my Minister - Correspondence: 150122 - 1931575 - Liz Sturgiss

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Coat of Arms


Yvette Berry, MLA

The following correspondence has been submitted via the Contact my Minister website.

The constituent has indicated that they would like a response to their correspondence.

Air quality in schools

Dear Minister Berry I am asking that more is done to improve air quality in our schools. [REDACTED] I am aware of the air quality audit that has been done on schools - but there is limited information about the audit on the schools' websites and there is a huge reliance on opening windows as the only measure to improve air quality. With the highly infectious omicron variant this is not enough. I'm sharing this resource from the CDC in USA - it is a great overview of ventilation in schools. I cannot find a similar resource from Australia (but USA is ahead in the pandemic and seeing a lot infection in kids) <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/ventilation.html> HEPA filters are a relatively expensive initial cost, but can be added to the whole school system with filter insets, or units purchased for use in classrooms. I have a portable HEPA filter in my [REDACTED] room since the start of the pandemic. There is early evidence from the UK that air filtration is reducing childhood cases of Covid. The added bonus with any of these measures is that it reduces risk from any airborne disease (influenza, cold viruses etc) as well as COVID. It would also be an opportune time to invest in more shade sails for schools for outdoor learning. Thank you for putting the health of our kids at the top of the agenda, [REDACTED]

Correspondence Reference # [REDACTED]

Submission date: [REDACTED]

Contact Information

[REDACTED]

**Yvette Berry MLA**

Deputy Chief Minister

Minister for Early Childhood Development

Minister for Education and Youth Affairs

Minister for Housing and Suburban Development

Minister for Women

Minister for the Prevention of Domestic and Family Violence

Minister for Sport and Recreation

Member for Ginninderra

Dear [REDACTED]

Thank you for your email of [REDACTED] about the actions being undertaken to maximise the safety of students and staff as they return to school. The ACT Government is dedicated to the safe return of students to onsite learning in accordance with COVID-19 health advice.

All learning spaces across the ACT public school network have been assessed to ensure adequate ventilation. Schools have been provided with a site-specific Indoor Air Quality Plan, which outlines the ventilation provided to each classroom, actions to be undertaken by the school and works implemented over the summer break.

In line with expert advice, ventilation is being maximised by opening windows in classrooms; programming ventilation systems to introduce additional fresh air and operate for longer hours; and turning on exhaust fans in rest rooms. All windows have been checked and made operable where required to provide ventilation.

A number of schools were fitted with CO₂ sensors to monitor indoor air quality prior to COVID-19. There is a program to expand the network of CO₂ monitors to additional schools to enhance remote monitoring and management capability.

UV-C light units have been installed in air conditioning systems at priority sites including preschools and spaces where mechanical ventilation is limited. UV-C light has been used extensively in health settings to inactivate viruses and bacteria as they pass the light unit. Units have been selected that do not produce ozone to ensure the safety of students.

ACT Legislative Assembly London Circuit, GPO Box 1020, Canberra ACT 2601



+61 2 6205 0233



berry@act.gov.au



@YvetteSBerry



YvetteSBerry



Yvette_berry_mla

Winter ventilation is currently being scoped for sites where ventilation is predominantly via opening of windows. Solutions include Heat and Energy Recovery Ventilation units which allow fresh air to be provided with windows closed and enhance the energy efficiency of existing heating systems.

As part of the COVID-19 Supports in Schools, the ACT Government announced an additional \$2.5 million to install additional shade structures in ACT public schools to provide sheltered outdoor learning spaces. Additional funding has been committed to install shade structures at schools to provide sheltered outdoor learning spaces. The design of outdoor learning spaces is supported by advice from the Environmentally Sustainable Development team to include vegetation to provide passive cooling and amenity.

It is important to note that the ACT Government's infrastructure response is part of a broad suite of controls to reduce the risk of COVID-19 transmission in school settings including vaccination, physical distancing, good hygiene, cleaning, mask use and rapid antigen testing.

Thank you for your interest in the work being undertaken in schools to maximise the safety of students and staff.

Yours sincerely

Yvette Berry MLA
Minister for Education and Youth Affairs

From: [Matthews, David](#)
To: [EDU, EGMBSG](#)
Subject: FW: FOR CLEARANCE: FILE2022/398 MIN CORRO - School ventilation plans - [REDACTED]
Date: Monday, 7 February 2022 2:58:00 PM
Attachments: [image002.png](#)
[GOVERNMENT & STAKEHOLDER RELATIONS - Customer Service - MIN CORRO School ventilation plans - \[REDACTED\]](#)
[FILE2022398 LETTER School ventilation plans \[REDACTED\]](#)
[FOR ACTION MIN CORRO - School ventilation plans - \[REDACTED\]](#)

OFFICIAL

Approved, with thanks.

Dave Matthews
Executive Group Manager, Business Services Group

From: Martinez, Catherine <Catherine.Martinez@act.gov.au> **On Behalf Of** EDU, EGMBSG
Sent: Thursday, 3 February 2022 2:43 PM
To: Matthews, David <David.Matthews@act.gov.au>
Cc: EDU, EGMBSG <EGMBSG.EDU@act.gov.au>
Subject: FW: FOR CLEARANCE: FILE2022/398 MIN CORRO - School ventilation plans [REDACTED]
[REDACTED]

OFFICIAL

OFFICIAL

Good afternoon David

Please find attached response letter to email attached for your clearance.

DUE to MO today 3 February.

Regards
Catherine

From: Stewart, Eil <Eil.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office
Sent: Wednesday, 2 February 2022 3:37 PM
To: EDU, EGMBSG <EGMBSG.EDU@act.gov.au>
Cc: ICW EBM Office <ICWEBMOffice@act.gov.au>
Subject: FW: FOR CLEARANCE: FILE2022/398 MIN CORRO - School ventilation plans [REDACTED]
[REDACTED]

OFFICIAL

OFFICIAL

Good afternoon

Letter in TRIM for clearance please:

Date due to EGM	2.2.2022
Date Due to MO	3.2.2022

Thanks, Ell

From: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>

Sent: Wednesday, 2 February 2022 3:25 PM

To: ICW EBM Office <ICWEBMOffice@act.gov.au>

Subject: Fw: FOR CLEARANCE: FILE2022/398 MIN CORRO - School ventilation plans - [REDACTED]

OFFICIAL

cleared

Andrew Parkinson | Executive Branch Manager

Infrastructure & Capital Works | Education Directorate | **ACT Government**

Phone 02 6205 4593 | **Mobile 0478 301 085**

220 London Circuit, Civic | www.act.gov.au

Dhawura nguna, dhawura Ngunnawal

From: Stewart, Ell <Ell.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office

Sent: Tuesday, 1 February 2022 10:22 AM

To: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>; Mitchell, BethL <BethL.Mitchell@act.gov.au>

Cc: ICW EBM Office <ICWEBMOffice@act.gov.au>

Subject: FOR CLEARANCE: FILE2022/398 MIN CORRO - School ventilation plans - [REDACTED]

OFFICIAL

Great, thanks Beth

Andrew, please clear the letter in TRIM – due to EGM by tomorrow

Thanks, Ell

From: Mitchell, BethL <BethL.Mitchell@act.gov.au>
Sent: Tuesday, 1 February 2022 9:43 AM
To: ICW EBM Office <ICWEBMOffice@act.gov.au>
Cc: Yapp, Phillip <Phillip.Yapp@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: FOR ACTION: FILE2022/398 MIN CORRO - School ventilation plans - [REDACTED]

OFFICIAL

This one is completed and ready for review

Beth Mitchell | Director – Asset Strategies, Sustainability and Environment

Phone: +61 2 6207 8364 | Fax: +61 2 6205 9333 | Email: bethl.mitchell@act.gov.au
Infrastructure and Capital Works | Education | ACT Government
Level 4 220 London Circuit | GPO Box 158 Canberra ACT 2601 | www.det.act.gov.au

From: Stewart, Ell <Ell.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office
Sent: Tuesday, 18 January 2022 3:46 PM
To: Mitchell, BethL <BethL.Mitchell@act.gov.au>
Cc: Yapp, Phillip <Phillip.Yapp@act.gov.au>; ICW EBM Office <ICWEBMOffice@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: FW: FOR ACTION: FILE2022/398 MIN CORRO - School ventilation plans - [REDACTED]

OFFICIAL

Hi Beth

Please provide a response for EBM clearance by **4PM MON 31 JAN** on the template in TRIM

Many thanks

Ell
3

From: Metherell, Skye <Skye.Metherell@act.gov.au> **On Behalf Of** Education DLO
Sent: Tuesday, 18 January 2022 2:28 PM
To: ICW EBM Office <ICWEBMOffice@act.gov.au>
Cc: EDUMCR <EDUMCR@act.gov.au>; EDU, EGMB SG <EGMBSG.EDU@act.gov.au>
Subject: FOR ACTION: MIN CORRO - School ventilation plans - [REDACTED]

OFFICIAL

Good Morning,

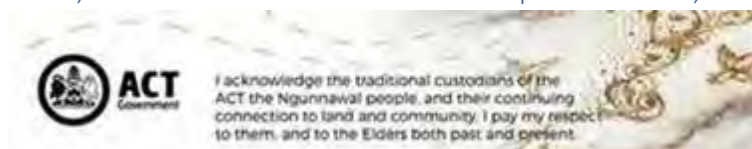
Please see below constituent enquiry requiring response. Please review the below table to provide the appropriate response type and note the due dates.

Title/Question	MIN CORRO - School ventilation plans [REDACTED]
Action	Please prepare a Ministerial response to the below correspondence
Responsibility	ICW
Response type	Ministerial Response
TRIM	FILE2022/398
Date due to EGM	2.2.2022
Date Due to MO	3.2.2022
Clearance	Please refer to the Executive Clearance Protocol document for appropriate clearance levels/drop copy requirements: here
Comment	Please contact EDUDLO@act.gov.au if you have questions.

If you have any queries please don't hesitate to ask.

Kind Regards,

Skye Metherell | Directorate Liaison Officer
 Ministerial & Commonwealth Relations | **Education Directorate** | ACT Government
T: 6213 3313 | E: skye.metherell@act.gov.au
 Level , 220 Northbourne Avenue Braddon | GPO Box 158, Canberra, ACT 2601 |



-----Original Message-----

From: BERRY <BERRY@act.gov.au>
 Sent: Monday, 17 January 2022 9:30 AM
 To: Education DLO <EDUDLO@act.gov.au>
 Cc: Hobbs, Rebecca <Rebecca.Hobbs@act.gov.au>
 Subject: FW: School ventilation plans

Hi Skye,

Please see below/ attached correspondence related to Education. For appropriate action please.

Thank you,

Harini

-----Original Message-----

From: [REDACTED]

Sent: Sunday, 16 January 2022 4:57 PM

To: BERRY <BERRY@act.gov.au>

Subject: School ventilation plans

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi minister,

what is the plan to improve ventilation in schools? Have air purifiers been purchased? Have all windows been checked so they can be opened? Have extra fans been bought? Have CO2 monitors been bought?

Thanks

[REDACTED]

**Yvette Berry MLA**

Deputy Chief Minister
Minister for Early Childhood Development
Minister for Education and Youth Affairs
Minister for Housing and Suburban Development
Minister for Women
Minister for the Prevention of Domestic and Family Violence
Minister for Sport and Recreation

Member for Ginninderra

Dear [REDACTED]

Thank you for your email of [REDACTED] requesting information on actions taken to improve ventilation in schools. The ACT Government is dedicated to ensuring the safe return of students to onsite learning in accordance with COVID-19 health advice.

All learning spaces across the ACT public school network have been assessed to ensure adequate ventilation. Schools have been provided with a site-specific Indoor Air Quality Plan, which outlines the ventilation provided to each classroom, actions to be undertaken by the school and works implemented.

In line with expert advice, ventilation is being maximised by opening windows in classrooms; programming ventilation systems to introduce additional fresh air and operate for longer hours; and turning on exhaust fans in rest rooms. All windows have been checked and made operable where required to provide ventilation.

A number of schools were fitted with CO₂ sensors prior to COVID-19 to monitor indoor air quality. There is a program to expand the network of CO₂ monitors to additional schools to enhance remote monitoring and management capability.

UV-C light units have been installed in air conditioning systems at priority sites, including preschools. UV-C light has been used extensively in health settings to inactivate viruses and bacteria as they pass the light unit. Units have been selected that do not produce ozone to ensure the safety of students.

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[@YvetteSBerry](https://twitter.com/YvetteSBerry)



[YvetteSBerry](https://www.facebook.com/YvetteSBerry)



[Yvette_berry_mla](https://www.instagram.com/Yvette_berry_mla)

Winter ventilation is currently being scoped for sites where ventilation is predominantly via opening of windows, with solutions including Heat and Energy Recovery Ventilation units. These units allow fresh air to be provided with windows closed and enhance the energy efficiency of existing heating systems.

It is important to note that the infrastructure response is part of a broad suite of controls to reduce the risk of COVID-19 transmission in school settings including vaccination, physical distancing, good hygiene, cleaning, mask use and rapid antigen testing.

Thank you for your interest in the work being undertaken in schools to maximise the safety of students and staff.

Yours sincerely

Yvette Berry MLA
Minister for Education and Youth Affairs

This record is not released in accordance with Section 17 of the *Freedom of Information Act 2016*, Schedule 1, 1.6 and outside of the scope of the request.

This record is not released in accordance with Section 17 of the *Freedom of Information Act 2016*, Schedule 1, 1.6 and outside of the scope of the request.

From: [Martinez, Catherine](#) on behalf of [EDU, EGMSG](#)
To: [EDU Cabinet Liaison Officer](#)
Cc: [EDU, EGMSG](#)
Subject: FW: EGMSG CLEARED - 2020-21 Annual Report Hearing Briefs (Business Services) 2.9 - Ventilation in Schools in response to COVID-19
Date: Friday, 18 February 2022 9:00:10 AM
Attachments: [image001.png](#)
[Business Services.tr5](#)
[02.9. Ventilation in Schools in response to COVID-19.DOCX](#)

OFFICIAL

Good morning Georgia

Please see attached cleared by EGMSG David Matthews.

Regards
Catherine

From: Matthews, David <David.Matthews@act.gov.au>
Sent: Friday, 18 February 2022 8:57 AM
To: EDU, EGMSG <EGMSG.EDU@act.gov.au>
Subject: FW: FOR CLEARANCE - 2020-21 Annual Report Hearing Briefs (Business Services) 2.9 - Ventilation in Schools in response to COVID-19

OFFICIAL

Approved, with thanks.

Dave Matthews
Executive Group Manager, Business Services Group

From: Martinez, Catherine <Catherine.Martinez@act.gov.au> **On Behalf Of** EDU, EGMSG
Sent: Tuesday, 15 February 2022 10:22 AM
To: Matthews, David <David.Matthews@act.gov.au>
Cc: EDU, EGMSG <EGMSG.EDU@act.gov.au>
Subject: FW: FOR CLEARANCE - 2020-21 Annual Report Hearing Briefs (Business Services) 2.9 - Ventilation in Schools in response to COVID-19

OFFICIAL

OFFICIAL

From: Stewart, Ell <Ell.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office
Sent: Thursday, 10 February 2022 9:27 AM
To: EDU, EGMBSG <EGMBSG.EDU@act.gov.au>
Cc: ICW EBM Office <ICWEBMOffice@act.gov.au>
Subject: FW: FOR CLEARANCE - 2020-21 Annual Report Hearing Briefs (Business Services)

OFFICIAL

OFFICIAL

Good morning

The last two ICW briefs are in TRIM for EGM clearance:

2.9 - Ventilation in Schools in response to COVID-19

Thanks, Ell

From: Stewart, Ell <Ell.Stewart@act.gov.au> **On Behalf Of** ICW EBM Office
Sent: Wednesday, 9 February 2022 4:56 PM
To: EDU, EGMBSG <EGMBSG.EDU@act.gov.au>
Cc: ICW EBM Office <ICWEBMOffice@act.gov.au>
Subject: FOR CLEARANCE - 2020-21 Annual Report Hearing Briefs (Business Services)

OFFICIAL

OFFICIAL

Good afternoon

The following ICW briefs are updated in TRIM for EGM clearance:

BRIEF



The remaining two briefs need to be checked by the ESD team first thing tomorrow and I will

forward them before 12pm:

2.9 - Ventilation in Schools in response to COVID-19

Thanks, Ell

From: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>

Sent: Wednesday, 9 February 2022 2:25 PM

To: ICW EBM Office <ICWEBMOffice@act.gov.au>

Subject: Fw: REMINDER: FOR ACTION - 2020-21 Annual Report Hearing Briefs (Business Services)

OFFICIAL

I've reviewed all

Andrew Parkinson | Executive Branch Manager

Infrastructure & Capital Works | Education Directorate | **ACT Government**

Phone 02 6205 4593 | **Mobile 0478 301 085**

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Dhawura nguna, dhawura Ngunnawal

From: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>

Sent: Wednesday, 9 February 2022 13:47

To: Hunter, Stuart <Stuart.Hunter@act.gov.au>; ICW EBM Office <ICWEBMOffice@act.gov.au>

Subject: Fw: REMINDER: FOR ACTION - 2020-21 Annual Report Hearing Briefs (Business Services)

Thanks Stu

Andrew Parkinson | Executive Branch Manager

Infrastructure & Capital Works | Education Directorate | **ACT Government**

Phone 02 6205 4593 | **Mobile 0478 301 085**

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Dhawura nguna, dhawura Ngunnawal

From: Hunter, Stuart <Stuart.Hunter@act.gov.au>
Sent: Wednesday, 9 February 2022 12:16
To: ICW EBM Office <ICWEBMOffice@act.gov.au>
Cc: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: REMINDER: FOR ACTION - 2020-21 Annual Report Hearing Briefs (Business Services)

OFFICIAL

Hi Ell,



Regards,

Stuart Hunter | A/Senior Director, School Infrastructure Management
Phone: +61 2 6207 8831 | Mobile: 0478 488 885 | Email: stuart.hunter@act.gov.au
Infrastructure & Capital Works | Education | ACT Government
www.education.act.gov.au | [Facebook](#) | [Twitter](#) | [Instagram](#) | [LinkedIn](#) | [Google+](#)

From: Stewart, Ell **On Behalf Of** ICW EBM Office
Sent: Friday, 4 February 2022 10:33 AM
To: Blom, Dylan <Dylan.Blom@act.gov.au>; Vijaykumar, Arjun <Arjun.Vijaykumar@act.gov.au>; Player, Ben <Ben.Player@act.gov.au>; Hunter, Stuart <Stuart.Hunter@act.gov.au>; Hooper, Richard <Richard.Hooper@act.gov.au>; Peswani, Pragati <Pragati.Peswani@act.gov.au>; Kidman, Fiona <Fiona.Kidman@act.gov.au>; Gumley, Clair <Clair.Gumley@act.gov.au>; Mitchell, BethL <BethL.Mitchell@act.gov.au>; Yapp, Phillip <Phillip.Yapp@act.gov.au>
Cc: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>; ICW EBM Office <ICWEBMOffice@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>; Zhi, Viki <Viki.Zhi@act.gov.au>
Subject: FW: FOR ACTION - 2020-21 Annual Report Hearing Briefs (Business Services)
Importance: High

OFFICIAL

Good morning

Please update the AR hearing briefs in TRIM for EBM clearance by **2PM WED 9 FEB** (or earlier if possible):

BRIEF	TEAM
[Redacted]	
2.9 - Ventilation in Schools in response to COVID-19	ESD
[Redacted]	

Please let me know early if you can't make the deadline

Thanks all, Ell

From: Nott, Georgia <Georgia.Nott@act.gov.au> **On Behalf Of** EDU Cabinet Liaison Officer

Sent: Thursday, 3 February 2022 5:41 PM

To: EDU, CorporateReporting <EDUCorporateReporting@act.gov.au>; CFO EDU Office <CFOEDUOffice@act.gov.au>; Le, Thao <Thao.Le@act.gov.au>; EDU, EBM P&P <ebmpp.edu@act.gov.au>; Ackland, Daniel <Daniel.Ackland@act.gov.au>; ICW EBM Office <ICWEBMOffice@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>; EDU, EGMSG <EGMSG.EDU@act.gov.au>

Cc: EDU Cabinet Liaison Officer <EDUCabinet@act.gov.au>; Burn, Emma <Emma.Burn@act.gov.au>; Page, Vicki <Vicki.Page@act.gov.au>

Subject: FOR ACTION - 2020-21 Annual Report Hearing Briefs (Business Services)

Good afternoon,

As you may be aware, the Minister is scheduled to appear at Annual Report Hearings on 25 February 2022.

To try to ease the burden on business units, we have used the Budget Estimate Hearing briefs from October 2021 and combined/updated where possible. MCR is now requesting that Business Units review and update briefs in preparation for the hearings. If you require further information, guidance or are unable to meet the deadline please contact educabinet@act.gov.au and we will assist as much as possible. Our role is to support business units and make this process as easy as possible.

2022 has gotten off to a busy start and we very much appreciate the work of all involved in ensuring the Minister and witnesses are prepared to attend the hearings.

Title/Question	2020-21 Annual Report Hearing Briefs
Responsibility	MCR: 1.9 SF: 2.10, 3.1 – 3.5, 10.3 P&P: 2.5, 2.12, 8.2 – 8.4 ICW: 2.9, 4.7, 5.1 – 5.8
TRIM	FOL22/25
Clearance	EGM BS
Date Due to MCR	Midday, Friday 11 February 2022
Comments	<ul style="list-style-type: none"> • To assist, we have placed previous briefs in the relevant trim container and updated where possible to assist with drafting/updating. Please see the attached TRIM link your relevant folder. • Please refer to the attached Guide to writing Assembly/Hearing Briefs document to ensure your briefs are high-quality and as user-friendly as possible. A useful reminder of some rules to follow are provided below. • MCR has allocated a lead branch to each brief, it is the responsibility of the lead to liaise with other branches as required. • Please let MCR know (via EDUCabinet@act.gov.au) asap if we have incorrectly allocated any of the briefs. • MCR and EGM BS will undertake quality check on all briefs on 11-16 February 2022 to ensure quality and consistency. Please be prepared to undertake urgent amendments following these reviews. • The final hearing pack will be distributed to the Minister and all witnesses on Friday 18 February 2022. Any additional briefing material required outside of the formal hearing briefing pack is the responsibility of each respective witness/branch (Please note that additional briefing material is subject to FOI requirements). • Please contact the Assembly team (Georgia, Vicki or Emma) if you have any questions at EDUCabinet@act.gov.au.

Again, please note the below reminder regarding the format of Assembly briefs, and some key tips on creating a user-friendly document, for this purpose.

Rules to follow

1. Ensuring formatting is consistent with templates.

2. Use Calibri font size 14 for **Key Points** and point size 12 for **Background**. Consider limited other headings to help navigate the brief.
3. Make sure the brief title is consistent with the index – they need to match, otherwise it is confusing, if the index is wrong let MCR know.
4. Your brief should be a maximum of **TWO PAGES** of current information. If it can't fit on two pages, consider what can be deleted, and how you can use language more economically.
5. Readability:
 - o Formatting – consider making certain points bold in the brief to highlight key information
 - o Use of figures wherever possible – be consistent
 - o If using percentage incorporate the actual number [beside] the percentage figure (E.g.: 71 percent of schools [64] have implemented PBL.)
 - o Referencing specific components on the Annual Report or Budget (if applicable) E.g. **Occupational Violence (Annual Report p47)**
6. Use facts, statistics, comparisons with other Australian states and territories and international comparisons at national or sub-national level, where appropriate. Reference where comparative data is sourced.
7. Combining related briefs – like Teacher Librarian Scholarships (a budget measure) and Teacher Librarians (policy/current state) so it is all in one place. Please check data and dates are consistent between both.

Kind regards –

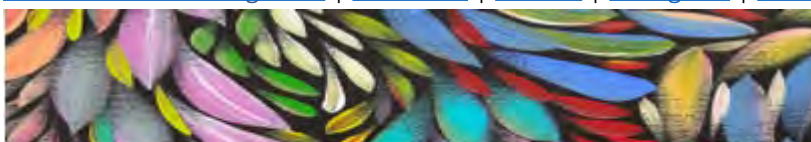
Georgia Nott | Assembly Liaison Officer | Ministerial & Corporate Reporting

Phone: +61 2 620 77111 | Email: georgia.nott@act.gov.au

Communications, Engagement and Government Support | Education | ACT Government

GPO Box 158 Canberra ACT 2601

www.education.act.gov.au | [Facebook](#) | [Twitter](#) | [Instagram](#) | [LinkedIn](#)



I acknowledge the traditional custodians of the lands and waters where we live and work, and pay my respects to elders past, present, and future.

ANNUAL REPORT HEARING BRIEF

Portfolio/s: Education and Youth Affairs

VENTILATION IN SCHOOLS

Talking Points

- Improving air quality in ACT public schools is a priority to enable onsite learning and teaching in accordance with COVID-19 Health Advice.
- All learning spaces (about 3500) across the school network have been checked to ensure adequate ventilation.
- Every school has its own **Indoor Air Quality Plan** which lists actions undertaken by EDU (e.g. HVAC systems change) and actions for schools to undertake each day to improve air quality. The Indoor Air Quality Plans have been updated for the start of the 2022 year. Where required, the Plans provide information about actions undertaken over the summer break. The Plans can be found on each schools' website.
- Ventilation is one component of a multilayered approach that has been implemented to prevent transmission of COVID-19 in schools.
- In line with expert advice, ventilation is being maximised by opening windows in classrooms, adjusting HVAC systems and turning on exhaust fans in rooms that have them. The message to the community from schools is, *If you would like to make a contribution to your school, please speak with your principal about which types of donations would be most welcome.*
- IAQ actions are being prioritised at preschools due to the potential vulnerability of this cohort.
- Supply chain delays and stock availability has delayed the commencement of works at some schools.
- UV-C light units have been installed in air conditioning systems at priority sites where mechanical ventilation does not introduce fresh air. UV-C lights installed in Heating, Ventilation and Air Conditioning systems have been used extensively in health settings to inactivate viruses as they pass the light unit. Units are installed inside the casing of the air conditioning systems. Units have been selected that do not produce ozone to ensure the safety of students.
- Winter ventilation systems are currently being scoped for sites where ventilation is predominantly via opening of windows. Solutions include Heat and Energy Recovery Ventilation (ERV and HRV). These units allow fresh air to be provided while windows are closed. The units are a feature of all new schools. The first retrofit commenced at Macquarie Primary School in the week commencing 27 January 2022.
- \$4.0 million of ventilation works are either completed, underway or out to quote/tender at 9 February 2022.
- The routine use of portable HEPA filters and portable carbon dioxide (CO₂) monitors across all ACT schools is not supported at this time, as the evidence for the additional public health benefit of these units over other public health measures and maximising fresh air is currently limited.

Cleared as complete and accurate: 09/02/2022
Cleared for public release by: Executive Group Manager
Contact Officer name: Andrew Parkinson
Lead Directorate: Education
TRIM Ref: FOL22/125

ANNUAL REPORT HEARING BRIEF

- EDU will continue to be guided by ACT Health and AHPPC advice and the evolving evidence on the specific benefit of these devices in addition to other public health measures in a school setting.

Key Information

- An important part of ACT public schools' return to on campus learning is to ensure that there is proper ventilation in line with Health advice for managing COVID-19.
- It is important to note that ventilation is part of the broader suite of controls to reduce the risk of COVID-19 transmission in school settings including vaccination, physical distancing, good hygiene, cleaning and mask use, and should not be considered in isolation of other mitigation strategies.
- The CHO, AHPPC, World Health Organisation and Safe Work Australia recommend ensuring fresh air ventilation is optimised in all settings, including through adjusting mechanical systems to increase fresh (external) air supply and reduce air recirculation, and use of natural ventilation such as opening windows and doors.
- EDU has developed an Indoor Air Quality (IAQ) framework to assess the IAQ of all public schools commencing with ACT public colleges.
- All public school learning areas have been assessed under the IAQ framework with immediate actions implemented to optimise fresh air flow. There are 3500 learning areas in ACT public schools (including approx. 3000 classrooms).
- Every school has had an IAQ Plan (see example at end of brief) completed under the framework for the return to on-campus learning – this includes a list of actions already undertaken by EDU (including increasing fresh air ventilation via HVAC systems) and actions for schools to undertake each day (including opening windows to promote natural ventilation and turning on exhaust fans). These school actions will be carried out by non-teaching staff like Building Services Officers.
- Site specific IAQ plans were provided to all ACT public colleges on 1 October 2021.
- Site specific IAQ plans were provided to all other ACT public schools on 22 October 2021.
- From this work, EDU is confident that fresh air flow can be increased in all public school classrooms to improve ventilation.
- IAQ Plans for all school sites have been updated to include actions undertaken in term 4 and over the summer break.
- Cooler classroom temperatures during cool weather and warmer classroom temperatures during hotter weather are expected to result from increasing fresh air to learning environments.
- Higher energy bills are anticipated to result from the increase in fresh air as a greater volume of air needs to be heated or cooled.
- EDU is investigating technologies to improve air quality in classrooms including modern ventilation systems for toilets and bathrooms and air purification systems and securing the supply of these where appropriate.

ANNUAL REPORT HEARING BRIEF

- EDU is monitoring air quality in learning spaces to further refine the strategy to provide the best ventilation for ACT public schools including pre-schools.
- Where access to natural ventilation is limited and where mechanical ventilation can not be provided in the short term, germicidal UVC light units are being installed to existing air conditioners. These units are safe and are used to reduce transmission of viruses and bacteria in health settings. The units have been implemented predominantly in preschools.
- Heat Recovery Ventilation (HRV) systems have been purchased to provide a long term energy efficient solution to ventilation of learning environments. These arrived in January 2022. The units are specifically designed for classrooms and control fresh air automatically in response to CO₂ levels.
- \$2.6 million of additional funding has been allocated to undertake short term actions across the public school portfolio to maximise fresh air in learning spaces.
- A further \$2.6 million of additional funding has been allocated to undertake additional actions to maximise fresh air in learning spaces in terms 1 and 2 of 2022.

Background Information

- ACT public schools are very well placed as there has been an extensive program of work underway to improve school ventilation since the 2019-2020 bushfires.
- EDU has been progressively upgrading building controls in 65 schools in order to have better control of the air intake sources for the Heating, Ventilation and Cooling (HVAC) systems.
- Many schools have building controls with CO₂ sensors which provides a proxy for ventilation in a room. CO₂ monitoring will be expanded across schools in 2022.
- In 2018, EDU commenced a program of installing CO₂ sensors in schools. To date, more than 326 CO₂ sensors with remote monitoring and management systems have been installed across 40 public schools. Additional CO₂ sensors are being installed at approximately 25 ACT public schools with suitable building control systems. This will mean 73 per cent (65 of 89) schools will soon have CO₂ sensors to the monitor and manage indoor air quality.
- Not all classrooms are connected to large HVAC systems with CO₂ sensors, however these rooms typically have external natural ventilation and split system air conditioning units so that fresh air can be introduced and air flow maintained.
- Longer term, EDU will look to introduce additional mechanical ventilation in spaces that require it. This may include installation of new building control/management systems with CO₂ sensors that can remotely monitor and control HVAC systems and windows as well as installing supplemental ventilation such as modern exhaust fans in bathrooms and toilets.

ANNUAL REPORT HEARING BRIEF

Canberra High School Indoor Air Quality Plan	
Background:	<p>As part of the return to on campus learning in Term 4 2021, ACT Health has advised that schools optimise fresh air circulation as one of the controls to reduce the risk of COVID-19 transmission in schools.</p> <p>The risk of COVID-19 transmission is higher in crowded and poorly ventilated spaces where people spend long periods of time together in close proximity. Good ventilation is one part of a suite of controls to minimise transmission in schools, like vaccination, physical distancing, student cohorting, good hygiene, cleaning and mask use.</p> <p>This Plan identifies actions that have been undertaken at your school by the Education Directorate and provides additional measures for the school to undertake to optimise the fresh air ventilation in the school in Term 4.</p>
Health Advice:	<p>The Chief Health Officer, the Australian Health Protection Principal Committee, World Health Organisation and Safe Work Australia all recommend good indoor air quality to reduce the chance of COVID-19 transmission.</p>
Advice:	<p>The ventilation systems at Canberra High School have now been assessed by the Directorate in accordance with the WHO guidance.</p> <p>Fresh air ventilation will be achieved through a mix of natural (opening windows and doors) and mechanical (cooling and ventilation systems).</p> <p>The settings for the Heating, Ventilation and Air Conditioning systems have been reset to achieve good fresh air supply and <u>should not be altered by the school</u>.</p> <p>Increasing the fresh air to classrooms may increase energy costs. Classrooms are also likely to experience lower room temperatures during cooler weather and higher room temperatures in warmer weather.</p> <p>Learning and teaching spaces with fresh air ventilation from either natural or mechanical systems meet the COVID-19 Health Advice. The school is to prioritise the use of these spaces for indoor teaching and learning along with outdoor spaces.</p>
Daily actions to be undertaken by the school in Term 4:	<p>Additional daily measures the school will undertake include:</p> <ul style="list-style-type: none"> • Opening windows and doors in teaching spaces and other shared spaces of the school to supplement fresh air. Windows above ground level are to be opened only where window restriction is in place to ensure student safety. In line with the National Construction Code, window opening is to be 125mm or less. • Improving air circulation through use of ceiling fans and split system air-conditioning units, only when windows are open. • Ensure bathroom, kitchen and any other exhaust fans are on and operating at full capacity while the school or program is operating and for some time before and after occupancy.

Cleared as complete and accurate: 09/02/2022
 Cleared for public release by: Executive Group Manager
 Contact Officer name: Andrew Parkinson
 Lead Directorate: Education
 TRIM Ref: FOL22/125

ANNUAL REPORT HEARING BRIEF

Actions undertaken:	<p>The following actions have been undertaken by the Directorate and its service providers to increase fresh air ventilation in the indoor teaching and learning spaces at the school:</p> <ul style="list-style-type: none">• air handling units have been programmed to supply additional fresh air via the mechanical ventilation systems• evaporative cooling in the school will provide full fresh air when operating in either cooling or fan mode. When not in operation, fresh air is to be provided by opening windows• contractors will continue work to audit and enhance the operation of the ventilation systems.
Support or further advice:	<p>For further advice, schools can contact their ICW Network Officer or email ACT.Education@act.gov.au</p>

This record is not released in accordance with Section 17 of the
Freedom of Information Act 2016, Schedule 1, 1.6

From: [Parkinson, Andrew](#)
To: [Seton, Sam](#)
Cc: [Laurent, Kristen](#); [Dunn, Katie](#); [McMahon, Kate](#)
Subject: Re: Ventilation
Date: Friday, 25 February 2022 11:34:11 AM
Attachments: [image001.png](#)

OFFICIAL

Thanks Sam

I'm happy with that - looks like a good mashup of the FAQs and my email.

Andrew Parkinson | Executive Branch Manager
Infrastructure & Capital Works | Education Directorate | **ACT Government**
Phone 02 6205 4593 | **Mobile 0478 301 085**
220 London Circuit, Civic | www.act.gov.au
Dhawura nguna, dhawura Ngunnawal

From: Seton, Sam <Sam.Seton@act.gov.au>
Sent: Friday, 25 February 2022 11:20
To: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Cc: Laurent, Kristen <Kristen.Laurent@act.gov.au>; Dunn, Katie <Katie.Dunn@act.gov.au>; McMahon, Kate <Kate.McMahon@act.gov.au>
Subject: RE: Ventilation

OFFICIAL

Thanks Andrew – are you happy with the below response

Last year ventilation experts assessed every single ACT public school, and all public schools now have detailed ventilation plans in place. The initial packages of work focused on opening up windows and HVAC changes to increase fresh air supply, but the focus has now moved to longer term solutions to prepare for the cooler months.

A key longer-term strategy will be to install heat recovery and energy ventilation systems, that provide warm conditioned outdoor air and complement existing heating systems and replace recirculating split systems. The Directorate has already been pre-purchasing these units, which will be installed at priority sites prior to the start of winter. Small Group Programs, Learning Support Units and similar spaces have been prioritised for HVAC works that increase the supply of fresh, external air into the rooms. In some cases this is part of adjustments to major HVAC systems that supply the whole school. In other cases, this is accomplished by new split style AC units with fresh air supply.

Sam Seton | Executive Branch Manager
Phone 02 62057196 | sam.seton@act.gov.au
Student Engagement
Education Directorate| **ACT Government**

GPO Box 158 Canberra ACT 2601 | www.act.gov.au



The Education Directorate acknowledges the Ngunnawal Peoples as the Traditional Custodians of the ACT and region upon which we live and work

From: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>

Sent: Friday, 25 February 2022 10:58 AM

To: Seton, Sam <Sam.Seton@act.gov.au>

Cc: Laurent, Kristen <Kristen.Laurent@act.gov.au>; Dunn, Katie <Katie.Dunn@act.gov.au>; McMahon, Kate <Kate.McMahon@act.gov.au>

Subject: Re: Ventilation

OFFICIAL

Hi Sam

I don't have the current FAQ / messaging in front of me (KL or KD could probably get those) but there's much more happening than the initial response of opening the windows.

Indoor Air Quality Plans have been reviewed at the start of the school year, based what we've learnt last year about the spaces and the possible solutions.

SGPs, LSUs and similar spaces have been prioritised for HVAC works that increase the supply of fresh, external air into the rooms. In some cases this is part of adjustments to major HVAC systems that supply the whole school. In other cases, this is accomplished by new split style AC units with fresh air supply.

Regards

Andrew Parkinson | Executive Branch Manager

Infrastructure & Capital Works | Education Directorate | **ACT Government**

Phone 02 6205 4593 | **Mobile 0478 301 085**

220 London Circuit, Civic | www.act.gov.au

Dhawura nguna, dhawura Ngunnawal

From: Seton, Sam <Sam.Seton@act.gov.au>

Sent: Friday, 25 February 2022 10:38

To: Parkinson, Andrew <Andrew.Parkinson@act.gov.au>

Cc: Laurent, Kristen <Kristen.Laurent@act.gov.au>; Dunn, Katie <Katie.Dunn@act.gov.au>;

McMahon, Kate <Kate.McMahon@act.gov.au>

Subject: Ventilation

OFFICIAL

Hi Andrew

I have just attended the Disability Oversight Group meeting to respond to questions re COVID and disability. There was a question re "What is education doing about ventilation. Is it reliant on classroom windows being open – noting this can result in sensory overload for students with disability and not practical in winter". I stated I understood work was ongoing in reviewing school ventilation however I could seek further details if required.

Can you please provide me a response to send back.

Thank you

Sam Seton | Executive Branch Manager

Phone 02 62057196 | sam.seton@act.gov.au

Student Engagement

Education Directorate | **ACT Government**

GPO Box 158 Canberra ACT 2601 | www.act.gov.au



The Education Directorate acknowledges the Ngunnawal Peoples as the Traditional Custodians of the ACT and region upon which we live and work

From: [Matthews, David](#)
To: [EDU, EGMBSG](#)
Subject: FW: FOR APPROVAL: Assembly Briefs (Sitting Period 22-24 March 2022) - Additional funding for response to COVID-19
Date: Monday, 14 March 2022 10:27:26 AM
Attachments: [image001.png](#)
[08_Additional_funding_for_response_to_COVID-19.tr5](#)
[08_Additional_funding_for_response_to_COVID-19.DOCX](#)

OFFICIAL

Approved, with thanks.

Dave Matthews
Executive Group Manager, Business Services Group

From: Martinez, Catherine <Catherine.Martinez@act.gov.au> **On Behalf Of** EDU, EGMBSG
Sent: Friday, 11 March 2022 5:28 PM
To: Matthews, David <David.Matthews@act.gov.au>
Cc: EDU, EGMBSG <EGMBSG.EDU@act.gov.au>
Subject: FW: FOR APPROVAL: Assembly Briefs (Sitting Period 22-24 March 2022) - Additional funding for response to COVID-19

OFFICIAL

Good afternoon David

Please find attached Assembly brief for your clearance.

Regards
Catherine

From: CFO EDU Office <CFOEDUOffice@act.gov.au>
Sent: Friday, 11 March 2022 12:44 PM
To: EDU, EGMBSG <EGMBSG.EDU@act.gov.au>
Cc: CFO EDU Office <CFOEDUOffice@act.gov.au>; Podnar, Peter <Peter.Podnar@act.gov.au>;
EDU Cabinet Liaison Officer <EDUCabinet@act.gov.au>
Subject: FOR APPROVAL: Assembly Briefs (Sitting Period 22-24 March 2022) - BSG

OFFICIAL

Hi Catherine,

Please find attached TRIM link with the updated brief 08 for David's clearance, approved by Thao.

Please note that this is due to MO 18 March.

Best Regards,
Sarah

From: Le, Thao <Thao.Le@act.gov.au>
Sent: Friday, 11 March 2022 10:44 AM
To: CFO EDU Office <CFOEDUOffice@act.gov.au>
Cc: Podnar, Peter <Peter.Podnar@act.gov.au>
Subject: RE: FOR APPROVAL: Assembly Briefs (Sitting Period 22-24 March 2022) - BSG

OFFICIAL

Hi Sarah

Approved with thanks.

Thao

From: Nott, Georgia <Georgia.Nott@act.gov.au> **On Behalf Of** EDU Cabinet Liaison Officer
Sent: Friday, 4 March 2022 12:13 PM
To: EDU, EBM P&P <ebmpp.edu@act.gov.au>; Ackland, Daniel <Daniel.Ackland@act.gov.au>;
 ICW EBM Office <ICWEBMOffice@act.gov.au>; Parkinson, Andrew
 <Andrew.Parkinson@act.gov.au>; CFO EDU Office <CFOEDUOffice@act.gov.au>; Le, Thao
 <Thao.Le@act.gov.au>; EDU Media <EDU.Media@act.gov.au>; Short, Paul
 <Paul.Short@act.gov.au>
Cc: EDU Cabinet Liaison Officer <EDUCabinet@act.gov.au>; EDU, EGMBSG
 <EGMBSG.EDU@act.gov.au>; Nott, Georgia <Georgia.Nott@act.gov.au>; Burn, Emma
 <Emma.Burn@act.gov.au>
Subject: FOR ACTION: Assembly Briefs (Sitting Period 22-24 March 2022) - BSG

OFFICIAL

Good afternoon

Please see below and attached for action.

Title/Question	Assembly Briefs for Sitting Period 22-24 March 2022
Action	1. Update Assembly Briefs as required 2. If no are updates required, please email educabinet@act.gov.au and we will complete action tree/notes
Responsibility	P&P: 4 and 9 ICW: 7, 12 and 13 SF&P: 8 COMMS: 11
Response	Assembly Brief

type	
TRIM	FOL22/566
Date due to EGM BSG	COB 11 March 2022
Date Due to MO	18 March 2022
Clearance	Please refer to the Executive Clearance Protocol document for appropriate clearance levels/drop copy requirements: here
Comment	<ul style="list-style-type: none"> • Please contact educabinet@act.gov.au if you have any questions. • Please ensure any information/data is updated as at 11 March 2020. • @EDU, EGMBSG – Please allow sufficient clearance time in the diary so these are returned to us by COB 17 March for collation/provision to MO. • Please note: TRIM Action Trees will be established by COB today.

Kind regards –

Georgia Nott | Assembly Liaison Officer | Ministerial & Corporate Reporting

Communications, Engagement and Government Support | Education | ACT Government

GPO Box 158 Canberra ACT 2601

www.education.act.gov.au | [Facebook](#) | [Twitter](#) | [Instagram](#) | [LinkedIn](#)



Portfolio/s: Education and Youth Affairs

Early Childhood Development

FUNDING FOR RESPONSE TO COVID-19

Talking points:

- To support the return to campus in term 4, 2021 following lockdown the ACT Government allocated **\$5.7 million** to support essential supplies such as masks and hand sanitiser, improved ventilation, and additional relief teacher hours.
- In addition to this support, the ACT Government invested **\$2.9 million in the continuation of school day cleaning to the end of Term 4 2021.**
- In **Term 1 and 2 of 2022** additional resourcing totalling **\$12.6 million** was allocated to continue to meet the costs managing COVID-19 in schools
- **These investments totaling \$21.2 million** and has enabled schools to prioritise the health and safety of staff and young people including their wellbeing, while also allowing students to continue their learning.

Key Information

- The support provided under the ACT Government's COVID Response fund includes the following elements

- [Redacted]

- [Redacted]

- **Improving ventilation in ACT public schools, along with associated costs relating to increased HVAC maintenance and increased electricity usage**

- [Redacted]

- [Redacted]

- [Redacted]

Background Information

- The investments made by the ACT Government to support the safe return to school for students and staff were made in response to the ACT lockdown which commenced on 12 August 2021.

QUESTION TIME BRIEF

- Students returned to on-campus learning in a phased approach in line with the relevant Health advice from the beginning of Term 4 2021.
- The return to on campus learning was predicated on the relevant health advice, including the required changes to school operations, supports and measures that need to be put in place for students and staff to recommence safely to on campus learning.
- To the end of January 2022, the Education Directorate had spent \$2.6 million related to these support measures.

Portfolio/s: Education and Youth Affairs

VENTILATION IN SCHOOLS

Talking Points

- Improving air quality in ACT public schools is a priority to enable onsite learning and teaching in accordance with COVID-19 Health Advice.
- Ventilation is one component of a multilayered approach that has been implemented to prevent transmission of COVID-19 in schools.
- All learning spaces (about 3500) across the school portfolio have been checked to ensure adequate ventilation.
- Every school has its own Indoor Air Quality Plan (see example at end of brief) which lists actions undertaken by EDU (e.g. HVAC systems change) and actions for schools to undertake each day to improve air quality. The Plans can be found on each schools' website.
- Updated Indoor Air Quality Plans are being prepared for winter.
- Indoor Air Quality actions are being prioritised at preschools due to the potential vulnerability of this cohort.
- In line with expert advice, ventilation is being maximised by opening windows in classrooms, adjusting HVAC systems and turning on exhaust fans in rooms that have them.
- Winter ventilation solutions are currently being scoped for sites where ventilation is predominantly via opening of windows. Solutions include Heat and Energy Recovery Ventilation (ERV and HRV). These units allow fresh air to be provided while windows are closed. The units are a feature of all new schools. The first retrofits were completed at Macquarie Primary School in February.
- The routine use of portable **HEPA filters** and portable carbon dioxide (CO₂) monitors is not supported at this time, as the evidence for the additional public health benefit of these units over other public health measures and maximising fresh air is currently limited.
- UV-C light units have been installed at priority sites where mechanical ventilation does not introduce fresh air. UV-C lights have been used extensively in health settings to inactivate viruses as they pass the light unit. Units have been selected that do not produce ozone to ensure the safety of students.
- UV-C light units have been installed at 31 preschools and other priority sites in school. Mobile units (43) will be distributed to priority sites to secure air quality while longterm solutions are planned and procured.
- EDU will continue to be guided by ACT Health and AHPPC advice and the evolving evidence on the specific benefit of these devices in addition to other public health measures in a school setting.

Key Information

- Supply chain delays and stock availability has delayed the the work program.
- The CHO, AHPPC, World Health Organisation and Safe Work Australia recommend ensuring fresh air ventilation is optimised in all settings, including through adjusting mechanical systems to increase fresh (external) air supply and reduce air recirculation, and use of natural ventilation such as opening windows and doors.
- EDU has developed an Indoor Air Quality (IAQ) framework to assess the IAQ of all public schools commencing with ACT public colleges. All public school learning areas have been assessed under the IAQ framework.
- Site specific IAQ plans were provided to all ACT public colleges on 1 October 2021.
- Site specific IAQ plans were provided to all other ACT public schools on 22 October 2021.
- IAQ Plans were updated to include actions undertaken in term 4 and over the summer break and reissued to schools.
- From this work, EDU is confident that fresh air flow can be increased in all public school classrooms to improve ventilation.
- Cooler classroom temperatures during cool weather and warmer classroom temperatures during hotter weather are expected to result from increasing fresh air to learning environments.
- Higher energy bills were experienced across sites with mechanical ventilation over the summer period. Gas bills are expected to increase over the winter period.
- EDU is monitoring air quality in learning spaces to achieve the best ventilation for ACT public schools while managing energy costs and thermal comfort.

Background Information

- To support schools to prepare for return to on campus learning following lockdown in 2021, the ACT Government allocated **\$5.7 million to support essential supplies** such as masks and hand sanitiser, improved ventilation and additional relief teacher hours. **\$2.9 million of this funding was allocated to improve ventilation** in ACT public schools. This includes building works, CO₂ monitoring, and changes to outdoor air introduced by heating, ventilation, and air conditioning (HVAC) systems.
- ACT public schools are very well placed as there has been an extensive program of work underway to improve school ventilation since the 2019-2020 bushfires.
- In early 2020, **400 Dyson air purifiers** were distributed to all public schools (88 at the time) for use in classrooms and other spaces to provide relief from smoke effects. These Dyson air purifiers have a HEPA filter contained within the unit. Filters require active management and replacement to ensure they don't have unintended consequences such as spreading mould spores.
- EDU has been progressively upgrading building controls in 65 schools to increase remote management of the Heating, Ventilation and Cooling (HVAC) systems.

Cleared as complete and accurate: 15/03/2022
Cleared for public release by: Executive Group Manager
Contact Officer name: Andrew Parkinson
Lead Directorate: Education
TRIM Ref: FOL22/566

QUESTION TIME BRIEF

- In 2018, EDU commenced a program of installing CO₂ sensors in schools (CO₂ sensors, provides a proxy for ventilation). To date CO₂ sensors with remote monitoring and management systems have been installed across 56 public schools. Installation of CO₂ sensors is progressing at a further nine ACT public schools. This will mean 73 per cent (65 of 89) schools will have CO₂ sensors to the monitor and manage indoor air quality.
- EDU has commissioned design work across 18 school that rely on natural ventilation via operable windows and integrated indoor air quality parameters into the specification documents for new whole of school heating, ventilation and cooling systems.

Canberra High School Indoor Air Quality Plan	
Background:	<p>As part of the return to on campus learning in Term 4 2021, ACT Health has advised that schools optimise fresh air circulation as one of the controls to reduce the risk of COVID-19 transmission in schools.</p> <p>The risk of COVID-19 transmission is higher in crowded and poorly ventilated spaces where people spend long periods of time together in close proximity. Good ventilation is one part of a suite of controls to minimise transmission in schools, like vaccination, physical distancing, student cohorting, good hygiene, cleaning and mask use.</p> <p>This Plan identifies actions that have been undertaken at your school by the Education Directorate and provides additional measures for the school to undertake to optimise the fresh air ventilation in the school in Term 4.</p>
Health Advice:	<p>The Chief Health Officer, the Australian Health Protection Principal Committee, World Health Organisation and Safe Work Australia all recommend good indoor air quality to reduce the chance of COVID-19 transmission.</p>
Advice:	<p>The ventilation systems at Canberra High School have now been assessed by the Directorate in accordance with the WHO guidance.</p> <p>Fresh air ventilation will be achieved through a mix of natural (opening windows and doors) and mechanical (cooling and ventilation systems).</p> <p>The settings for the Heating, Ventilation and Air Conditioning systems have been reset to achieve good fresh air supply and <u>should not be altered by the school</u>.</p> <p>Increasing the fresh air to classrooms may increase energy costs. Classrooms are also likely to experience lower room temperatures during cooler weather and higher room temperatures in warmer weather.</p> <p>Learning and teaching spaces with fresh air ventilation from either natural or mechanical systems meet the COVID-19 Health Advice. The school is to prioritise the use of these spaces for indoor teaching and learning along with outdoor spaces.</p>

QUESTION TIME BRIEF

<p>Daily actions to be undertaken by the school in Term 4:</p>	<p>Additional daily measures the school will undertake include:</p> <ul style="list-style-type: none"> • Opening windows and doors in teaching spaces and other shared spaces of the school to supplement fresh air. Windows above ground level are to be opened only where window restriction is in place to ensure student safety. In line with the National Construction Code, window opening is to be 125mm or less. • Improving air circulation through use of ceiling fans and split system air-conditioning units, only when windows are open. • Ensure bathroom, kitchen and any other exhaust fans are on and operating at full capacity while the school or program is operating and for some time before and after occupancy.
<p>Actions undertaken:</p>	<p>The following actions have been undertaken by the Directorate and its service providers to increase fresh air ventilation in the indoor teaching and learning spaces at the school:</p> <ul style="list-style-type: none"> • air handling units have been programmed to supply additional fresh air via the mechanical ventilation systems • evaporative cooling in the school will provide full fresh air when operating in either cooling or fan mode. When not in operation, fresh air is to be provided by opening windows • contractors will continue work to audit and enhance the operation of the ventilation systems.
<p>Support or further advice:</p>	<p>For further advice, schools can contact their ICW Network Officer or email ACT.Education@act.gov.au</p>

Yapp, Phillip

From: Yapp, Phillip
Sent: Wednesday, 16 March 2022 10:02 AM
To: Cusack, Grant
Subject: UVC Lights and COVID-19

Hi Grant

Some documentation on the efficacy of UVC against COVID-19 from independent sources, rather than manufacturers with an interest in their product. ASHRAE goes into the effectiveness of UVC at a certain dose/intensity of UVC light.

Any questions let me know.

ASHRAE
[ashrae-filtration disinfection-c19-guidance.pdf](#) (page 20 for UVC dose vs virus inactivation)

US Centre for Disease Control
[Ventilation in Buildings | CDC](#)
[Upper-Room Ultraviolet Germicidal Irradiation \(UVGI\) | CDC](#)

Research Article on UVC and SARS-CoV-2
[UV-C irradiation is highly effective in inactivating SARS-CoV-2 replication | Scientific Reports \(nature.com\)](#)

Cheers
Phil

Phil Yapp | Assistant Director – Asset Strategies, Sustainability and Environment

Phone: +61 2 6207 9190 | M: 0435 655 176 | Email: phillip.yapp@act.gov.au
Infrastructure and Capital Works | Education | ACT Government
Level 4 220 London Circuit | GPO Box 158 Canberra ACT 2601 | www.det.act.gov.au

Indoor Air Quality Framework

The following outlines the framework employed to define and prioritise works required to enhance the indoor air quality at ACT public schools and reduce the risk of transmission of COVID-19. The framework is informed by natural and mechanical ventilation assessments conducted at each school in term 4 of 2021. Prioritisation of individual sites has been further informed by internal records: including Heating, Ventilation and Air Conditioning audits; known asset condition; and, investigations by consultants and service providers commissioned to identify site specific solutions.

The core priority of the program is teaching and learning spaces and associated spaces. It is expected that staff use staff spaces in accordance with the ACT COVID-19 Health Advice.

Works across 2021 are prioritised based on school type and the date of return to onsite learning, with college sites prioritised in Term 4, followed by preschools, early childhood schools and primary schools that service student who are yet to be eligible for vaccination. At the commencement of 2022, preschools and early childhood schools are prioritised for works.

The key communication output of the Framework is individual Indoor Air Quality Plans for each school site. The Plan is accompanied by a map of the site detailing the ventilation status of each teaching and learning space within the school.

Key risks for the program include

- Program not delivered in time for Term 1, 2022
- Program actions for winter not delivered in time for Term 2, 2022
- Funding insufficient to meet the ventilation needs in the context of thermal comfort expectations
- Failure to provide for COVID-19 Safety and student and staff thermal comfort
- Product availability due to supply chain disruption
- Capacity of ACT Government delivery agents – staff availability and or staff illness
- Contractor availability.

PRESCHOOLS AND EARLY CHILDHOOD CENTRES

1. PRINCIPLES:

- 1.1 Prioritise natural ventilation via operable windows
- 1.2 Minimise transmission potential in spaces where limited ventilation can be provided through natural or mechanical means
- 1.3 Maximise winter safe operation to allow thermal comfort to be provided in winter.

2. DECISION MAKING FRAMEWORK

Action	Existing HVAC	Solution manages Winter IAQ	Comments
Ensure windows are operable.	All	No	Provides immediate natural ventilation
Install UV-C light to deactivate virus	Reverse cycle R410a, R32. Small rooms, e.g. playrooms with no independent HVAC	Yes	Systems have been vetted to ensure ozone emission is within safe limits.
Install new air conditioning system with outdoor air	Reverse cycle end of life	Yes	Longer lead time – March/April install
Install Heat Recovery Ventilation/or new air conditioning system with outdoor air	Classrooms with evaporative / no independent heating, e.g. cot rooms	Yes	Longer lead time – 2022-23 Will improve energy efficiency in both summer and winter in addition to introducing outdoor air.

PRIMARY SCHOOLS

1. PRINCIPLES:

- 1.1 Prioritise natural ventilation via operable windows
- 1.2 Minimise transmission potential in spaces where limited ventilation can be provided by natural or mechanical means
- 1.3 Maximise the capability of existing mechanical ventilation systems to modulate outdoor air
- 1.4 Maximise winter safe operation to allow thermal comfort to be provided in winter.

2. DECISION MAKING FRAMEWORK

Action	Existing HVAC	Solution manages Winter IAQ	Comments
Ensure that windows are operable.	N/A	No	
Set existing systems to increase outdoor air intake	In mechanically ventilated spaces only	In mechanically ventilated spaces only	
Install UV-C light to deactivate virus	Reverse cycle systems with no natural ventilation	Yes	
Install additional CO ₂ sensors to monitor IAQ and automate building management systems to manage outdoor air intake	ALL	Yes	CO ₂ levels to be monitored
Upgrade BMS to automate outdoor air intake	Low functioning BMS systems	Yes	CO ₂ levels to be monitored
Install Heat Recovery Ventilation to introduce outdoor air	Natural Ventilation only for winter	Yes	

HIGH SCHOOLS

1. PRINCIPLES:

- 1.1 Prioritise natural ventilation via operable windows and safety screens
- 1.2 Minimise transmission potential in spaces where limited ventilation can be provided by natural or mechanical means
- 1.3 Maximise the capability of existing mechanical ventilation systems to modulate outdoor air
- 1.4 Maximise winter safe operation to allow thermal comfort to be provided in winter.

2. DECISION MAKING FRAMEWORK

Action	Existing HVAC	Solution manages Winter IAQ	Comments
Ensure that windows are operable.	N/A	No	
Set existing systems to increase outdoor air intake	In mechanically ventilated spaces only	In mechanically ventilated spaces only	
Install UV-C light to deactivate virus	Limited fresh air ventilation	Yes	CO ₂ levels to be monitored
Install additional CO ₂ sensors to monitor IAQ and automate building management systems to manage outdoor air intake	ALL	Yes	CO ₂ levels to be monitored
Upgrade BMS to automate outdoor air intake	Low functioning BMS systems	Yes	CO ₂ levels to be monitored
Install Heat Recovery Ventilation to introduce outdoor air	Natural Ventilation only for winter	Yes	

COLLEGES

1. PRINCIPLES:

- 1.1 Prioritise natural ventilation via operable windows
- 1.2 Maximise the capability of existing mechanical ventilation systems to modulate outdoor air
- 1.3 Monitor sites through CO₂ sensors to heating, ventilation and cooling systems
- 1.4 Enable remote monitoring and management of ventilation systems

2. DECISION MAKING FRAMEWORK

Action	Existing HVAC	Solution manages Winter IAQ	Comments
Ensure that windows are operable.	N/A	No	
Set existing systems to increase outdoor air intake	In mechanically ventilated spaces only	In mechanically ventilated spaces only	
Install additional CO ₂ sensors to monitor IAQ and automate building management systems to manage outdoor air intake	ALL	Yes	CO ₂ levels to be monitored
Upgrade BMS to automate outdoor air intake	Low functioning BMS systems	Yes	CO ₂ levels to be monitored

Yapp, Phillip

From: CMTEDD ACTPG HVAC Services
Sent: Thursday, 17 March 2022 11:50 AM
To: Mitchell, BethL; Yapp, Phillip
Cc: CMTEDD ACTPG HVAC Services
Subject: FW: UVC emitter details and MSDS
Attachments: Covid-19 - Airborne Inactivation using Steril-Aire UVC Solutions.pdf; MSDS - Steril-Aire Germicidal Emitters 2016.pdf; Steril-Aire Maintenance 2022.pdf; 2-Year Lamp rev.pdf

UNOFFICIAL

Hi Al
Please see attached details regarding the UVC emitters, once you have had a chance to review happy to discuss further moving forward.

Regards,
Chris O'Connell

A/G Assistant Director – Heating Ventilation and Air Conditioning Services

ACT PROPERTY GROUP | PROPERTY UPGRADES | CHIEF MINISTERS, TREASURY & ECONOMIC DEVELOPMENT DIRECTORATE | ACT GOVERNMENT | www.act.gov.au

M: 0466 601 655

Direct Email: chris.oconnell@act.gov.au or ACTPG HVAC Team ACTPGHVAC@act.gov.au

255 Canberra Avenue, Fyshwick, ACT 2609,

PO Box 777 Fyshwick ACT 2609

If you have any feedback for the ACT Property Group, please email actpgfeedback@act.gov.au

"ACTPG is engaged by the Education Directorate to ensure the management of all contractors, past and present HVAC works are providing a turn-key solution".

COVID-19: there are currently travel restrictions in place for people travelling to the ACT from specified locations around Australia. These restrictions apply to contractors and suppliers of ACT Property Group unless an exemption has been granted.

ACT Property Group requires all contractors and suppliers to comply with any restrictions that are in force which are applicable to them. If permitted to travel to the ACT please follow COVID-safe practices and use the [Check In CBR App](#) at venues to support contact tracing. Updates can be found at: <https://www.covid19.act.gov.au/travel/entering-the-act>. Please contact ACT Property Group on 6213 0700, or where applicable the project officer, to discuss any impact this may have on delivery of services to ACT Property Group.

Coronavirus SARS-CoV-1 & SARS-CoV-2 (COVID-19)

Steril-Aire UVC systems are highly effective against Corona-viruses and will provide excellent pandemic protection against airborne threats.

Steril-Aire very high output UVC works by destroying the DNA and RNA of microorganisms and is therefore effective against *all* types of viruses including ***Flu's, Colds, Corona Virus/SARS, MERS, Measles and German Measles.***

The droplet nuclei for these viruses can remain airborne for hours or **days** depending on airflow and humidity (Virus micro-organism size is typically 10 – 500 millimicrons – millimicron = That's 1000th of a micron). They can also enter the biofilms growing on cooling coils and potentially mutate unless the coil is treated with UVC.

In order to understand how Steril-Aire UVC works, it is important to understand the science behind UVC:

The C wavelength of the UV spectrum we use is (UVC – 253.7nm), this targets the DNA and RNA of microorganisms, destroying their cells and making replication impossible. Directed at a cooling coil or drain pan, UVC energy destroys surface biofilm, a gluey matrix of microorganisms that grows in the presence of moisture. Biofilm is prevalent in HVAC systems and leads to a host of indoor air quality (IAQ) and HVAC operational problems. UVC also **destroys airborne viruses** and bacteria that circulate through an HVAC system.

For the most effective microbial control, Steril-Aire UV germicidal Emitters are installed on the supply side of the system, downstream from the cooling coil and above the drain pan. This location provides more effective biofilm and microbial control than in-duct UVC installations. By irradiating the contaminants at the source – the cooling coils and drains pans – Steril-Aire UVC delivers simultaneous cleaning of surface microorganisms and destruction of airborne microorganisms. Steril-Aire patented this installation configuration in 1995.

The recirculating air in HVAC systems creates redundancy in exposing microorganisms to UVC, ensuring multiple passes so the light energy is effective against large quantities of airborne microorganisms. Steril-Aire UVC delivers the highest UVC output, driving HVAC system efficiency while improving indoor air quality.

Many peer reviewed medical journal published studies from the Centre of Disease Control and Prevention, National Institute of Allergy and Infectious Diseases, New England Journal of Medicine and the University of California have concluded that COVID-19 Droplet Nuclei can remain airborne for several Hours.

The studies also showed that SARS-CoV-1 & SARS-CoV-2 (Covid-19) are remarkably similar and carry the same DNA/RNA structure and characteristics.

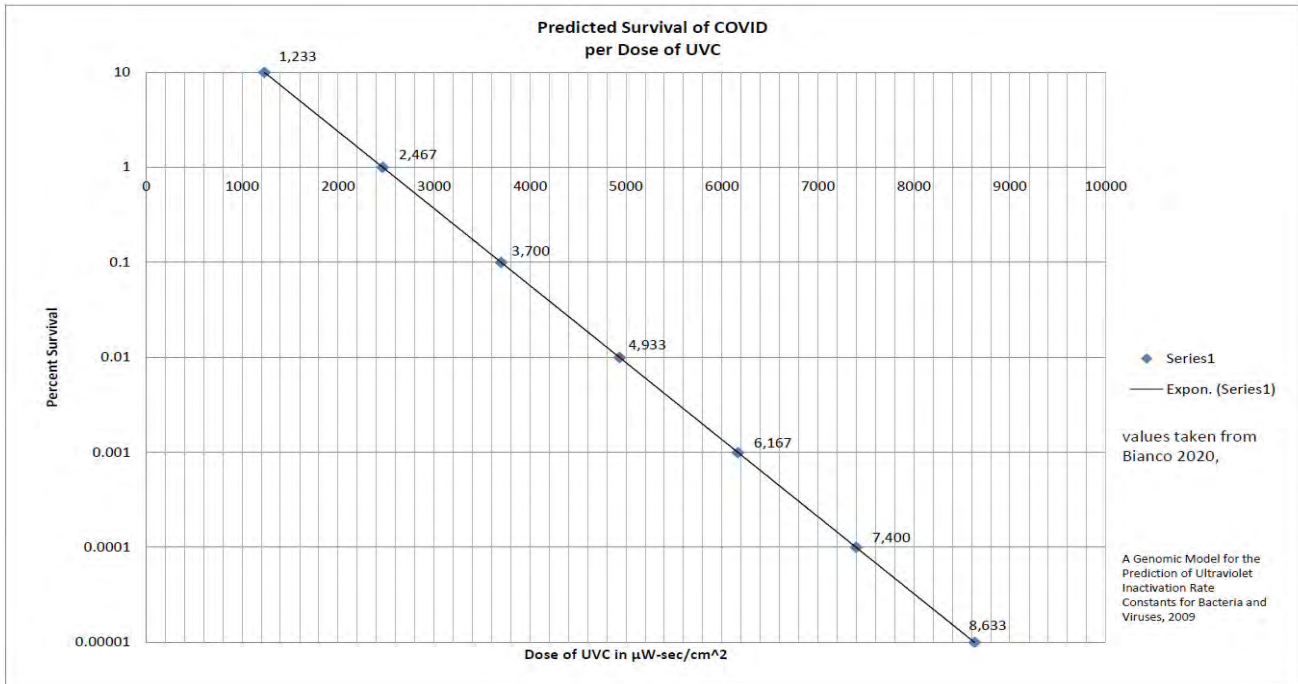
SARS-CoV-1 has previously been studied and found to be very susceptible to UVC at the right intensity.

Therefore, science concludes that SARS-CoV-2 like all viruses can be inactivated by UVC.

Dr W.J. Kowalski of Immune Building Systems and advisor to the US Government for Ultraviolet technology has completed much research on UVC's ability to inactivate Corona Virus including SARS-CoV-1. His research developed the required dosage of UVC to inactivate SARS-CoV-1.

This has recently been confirmed by the Italian Governments research on using UVC on SARS CoV-2

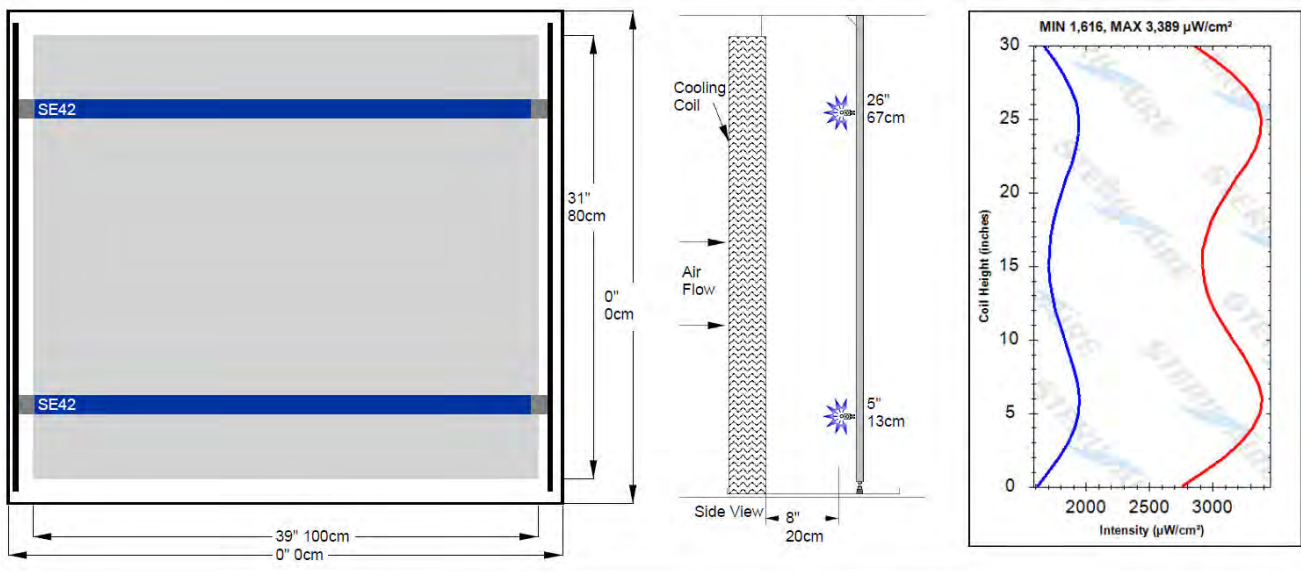
The outcome of the research of the group of Italian scientists from the National Institute for Astrophysics, Dept of Biomedical and Clinical Sciences, Epidemiology and Prevention Unit, Dept of Pathophysiology concluded that 3.7mJ/cm² of UVC energy was sufficient to provide a 3 log reduction (99.9%).



UVC Inactivation Dosage Table from the Italian Bianco Research

Concluding:

- For 90% Inactivation = Required Dosage 1233 μWatts-sec/cm2
- For 99% Inactivation= Required Dosage 2467 μWatts-sec/cm2
- For 99.9% Inactivation= Required Dosage 3700 μWatts-sec/cm2 (3700 μJ/cm2)



Based on a Typical small AHU selection Coil 800mm high x 1000mm wide

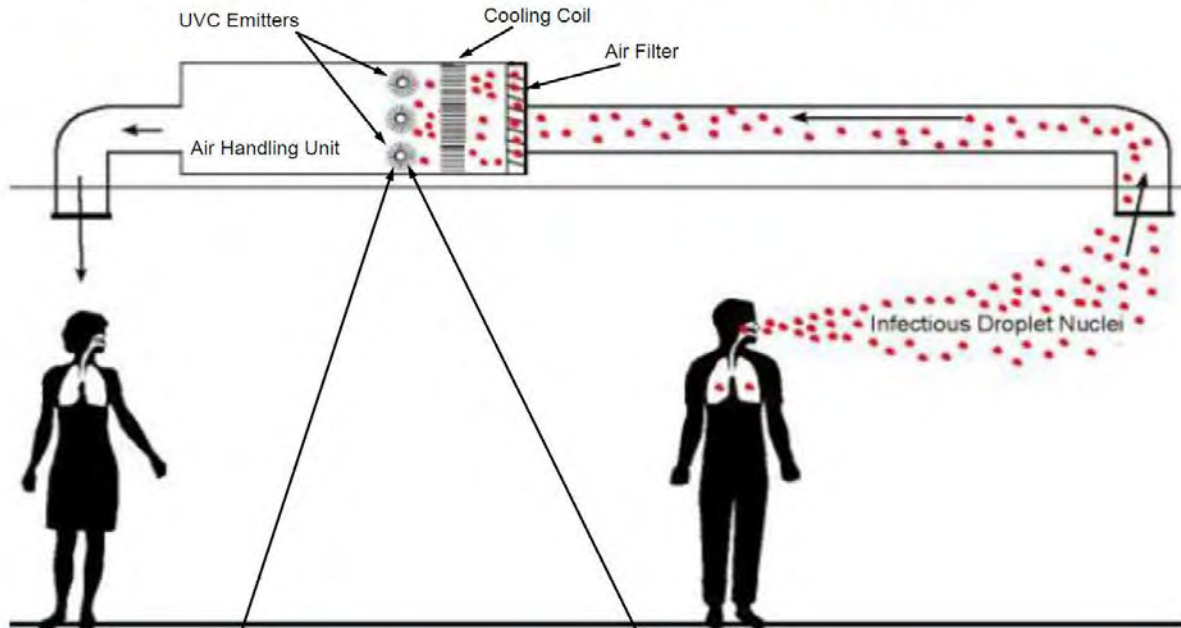
Average Intensity at Coil Face = 2750 μWatts/cm2 (@ 2.5 metres/sec air velocity & 12 Deg. C Air Temperature).
 With inverse square law applied to calculate total output = 17,820 Watts/cm2
 Dosage required for 99.9% inactivation of Covid-19 = **3700 μJ/cm2**
 Assume we have 1 metre from the coil face to the entry of the fan @ 2 m/s = 0.495 second

Inactivation Formula - $\mu J = \text{Intensity } (\mu W/cm^2) \times \text{Time}$

Dosage generated - $17820 \mu Watts/cm^2 \div 0.495 \text{ sec} = \mathbf{8821 \mu J/cm^2}$

Therefore a 99.9% inactivation of Covid-19 is easily achievable in one pass of the UVC Emitters

How Steril-Aire Emitters Inactivate Airborne Infectious Droplet Nuclei:



UVC Energy Fields generated in Air Conditioning systems by Steril-Aire create a barrier that destroys the Droplet Nuclei from Coronavirus, SARS, Measles and Influenza etc

- Humidity Levels within air-conditioned buildings typically have lower humidity than outside which allows Viruses to Evaporate faster thus creating **More Droplet Nuclei**.
- Lower humidity in buildings allows *Droplet Nuclei* to stay airborne longer as the droplets do not absorb water weight which cause them to fall to the ground.
- Indoor Air currents created by both HVAC systems and People movement assure that *Droplet Nuclei* can remain airborne ***Indefinitely***.
- This allows HVAC systems to redistribute *Droplet Nuclei* throughout the building to infect more occupants.

MATERIAL SAFETY DATA SHEET

GERMIDICAL UVC EMITTERS™



Germicidal Emitters manufactured for Steril-Aire, Inc. are exempt from the requirements of the OSHA Hazard Communication Standard (29 CFR 1910, 1200) because they are "articles." Steril-Aire as a courtesy to its customers provides the following information.

I. PRODUCT IDENTIFICATION

Product Name: GTD & GTS VO and RGTS HO & RGTS SO Series Emitters
 Distributor: Steril-Aire, Inc.
 2840 N. Lima Street, Burbank, CA 91504
 Phone: 818-565-1128

II. HAZARDOUS INGREDIENTS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO EMITTERS THAT ARE INTACT. If the Emitter is broken, the following materials may be released:

Chemical Name	CAS Number	% by weight	Exposure Limits In Air (mg/meter ³)	(mg/meter ³)
			ACGIH (TLV)	OSHA (PEL)
Quartz (Fused Silica)	60676-86-0	75-90	0.1 **	0.1 **
Mercury *	7439-97-6	<0.1	0.05	0.05
Tin	7440-31-5	0-<1	2.0	2.0
Lead	7439-92-1	0-<1	0.5	0.05

* This chemical is subject to the reporting requirements of section 313 of Title III of the Superfund

Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

** When quartz tubing is heated to working temperatures, the silica vapors given off condense as amorphous silica. Amorphous silica has a TLV of 10 mg/m³ and a PEL of 6 mg/m³.

III. PHYSICAL PROPERTIES

Not applicable to an intact Emitter.

IV. FIRE AND EXPLOSION HAZARDS

Flammability: Non-combustible.

Fire Extinguishing Materials: Use extinguishing media suitable for surrounding fire.

Special Firefighting Procedures: Use a self contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated from broken Emitters during firefighting activities.

Unusual Fire and Explosion Hazards: When exposed to high temperatures, toxic fumes may be released from broken Emitters.

V. REACTIVITY DATA

Stability: Stable.

Conditions to Avoid: None for intact Emitters.

Incompatibility (materials to avoid): None for intact Emitters.

Hazardous Decomposition Products: None for intact Emitters.

Hazardous Polymerization Products: Will not occur.

VI. HEALTH HAZARDS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EMITTERS THAT ARE INTACT. No adverse effects are expected from occasional exposure to broken Emitters. As a matter of good practice, avoid prolonged or frequent exposure to broken Emitters unless there is adequate ventilation. The major hazard from broken Emitters is the possibility of sustaining glass cuts.

EFFECTS OF OVEREXPOSURE TO BROKEN EMITTERS BY INHALATION, INGESTION, OR CONTACT WITH SKIN OR EYE.

Mercury - Exposure to high concentrations of vapors for brief periods can cause acute symptoms such as pneumonitis, chest pains, shortness of breath, coughing, gingivitis, salivation, and possibly stomatitis. Chronic exposure may cause tremors and neuropsychiatric problems. May cause redness and irritation as a result of contact with skin and eyes.

Quartz (fused silica) - Exposure to crystalline silica dust may cause scarring of the lungs (Silicosis) resulting in shortness of breath and coughing.

Inert Gases - Inert gases can cause asphyxia by displacing the ambient oxygen. Some symptoms of asphyxia are headache and dizziness.

Tin/Lead Solder - Ingestion or inhalation of dust or fumes must be avoided. Lead is toxic and cumulative, affecting the kidneys, reproductive system, and nervous system. Symptoms of chronic overexposure include anemia, insomnia, weakness, irritability, constipation, and stomach pains. Tin is not regarded as toxic but excessive exposure can cause fever, nausea, stomach cramps or diarrhea.

VII. PROCEDURE FOR CLEANUP OF BROKEN EMITTERS

If Emitters are broken, ventilate area where breakage occurred. Clean up with mercury vacuum cleaner or other suitable means that avoid dust and mercury vapor generation. Take usual precautions for collection of broken glass. Clean up requires special care due to mercury droplet proliferation. Place materials in closed containers to avoid generating dust. It is the responsibility of the generator to ensure proper classification of waste products. To that end, TCLP tests should be conducted on all waste products to determine the ultimate disposition in accordance with all applicable federal, state, and local regulations.

VIII. SPECIAL HANDLING INFORMATION - FOR BROKEN EMITTERS

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.

Respiratory Protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.

Eye Protection: OSHA specified safety glasses, goggles or face shield are recommended if Emitters are being broken.

Hygienic Practices: After handling broken Emitters, wash thoroughly before eating, smoking, or using toilet facilities.

IX. EMITTER DISPOSAL INFORMATION

For the U.S., Steril-Aire UVC Emitters are classified along with fluorescent lamps as Universal Waste. Large fluorescent lamp users should manage spent lamps in accordance with federal and state disposal laws. The recycling of spent lamps is encouraged. For a list of recyclers, please visit Lamprecycle.org.

For other countries, please follow local and country guidelines for fluorescent lamp disposal.

ALTHOUGH STERIL-AIRE, INC. ATTEMPTS TO PROVIDE CURRENT AND ACCURATE INFORMATION HEREIN, IT MAKES NO REPRESENTATIONS REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND ASSUMES NO LIABILITY FOR ANY LOSS, DAMAGE OR INJURY OF ANY KIND WHICH MAY RESULT FROM, OR ARISE OUT OF, THE USE OF/OR RELIANCE ON THE INFORMATION BY ANY PERSON.

ISSUED: 01-02-2016

FOR QUESTIONS CALL:

STERIL-AIRE, INC.(USA): 818-565-1128

STERIL-AIRE (AUS): 1300 781 128

3 February 2022

Att: Chris O'Connell
ACT Property Group
RE: Maintenance of Steril-Aire units

Dear Chris,

Maintenance requirements for Steril-Aire emitters are as follows:

Warning Safety Notes

The emitter should **NOT** have direct exposure to Skin or eyes. Please review SDS sheet before maintenance schedule

- ✓ Quarterly visual inspection through the viewport to ensure Emitters are lit. For Wall units they can be seen by looking behind the fan scroll
- ✓ If Emitter appears dirty, gently clean tube with Steril-Aire cleaning kit, faded emitters will require replacement. See troubleshooting
- ✓ Replace Emitters every 18,000 hours (approximately 2 years) only with Genuine Steril-Aire parts. Emitter must be replaced to ensure germicidal effectiveness. – See Canberra Air Conditioning Services if queries on equipment register and install Date
- ✓ Update Emitter replacement record label normally positioned by door of AHU or face of unit, and in the OwnerManual.
- ✓ Confirm Safety labelling is visible.

Troubleshooting

- ✓ If Emitter does not light
 1. Turn off power for 10 seconds and then turn power back on.
 2. Replace Emitter with new unit.
 3. Check line voltage.
 4. Check wiring to Emitter.
 5. Replace power supply.
- ✓ If Emitter has visibly weak light
 1. Replace Emitter with new unit.
 2. Check line voltage.
 3. Check wiring to Emitter.
- ✓ If Emitter has a red or orange glow
Check ambient temperature. If the temperature is at or below 35° F, follow action for low output.

Safety Considerations

Follow all safety codes and any warnings or cautions attached to any accessed area. Consult local building codes and the National Electrical Code (NEC) for special requirements.

Improper installation, adjustment, alteration, service, maintenance, or use can cause fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your supplier for information or assistance. In regards to the statements below, understand the signal words **DANGER**, **WARNING**, or **CAUTION**. These words are universally used for overall safety. **DANGER** identifies the most serious hazards which will result in severe personal injury or death. **WARNING** signifies hazards, which could result in personal injury or death. **CAUTION** is used to identify unsafe practices, which would result in minor personal injury or product and property damage.

WARNING: Before installing fixture or performing maintenance or service on fixture, turn off mainpower switch to unit. Electrical shock can cause injury or death. There may be more than one disconnect switch.

CAUTIONS:

- Turn all power off. Never expose eyes or skin to UVC light from any source, as personal injury may result. Wear gloves, face shield/glasses (per ANSI Z87.1) and cover all exposed skin.
- After installation, provide an interlock to turn off germicidal Emitters when access door is opened. Emitter must be off before entering HVAC unit to perform maintenance or service.
- Do not touch Emitter glass without gloves. Damage to Emitter may result. Oil from fingerprints will permanently etch glass of Emitter and weaken structure. If necessary, clean Emitter using a Steril-Aire cleaning kit (isopropyl alcohol and a lint-free wipe may be substituted).
- Use only genuine Steril-Aire UVC Emitters with this fixture. This ensures warranty coverage, maintains peak UVC output levels, guarantees proper fit, and maintains UL and CE certifications. Genuine UVC Emitters will always display the Steril-Aire patent numbers and a Steril-Aire logo. Use of a lower wattage or incorrect Emitter can result in damage to fixture or Emitter.
- Voltages outside of the operating range of the unit will void the warranty and do permanent damage to the entire unit.
- Emitter contains a small quantity of mercury. If an Emitter breaks, clean and dispose of with care.
- UVC energy may cause damage to non-metallic components except for UV-rated and HVAC-style drain pans. Select mounting locations that prevent exposure to vulnerable components. If mounting locations are limited, non UV resistant components shall be protected with UV resistant material such as aluminum foil, aluminum duct tape, metallic shields, et

Regards

[REDACTED]
[REDACTED]

Canberra Air Conditioning Services Pty Limited

3rd June 2020

To whom it may concern,

Re: Steril-Aire Emitter Service Life

The initial development to turn conventional UVC to the Steril-Aire Emitter & Power Supply that delivers the highest performance in the HVAC Industry took 10-Years.

The Steril-Aire technology that increases the Emitter output when placed in the airstream compared to competition lamps output that can decrease by as much as 80% has to this date never been replicated.

We have continued the development and Emitters supplied from January 2020 based on our UVC Energy Field Specification have an increased service life from 9000 Hours to 18000 Hours of continuous operation.

This effectively means our UVC output at 18000 Hours will be equal or greater than the original Emitter used to be at 9000 Hours.

Sincerely

[Redacted]

[Redacted] – Steril-Aire Oceania Pty Ltd

[Redacted] – Middle East, India, South East Asia



From: [McMahon, Kate](#)
To: [Seton, Sam](#); [Bartlett, Kelly](#); [Borton, Jason](#); [Kalyvas, Mandy](#); [Atkins, Jessie](#)
Subject: FW: FOR NOTING: COVID Management Framework and CMT Update
Date: Wednesday, 23 March 2022 3:57:00 PM
Attachments: [Winter Preparation - EDU Overview v0.1.docx](#)
[image001.png](#)









COVID-19 – Winter Preparation 2022

DRAFT v0.1



ACT Government

RECORD 65

Education

Workstream	Lead	What is already in place?	What additional work is planned?	Indicative Timeframe	Project Plan
Infrastructure	ICW	<u>Indoor Air Quality Plans</u> <ul style="list-style-type: none"> Provided to all schools for summer operation. 	<ul style="list-style-type: none"> Indoor Air Quality Plans are being prepared for winter operation. 	Mid April	Yes
		<u>Natural Ventilation</u> <ul style="list-style-type: none"> Windows across all schools repaired where practicable to allow natural ventilation. 	<ul style="list-style-type: none"> Coordination of priority window upgrades with the Hazardous Materials Team. 	Ongoing	
		<u>Mechanical Ventilation</u> <ul style="list-style-type: none"> Mechanical ventilation systems have been set to introduce outdoor air two hours before and after school operational hours Outdoor air volumes increased during school operational hours. 	<ul style="list-style-type: none"> Mechanical ventilation systems will be amended to operate for an additional two hours after school operations only. The increase in outdoor air volumes will be monitored as: <ul style="list-style-type: none"> current settings increase the risk of system exceeding design capacity; current settings may make achieving thermal comfort challenging over winter; gas consumption and emission will increase. 	Mid April	
Continuity of Learning					

	<ul style="list-style-type: none"> Energy recovery ventilation systems have been scoped for 18 schools that rely exclusively on windows for ventilation. These systems provide fresh air while allowing windows to be closed to maximise thermal comfort. Heat recovery ventilation systems have been installed to two classrooms. These systems function in a similar way to energy recovery ventilation. 20 heat recovery units tailored for use in schools have been purchased. Indoor air quality specifications have been provided to the delivery team for four schools receiving heating system upgrades under the Energy Efficient Heating System Renewal business case funding. 	<ul style="list-style-type: none"> Preliminary designs and costing to be undertaken. No capital works are planned in this timeframe as product and procurement lead-times will extend beyond winter and the duration of the additional funding. Further funding will be required for implementation of works. Heat recovery ventilation system to be deployed to targeted classrooms where ventilation is limited. Heat recovery ventilation systems for new transportable classrooms being designed to be installed upon delivery. 	30 June 22	
	<p><u>Monitoring and controls</u></p> <ul style="list-style-type: none"> Additional 99 CO2 sensors installed across teaching spaces and connected to a remote monitoring system. 56 Schools now have CO2 sensors. Building Management System upgraded at one college. 	<ul style="list-style-type: none"> Monitoring system to be upgraded to allow for additional monitoring points. Monitoring framework to be established. Building Management Systems that control ventilation systems being upgraded at a further two colleges. 	30 June 22	
	<p><u>Preschools</u></p> <ul style="list-style-type: none"> UV-C light units have been installed across 29 preschools. The units neutralise virus particles in closed ventilation spaces to reduce transmission while maintaining winter thermal comfort. 	<ul style="list-style-type: none"> Airconditioning units with outdoor air capability are being installed in 10 preschools Solutions to be investigated for schools with evaporative cooling. Supplementary heating may be required. 	TBC	
	<p><u>Air treatment</u></p> <ul style="list-style-type: none"> UV-C light units have been installed in 18 classrooms. and 5 halls with limited ventilation. 	<ul style="list-style-type: none"> 43 mobile UV-C light units have been purchased to provide air sterilisation to priority classrooms. Units are currently being tested and tagged for electrical safety. 	30 April 22	

Staff Safety & Wellbeing

Student Welfare

Communications & Stakeholder Engagement
Management of Cases in Schools & ECEC
COVID Safety Measures



Yapp, Phillip

From: [REDACTED]
Sent: Friday, 25 March 2022 12:06 PM
To: Yapp, Phillip
Cc: Mitchell, BethL; Parkinson, Andrew; Ryan, JohnW
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation
Attachments: CR220722 Review of Education Directorate IAQ Framework.pdf

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Phil,
 Updated report attached.

Regards

Northrop Consulting Engineers Pty Ltd

T [REDACTED] M [REDACTED]
 D [REDACTED]
 SAP House, Level 6, 224 Bunda Street (PO Box 213)
 Canberra ACT 2608
www.northrop.com.au



From: Yapp, Phillip <Phillip.Yapp@act.gov.au>
Sent: Friday, 25 March 2022 9:10 AM
To: [REDACTED]
Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation

H [REDACTED]

The report looks great, thank you. I have a few comments on the report I've saved in the PDF.

As mentioned, I also attached 2 incorrect attachments G and H which were the final working documents. The relevant content of the attachments should be the same, I've included the correct attachments where we saved out the relevant pages of the IAQ Map (2 out of 16 pages), and saved the IAQ Plan to a PDF rather than word doc and updated the header for branding.

Any questions on the feedback please let me know.

Thanks again
 Phil

Phil Yapp | Assistant Director – Asset Strategies, Sustainability and Environment

Phone: +61 2 6207 9190 | M: 0435 655 176 | Email: phillip.yapp@act.gov.au
 Infrastructure and Capital Works | Education | ACT Government
 Level 4 220 London Circuit | GPO Box 158 Canberra ACT 2601 | www.det.act.gov.au

From: Ryan, JohnW <JohnW.Ryan@act.gov.au>
Sent: Friday, 25 March 2022 8:52 AM
To: [REDACTED]; Yapp, Phillip <Phillip.Yapp@act.gov.au>
Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation

OFFICIAL

Hi [REDACTED]

Yes, please update the report to reflect this. Phil has a few more comments so please just do the one update.

Cheers

John

From: [REDACTED]
Sent: Friday, 25 March 2022 7:26 AM
To: Ryan, JohnW <JohnW.Ryan@act.gov.au>; Yapp, Phillip <Phillip.Yapp@act.gov.au>

Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi John,
That sounds OK. Do you want me to update the report? Are there any other comments?

Regards

[Redacted]

Northrop Consulting Engineers Pty Ltd
T [Redacted] M [Redacted]
D [Redacted]
SAP House, Level 6, 224 Bunda Street (PO Box 213)
Canberra ACT 2608
www.northrop.com.au



From: Ryan, JohnW <JohnW.Ryan@act.gov.au>
Sent: Thursday, 24 March 2022 5:11 PM
To: [Redacted] Yapp, Phillip <Phillip.Yapp@act.gov.au>
Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation

OFFICIAL

Hi [Redacted]

In section 5, in response to an FAQ, you state that "I would have thought that there would be cases (such as naturally ventilated classrooms) where it would not be possible to increase fresh air flows." This FAQ relates to schools as a whole, not individual spaces within schools, and all schools will have spaces where the air flow can be adjusted. Andrew and I have discussed this and believe that the statement in the FAQ is correct, when you consider the entire school.

Can you please let us know your thoughts.

Otherwise the report looks good and we recommend no other amendments.

Cheers

John

John Ryan | Senior Director
Asset Strategies
Phone: +61 2 62051874 | Email: johnw.ryan@act.gov.au
Infrastructure and Capital Works | Education | ACT Government
Level 4, 220 London Circuit | GPO Box 158 Canberra ACT 2601
www.education.act.gov.au | [Facebook](#) | [Twitter](#) | [Instagram](#) | [LinkedIn](#) | [Google+](#)

From: [Redacted]
Sent: Thursday, 24 March 2022 4:32 PM
To: Yapp, Phillip <Phillip.Yapp@act.gov.au>
Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Phil,
Please find attached Northrop's review of the Education Directorate Indoor Air Quality Framework.
Please give me call if you need to discuss any of my recommended changes/comments.

Regards

[Redacted]

Northrop Consulting Engineers Pty Ltd
T [Redacted] M [Redacted]
D [Redacted]
SAP House, Level 6, 224 Bunda Street (PO Box 213)
Canberra ACT 2608
www.northrop.com.au



From: Yapp, Phillip <Phillip.Yapp@act.gov.au>
Sent: Friday, 18 March 2022 10:40 AM
To: [Redacted]
Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation

As discussed, if you can please proceed with the review to be provided by COB Thursday 24 March, with additional resources/after-hours rates to be utilised as required. I'll raise a purchase order ASAP however please take this email as approval up to \$10,000.

Thanks again for the quick turnaround on this.

Regards
Phil

Phil Yapp | Assistant Director – Asset Strategies, Sustainability and Environment

Phone: +61 2 6207 9190 | M: 0435 655 176 | Email: phillip.yapp@act.gov.au
Infrastructure and Capital Works | Education | ACT Government
Level 4 220 London Circuit | GPO Box 158 Canberra ACT 2601 | www.det.act.gov.au

From: [Redacted]
Sent: Thursday, 17 March 2022 9:20 PM
To: Yapp, Phillip <Phillip.Yapp@act.gov.au>
Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: RE: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Phil,
Looking at my schedule over the next few days, realistically I think that I could only spend 4 hours on this between now and COB Wednesday 23rd March. So it would be a very basic review. Just some markups on the documents. I would like to spend longer on the review but I don't have the time between now and the deadline. So, if you are happy to go with this, the fee would be 4hrs x [Redacted] plus GST.

Regards

Regards

[Redacted]
[Redacted]
Northrop Consulting Engineers Pty Ltd
T [Redacted] M [Redacted]
D [Redacted]
SAP House, Level 6, 224 Bunda Street (PO Box 213)
Canberra ACT 2608
www.northrop.com.au



From: Yapp, Phillip <Phillip.Yapp@act.gov.au>
Sent: Thursday, 17 March 2022 5:22 PM
To: [Redacted]
Cc: Mitchell, BethL <BethL.Mitchell@act.gov.au>; Ryan, JohnW <JohnW.Ryan@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>
Subject: IAQ - Review of Education Directorate Indoor Air Quality Framework and Plans for Winter Operation
Importance: High

Hi [Redacted]

As discussed earlier today, we're looking for a third party review of the framework and strategy around ventilation in schools that we have implemented so far against the World Health Organisation and industry body recommendations (notably AIRAH).

Additionally, we would like a review and advice on options for winter operation around mechanical ventilation, and advice on any gaps or recommendations moving forward. If you can please review this email and advise ASAP if you have capacity to complete in the timeframe, and if so provide a fee proposal, that would be great. If there are portions of the works you think would take longer, e.g. the winter mechanical control strategy, please advise what can/can't be done in this time.

Timeframe:

- Issue of report by **COB Wednesday 23 March**.
 - o Assuming approval of fee proposal by 1:00pm Friday 18 March.

Scope:

- Review of IAQ Work Plan Framework Document (*Attachment A*)
- Review of Proposed Winter Operation Document (*Attachment B*) and provision of additional advice.
- Review of IAQ audit process to date, with Arawang Primary School as an example (*Attachments C-H*)
- Review of FAQ information sent out to schools (*Attachment I*)
- Provide recommendations on best practice IAQ/COVID-19 management and planning for the future
- Provide a gap analysis of the current approach and identify works that will need to be pursued to achieve ventilation in accordance with the WHO and AIRAH COVID-19 ventilation recommendations and or best practice ventilation at ACT public school sites.

Works to date

Stage 1: Audits and plans

- Each school was sent a checklist to complete by business manager/BSO which included an audit of their site windows and ventilation, identifying operable windows and those with issues on a site plan (*Attachments C and D*)
- HVAC contractors were sent an Excel sheet (*Attachment I*) to complete an audit of all systems to identify what types of ventilation/HVAC each room had, and mark up on a site plan (*Attachments E and F*)
 - o Part of these audit included manually increasing fresh air ventilation where possible, and extending operating times to 2 hours before and after occupancy (*Attachment J*)
 - o Typically this was completed through BMS contractor, but some were manually set
- With the information from the above audits, Education ICW staff developed an Indoor Air Quality Plan (IAQP) for each school to broadly identify mitigation measures for each school (*Attachment G*)
- With the information from the above audits, Education ICW staff developed an Indoor Air Quality Map for each school to visually identify the ventilation in each school and room (*Attachment H*)
 - o Maps highlighted areas with different ventilation, i.e. natural ventilation (green), evaporative (light blue), mechanical (dark blue/purple), inadequate ventilation (pink)

Stage 2: Short to medium-term works

- \$5.2m was provided in funding in 2021/22 to address immediate issues with windows and
- Works have been implemented where possible in line with the IAQ Work Plan Framework (*Attachment A*)
 - o Where windows have been identified as non-operable, all works have been actioned through ACTPG to fix windows
 - o Preschools in particular we have been upgrading ventilation and installing air conditioning with outside air, to protect those who can't be vaccinated
 - o We have been working to install additional CO2 sensors to AHUs to facilitate a dynamic control of ventilation
 - o We've been expanding BMS's and connecting existing systems to our enterprise wide Reliable Controls WebView/Archive server to facilitate central monitoring and reporting of CO2
 - o Where reverse cycle split systems are in place with no ventilation or windows, UVC emitters have been installed to AC units
 - o We have engaged consultants for some projects such as Ainslie and Aranda Primary, to look at longer term strategies

Stage 3: Winter considerations

- The strategies above, particularly those of opening windows for ventilation and increasing fresh air have worked well for summer and mild weather. However we are aware there will be issues related to achieving ventilation through operable windows and the introduction of outdoor air without impacting thermal comfort, plant reliability issues and consumption/emissions/cost considerations.
- We have started work on a strategy for mechanical ventilation control to provide to ACTPG/Contractors to implement before Term 2 to maintain IAQ and thermal comfort and plant reliability.

Stage 4: Further works

- Our greatest challenge is the scope and scale of work required across the portfolio, and the associated budget requirements and the lead time for procurement, implementation and commissioning of solutions.
- We are aware that there are a large number of classrooms and schools with only operable windows which will have issues with winter operation in particular. Understanding the likely scale of funding required to complete solutions per site (such as those that arise from the options report from Aranda and Ainslie School) would be beneficial.

Possible/Expected Gaps

- \$5.2m was insufficient to provide mechanical ventilation to all classrooms, or identify solutions and budgets to all classrooms
- Implementation time from October 2021 is short to come up with ventilation solutions to all classrooms
- Tracking the implementation of control/ventilation changes across 90+ schools and thousands of classrooms is a challenge
- There will be a lot of data coming back from additional BMS and CO2 sensors. We will need to come up with a strategy for what to do with this.
- A lot of schools will have only operable windows as their control measure in winter, and managing this will be difficult.
- Some of the Indoor Air Quality Plans and Maps will need to be reissued for winter operation, where evaporative cooling for example is not relevant. (we are working on this though).

Any questions please let me know.

Regards

Phil

Phil Yapp | Assistant Director – Asset Strategies, Sustainability and Environment

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MULTIDISCIPLINE REPORT

Review of Education Directorate Indoor Air Quality Framework and Plans

Ref: CR220722-00-MD-RP1
Rev: 2
Date: 25 Mar 2022

PREPARED FOR
Infrastructure and Capital Works
Education Directorate
GPO Box 158
Canberra ACT 2601



Multidiscipline Report

Revision Information

Project:	Review of Education Directorate - Indoor Air Quality Framework and Plans
Document Title:	Multidiscipline Report
Client:	Infrastructure and Capital Works, Education Directorate
Revision:	2
Status:	Final
Revision Date:	25 Mar 2022
Author:	[REDACTED]
Verifier:	[REDACTED]

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1. Introduction

The ACT Education Directorate have developed a framework to define and prioritise works required to enhance the indoor air quality at ACT public schools and reduce the risk of transmission of COVID-19. Northrop Consulting Engineers have been engaged by the ACT Education Directorate to undertake a third party review of this framework and the strategies around ventilation in schools.

Northrop's scope is as follows:

- Review of IAQ Work Plan Framework Document (*Attachment A*)
- Review of Proposed Winter Operation Document (*Attachment B*) and provision of additional advice.
- Review of IAQ audit process to date, with Arawang Primary School as an example (*Attachments C-H*)
- Review of FAQ information sent out to schools (*Attachment I*)
- Provide recommendations on best practice IAQ/COVID-19 management and planning for the future
- Provide a gap analysis of the current approach and identify works that will need to be pursued to achieve ventilation in accordance with the WHO and AIRAH COVID-19 ventilation recommendations and or best practice ventilation at ACT public school sites.

2. IAQ Work Plan Framework

The Work Plan Framework document had sections for:

- Preschools and Early Childhood Centres
- Primary Schools
- High Schools
- Colleges

The Principles and Decision Making Framework are very similar for all types of schools. There are some minor differences, but it is not clear why there are differences. For example, Heat Recovery ventilation is an action for all types of schools except Colleges.

It is proposed that:

- the Principles and Decision making framework should be the same for all types of schools.
- the decision making framework should be based on whether the space is provided with natural or mechanical ventilation as detailed below:

FOR SPACES THAT RELY ON NATURAL VENTILATION			
HVAC System Component	Action	Solution manages Winter IAQ	Comments
Openable Windows	<p>Ensure windows are operable.</p> <p>Provide advice to schools/teachers on keeping windows open in all seasons including winter.</p> <p>Provide additional heating.</p> <p>Provide advice to parents that students need to wear warm clothing to school in winter.</p>	No	Provides immediate natural ventilation
Reverse cycle R410a, R32. With no mechanical outside air	Install UV-C light to deactivate virus	Yes	Systems have been vetted to ensure ozone emission is within safe limits.
Reverse cycle systems at end of life	Install new air conditioning system with outdoor air	Yes	Longer lead time

HVAC System Component	Action	Solution manages Winter IAQ	Comments
General	Install additional CO ₂ sensors to monitor IAQ		CO ₂ levels to be monitored
General	Install Heat Recovery Ventilation/or new air conditioning system with outdoor air	Yes	Longer lead time – 2022-23 Will improve energy efficiency and comfort conditions in both summer and winter in addition to introducing outdoor air.

FOR SPACES THAT HAVE MECHANICAL VENTILATION

HVAC System Component	Action	Solution manages Winter IAQ	Comments
Openable Windows	Ensure windows are operable. Provide advice to schools/teachers on keeping windows open when outside air conditions are suitable ¹ .	No	Provides immediate natural ventilation
Mechanical Ventilation Systems	Set existing systems to increase outside air intakes	Yes	As a minimum, systems should provide 12L/s per person as per AS1668.2
Filters	Check that filters: <ul style="list-style-type: none"> are not bypassing any air; are being checked/ replaced on a regular basis; have a minimum rating of F5 consider upgrading filter rating to F7 where systems can handle the additional static pressure 	Yes	
General	Install additional CO ₂ sensors to monitor IAQ and automate building management systems to manage outdoor air intake	Yes	CO ₂ levels to be monitored

Schools with no BMS or low functioning BMS.	Upgrade BMS to automate outdoor air intake	Yes	CO ₂ levels to be monitored
---	--	-----	--

¹See matrix in section 3.3

2.1 CO₂ Sensors

It is not clear if the proposed CO₂ sensors will include a local readout of the CO₂ levels in the classroom with Green, Yellow, Orange Red, indication.

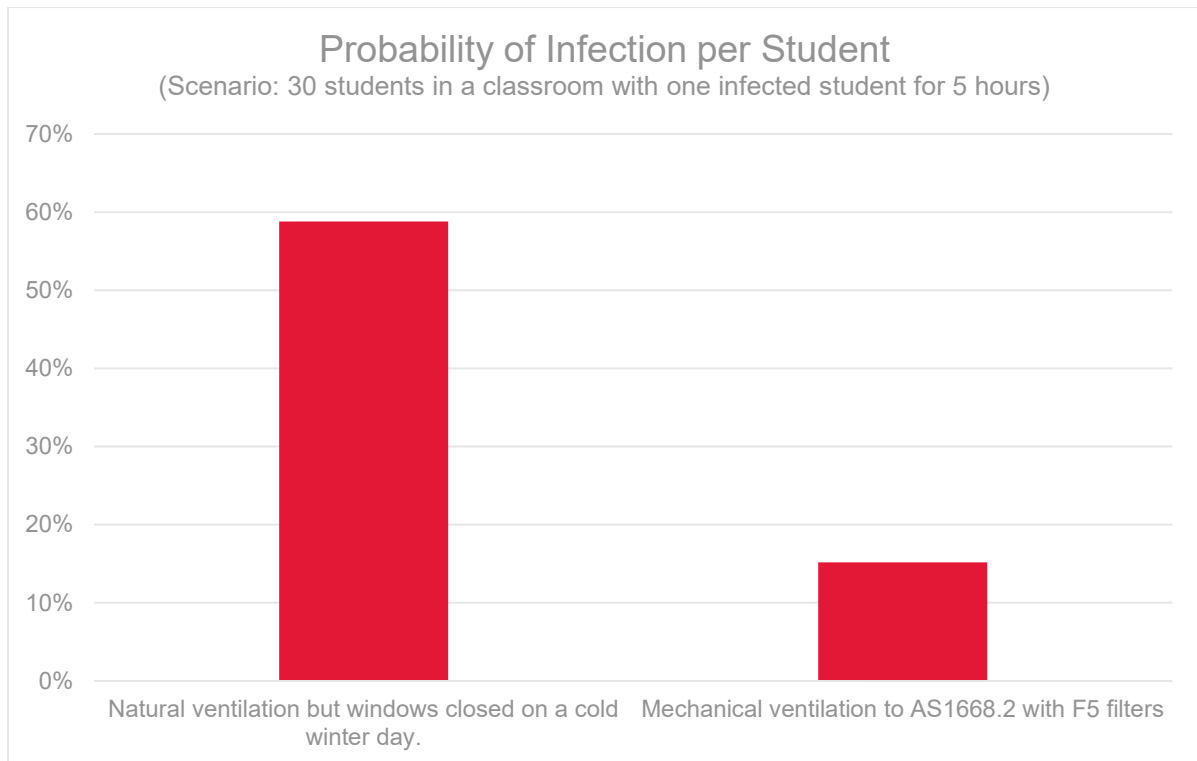


This type of readout provides teachers with some feedback on how much windows need to be opened to balance IAQ and thermal comfort.

2.2 COVID Risk Assessment

There are tools available that can model the COVID risk of various systems. We have used the COVID-19 Aerosol Transmission Estimator developed by Prof. Jose L Jimenez & Dr. Zhe Peng, Dept. of Chem. & CIRES, Univ. Colorado-Boulder. The tool is available online [COVID-19 Aerosol Transmission Estimator - Google Sheets](#). The model is based on a standard model of aerosol disease transmission, the Wells-Riley model. It is calibrated to COVID-19 per recent literature on quanta emission rate.

Our observations are that in classrooms that are naturally ventilated the windows are mostly closed in winter. Based on the results from this model the graph below shows that the risk of COVID infection is far greater in natural ventilated rooms with windows closed than in rooms that are mechanically ventilated with the minimum requirements of AS1668.2.



Therefore the priority should be to address the ventilation of spaces that only have natural ventilation.

3. Proposed HVAC Control Strategy for Winter Operation

3.1 General

These recommendations will have a positive impact on reducing the risk of COVID infection in schools. The strategy doesn't explicitly talk about opening windows in winter. My view is that with these measures in place for mechanically ventilated spaces there is no need to also open windows. (Windows will still need to be opened for naturally ventilated spaces).

These strategies will have a negative impact of energy consumption and possibly thermal comfort. These strategies are appropriate for this winter. The strategies should be reviewed next winter when more students are vaccinated and hopefully COVID risk is lower. The purging requirement could be removed if the COVID risk is lower.

3.2 Early Morning warmup

I agree that the early morning warmup on full recirculation mode should still occur. Otherwise rooms will be cold and rooms already purged at night.

3.3 Matrix of IAQ Solutions

The table in the document provided doesn't appear to be complete. The following table is an updated the matrix to include what I think should be the strategies for various HVAC Systems at various seasons. This probably needs some more discussion.

ID	Scenario	Example Systems	Summer	Winter	Mid Season
1	Natural ventilation only	<ul style="list-style-type: none"> No heating/cooling High wall split Radiators only Cassette without O/A Louvres 	Windows opened	Windows opened	Windows opened
2	Evaporative cooling	Evaporative cooling	Windows opened Evaporative cooling on	Windows opened	Windows opened
3	Mechanical – fixed outside air, heating only	<ul style="list-style-type: none"> HHW FCU Gas fired ducted heater 	Windows opened	Windows closed	Windows opened
4	Mechanical – fixed outside air, heating and cooling	<ul style="list-style-type: none"> Cassette split system with O/A Ducted split system CHW FCU 	Windows closed	Windows closed	Windows opened
5	Mechanical – economy cycle dampers, heating only	<ul style="list-style-type: none"> HHW FCU Gas fired ducted heater 	Windows opened Morning purge	Windows closed Early morning warmup on full recirculation Afternoon purge	Windows opened. No purge
6	Mechanical – economy cycle dampers, heating and cooling	Ducted split Packaged AC unit CHW AHU	Windows closed Morning purge	Windows closed Early morning warmup on full recirculation Afternoon purge	Windows opened. No purge

There probably needs to be some guidance for schools and teachers on operable windows that should cover things such as:

- Opening and closing windows depending on season and system type as per the above table.
- Closing windows after hours for security reasons
- How far to open windows. On days of no wind windows should probably be fully opened (125mm max opening). On high wind days windows could just be partially opened to prevent excessive drafts. Local CO₂ readouts would assist this.

4. IAQ audit process to date, with Arawang Primary School as an example (Attachments C-H)

No comments on the IAQ process. It appears to be a thorough process.

5. FAQ information sent out to schools (Attachment I)

Only comment is a minor typo. Should be CO₂ instead of CO2.

6. Recommendations on best practice IAQ/COVID-19 management and planning for the future

The Education Directorate - Indoor Air Quality Framework and Plans generally align with IAQ/COVID-19 management best practice. The following additional recommendations should also be considered:

- For mechanical systems check that filters:
 - are not bypassing any air;
 - are being checked/ replaced on a regular basis;
 - have a minimum rating of F5consider upgrading filter rating to F7 where systems can handle the additional static pressure
- Consider providing CO₂ sensors with local indication and colour coding.
- Provide some guidance for schools and teachers on operable windows that should cover things such as:
 - Opening and closing windows depending on season and system type as per the Matrix of IAQ Solutions.
 - Closing windows after hours for security reasons
 - How far to open windows. On days of no wind windows should probably be fully opened (125mm max opening for windows above ground level). On high wind days windows could just be partially opened to prevent excessive drafts. Local CO₂ readouts would assist this.

From: [Haire, Katy](#)
To: [Simmons, Jane](#); [Matthews, David](#)
Cc: [DGEDUoffice](#); [EDUCOVID](#); [DDGEDUoffice](#)
Subject: FW: Ventilation Web Site Advice
Date: Monday, 28 March 2022 11:21:23 AM
Attachments: [Web page content ventilation v2_VJ \(A33258387\)RW \(002\) WSIR comments Health review.docx](#)
[Web page content ventilation v2 \(clear\).docx](#)

OFFICIAL

Please see latest version. If there are any comments on this I think they will need to be provided urgently as this looks like it's going on the Health website today (see below)

Thanks KH

Katy Haire | Director-General **Education Directorate** | ACT Government
T: +61 2 6205 9158 | E: katy.haire@act.gov.au
GPO [Box 158 Canberra ACT 2601](#) | www.education.act.gov.au

From: Croke, Leesa <Leesa.Croke@act.gov.au>
Sent: Monday, 28 March 2022 10:36 AM
To: Haire, Katy <Katy.Haire@act.gov.au>
Subject: FW: Ventilation Web Site Advice

OFFICIAL

Final version

From: Walker, Robyn (Health) <Robyn.Walker@act.gov.au>
Sent: Friday, 25 March 2022 2:34 PM
To: Croke, Leesa <Leesa.Croke@act.gov.au>
Cc: Cross, Rebecca (Health) <Rebecca.Cross@act.gov.au>
Subject: RE: Ventilation Web Site Advice

OFFICIAL

Leesa,

Have attached the revised version after the team has considered the comments from WCaG – tracked changes and clean copy.

If there are no further issues we will post to the website on Monday.

Are you happy for me to send the final version to Katie as discussed or will you do this?

Robyn

Robyn Walker | **Executive Group Manager, COVID -19 Response Division**

Ph: 02 51243330 Mob: 0479183119 | Email: robyn.walker@act.gov.au

COVID 19 Response ACT Health Directorate

Level 3, 2-6 Bowes Street Phillip ACT 2606

health.act.gov.au

From: Croke, Leesa <Leesa.Croke@act.gov.au>
Sent: Wednesday, 23 March 2022 1:13 PM
To: Walker, Robyn (Health) <Robyn.Walker@act.gov.au>
Cc: Cross, Rebecca (Health) <Rebecca.Cross@act.gov.au>
Subject: Fwd: Ventilation Web Site Advice

Hang on

As discussed- comments from WCaG attached. I can't see track changes at the moment- only have mobile with me.

Leesa

Get [Outlook for iOS](#)

From: West, Damian <Damian.West@act.gov.au>
Sent: Wednesday, March 23, 2022 1:08:40 PM
To: Croke, Leesa <Leesa.Croke@act.gov.au>
Cc: Haire, Katy <Katy.Haire@act.gov.au>
Subject: FW: Ventilation Web Site Advice

OFFICIAL

Leesa, (Katy FYI)

Michael and the team have reviewed the draft Health ventilation content against our WHS guidance and SafeWork Australia advice and tracked some suggestions.

Damian

Dr Damian West – Deputy Director-General
Workforce Capability and Governance
Workplace Safety and Industrial Relations
Phone: 0408 094 693 | Email: Damian.west@act.gov.au
Chief Minister, Treasury and Economic Development Directorate (CMTEDD) | ACT Government
Level 5, 220 London Circuit, Canberra City ACT 2601 | GPO Box 158 Canberra ACT 2601 |
www.act.gov.au

From: Croke, Leesa <Leesa.Croke@act.gov.au>
Sent: Tuesday, 22 March 2022 6:21 PM
To: West, Damian <Damian.West@act.gov.au>
Subject: Fwd: Ventilation Web Site Advice

Have you seen this Damian?

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From: Walker, Robyn (Health) <Robyn.Walker@act.gov.au>

Sent: Tuesday, March 22, 2022 6:16:37 PM

To: Cross, Rebecca (Health) <Rebecca.Cross@act.gov.au>; Croke, Leesa <Leesa.Croke@act.gov.au>

Cc: Johnston, Vanessa (Health) <Vanessa.Johnston@act.gov.au>; Singleton, Sally (Health) <Sally.Singleton@act.gov.au>; Anton, Deborah (Health) <Deborah.Anton@act.gov.au>

Subject: Ventilation Web Site Advice

OFFICIAL

Rebecca a and Leesa,

Following on from the Winter Planning SEMC brief the Medical Officer team have drafted some words for the ACTHD website re Ventilation.

Just wanted to check that you have no issues – particularly with respect to the mention of HEPA filters in the mechanical ventilation para..

Robyn

Robyn Walker | Executive Group Manager, COVID -19 Response Division

Ph: 02 51243330 Mob: 0479183119 | Email: robyn.walker@act.gov.au

COVID 19 Response ACT Health Directorate

Level 3, 2-6 Bowes Street Phillip ACT 2606

health.act.gov.au

From: [Martinez, Catherine](#) on behalf of [EDU, EGMSG](#)
To: [EDU Cabinet Liaison Officer](#)
Subject: FW: FOR CLEARANCE: Assembly Briefs (Sitting Period 5-7 April 2022) - Urgent updates only
Date: Friday, 1 April 2022 11:37:00 AM
Attachments: [image001.png](#)
[08. Additional funding for response to COVID-19.tr5](#)
[03. 5-7 April 2022.tr5](#)
[08. Additional funding for response to COVID-19.DOCX](#)

OFFICIAL

From: Matthews, David <David.Matthews@act.gov.au>
Sent: Friday, 1 April 2022 11:37 AM
To: EDU, EGMSG <EGMSG.EDU@act.gov.au>
Subject: FW: FOR CLEARANCE: Assembly Briefs (Sitting Period 5-7 April 2022) - Urgent updates only

OFFICIAL

Approved, with thanks.

Dave Matthews
Executive Group Manager, Business Services Group

From: Pilicic, Courtney <Courtney.Pilicic@act.gov.au> **On Behalf Of** EDU, EGMSG
Sent: Tuesday, 29 March 2022 1:44 PM
To: Matthews, David <David.Matthews@act.gov.au>
Cc: EDU, EGMSG <EGMSG.EDU@act.gov.au>
Subject: FOR CLEARANCE: Assembly Briefs (Sitting Period 5-7 April 2022) - Urgent updates only

OFFICIAL

Good afternoon David,

Please see attached for your clearance.

Due to MCR COB 31 March.

Kind regards,
Courtney

From: CFO EDU Office <CFOEDUOffice@act.gov.au>
Sent: Tuesday, 29 March 2022 8:56 AM
To: EDU, EGMSG <EGMSG.EDU@act.gov.au>

Cc: Podnar, Peter <Peter.Podnar@act.gov.au>; Le, Thao <Thao.Le@act.gov.au>; EDU Cabinet Liaison Officer <EDUCabinet@act.gov.au>; Nott, Georgia <Georgia.Nott@act.gov.au>
Subject: FOR APPROVAL: Assembly Briefs (Sitting Period 5-7 April 2022) - Urgent updates only

OFFICIAL

Hi Catherine,

Please find attached the TRIM link with the updated brief 8 for EGMBSG's clearance, approved by Thao.

Please note that this is due to ALO by COB Thursday 31 March.

Best Regards,
Sarah

From: Le, Thao <Thao.Le@act.gov.au>
Sent: Monday, 28 March 2022 6:58 PM
To: CFO EDU Office <CFOEDUOffice@act.gov.au>
Cc: Podnar, Peter <Peter.Podnar@act.gov.au>
Subject: RE: FOR APPROVAL: Assembly Briefs (Sitting Period 5-7 April 2022) - Urgent updates only

OFFICIAL

Thanks all, approved.

Thao

From: CFO EDU Office <CFOEDUOffice@act.gov.au>
Sent: Monday, 28 March 2022 4:07 PM
To: Le, Thao <Thao.Le@act.gov.au>
Cc: CFO EDU Office <CFOEDUOffice@act.gov.au>; Podnar, Peter <Peter.Podnar@act.gov.au>
Subject: FOR APPROVAL: Assembly Briefs (Sitting Period 5-7 April 2022) - Urgent updates only

OFFICIAL

Hi Thao,

Please find attached the TRIM link for your approval. CLO requested an update on this brief and Pete has made a minor edit.

Please note that this is due to EGMBSG office midday Wednesday 30 March.

Best Regards,
Sarah

From: Nott, Georgia <Georgia.Nott@act.gov.au> **On Behalf Of** EDU Cabinet Liaison Officer

Sent: Monday, 28 March 2022 11:27 AM

To: DGEDUoffice <DGEDUoffice@act.gov.au>; Haire, Katy <Katy.Haire@act.gov.au>; DDGEDUoffice <DDGEDUoffice@act.gov.au>; Simmons, Jane <Jane.Simmons@act.gov.au>; Efthymiades, Deb <Deb.Efthymiades@act.gov.au>; System Policy and Reform Office <SPROffice@act.gov.au>; EGMSDD <EGMSDD@act.gov.au>; Huxley, Mark <Mark.Huxley@act.gov.au>; EGMSloffice <EGMSloffice@act.gov.au>; EDU, EGMBMSG <EGMBMSG.EDU@act.gov.au>; Matthews, David <David.Matthews@act.gov.au>; Gotts, Robert <Robert.Gotts@act.gov.au>; Schwab, Naznin <Naznin.Schwab@act.gov.au>; EDU, Education and Care, Regulation and Support <EDU.FCRS@act.gov.au>; Moysey, Sean <Sean.Moysey@act.gov.au>; Enrolment and Planning Branch <EnrolmentandPlanning@act.gov.au>; Attridge, Vanessa <VanessaS.Attridge@act.gov.au>; EducationStrategicPolicy <EducationStrategicPolicy@act.gov.au>; Moore, Nicole <Nicole.Moore@act.gov.au>; EDU, Learning and Wellbeing Policy and Design <EDU.LearningandWellbeingPolicyandDesign@act.gov.au>; Kalyvas, Mandy <Mandy.Kalyvas@act.gov.au>; EDU, Universal School Support (USS) <EDU.UniversalSchoolSupportUSS@act.gov.au>; Borton, Jason <Jason.Borton@act.gov.au>; EDU Student Engagement Director's Office <EDUDESOoffice@act.gov.au>; EBM, DSST <ebm.dsst@act.gov.au>; Bartlett, Kelly <Kelly.Bartlett@act.gov.au>; ICW EBM Office <ICWEBMOffice@act.gov.au>; Parkinson, Andrew <Andrew.Parkinson@act.gov.au>; EDU, EBM P&P <ebmpp.edu@act.gov.au>; Ackland, Daniel <Daniel.Ackland@act.gov.au>; CFO EDU Office <CFOEDUOffice@act.gov.au>; Le, Thao <Thao.Le@act.gov.au>; Cuddihy, Genevieve <Genevieve.Cuddihy@act.gov.au>; EDU, EBM Governance Branch <EDU.EBMGovernance@act.gov.au>; Short, Paul <Paul.Short@act.gov.au>; EDUCOVID <EDUCOVID@act.gov.au>; Laurent, Kristen <Kristen.Laurent@act.gov.au>

Cc: Page, Vicki <Vicki.Page@act.gov.au>; Burn, Emma <Emma.Burn@act.gov.au>; EDU Cabinet Liaison Officer <EDUCabinet@act.gov.au>

Subject: FOR ACTION: Assembly Briefs (Sitting Period 5-7 April 2022) - Urgent updates only

OFFICIAL

Good Morning,

Please be aware that the Assembly sits again next week (5 – 7 April). We intend on using the existing briefing package created for last week's Sitting however, please consider if the current Assembly Brief's require any updates. If so, please respond to this email ASAP advising of which briefs require updating as I will need to finalise and provide any updates to the Minister's Office by midday this Friday, 1 April 2022.

Timeframes:

- Updates in track changes due to EGM/DDG: Midday Wednesday, 30 March
- Updates in track changes due to ALO: COB Thursday, 31 March

I've attached TRIM link to the Index and briefs, for ease.

Thank you.

Kind regards –

Georgia Nott | Assembly Liaison Officer | Ministerial & Corporate Reporting

Communications, Engagement and Government Support | Education | ACT Government

GPO Box 158 Canberra ACT 2601

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Portfolio/s: Education and Youth Affairs

Early Childhood Development

FUNDING FOR RESPONSE TO COVID-19

Talking points:

- To support the return to campus in term 4, 2021 following lockdown the ACT Government allocated **\$5.7 million** to support essential supplies such as masks and hand sanitiser, improved ventilation, and additional relief teacher hours.
- In addition to this support, the ACT Government invested **\$2.9 million in the continuation of school day cleaning to the end of Term 4 2021.**
- In **Term 1 and 2 of 2022** additional resourcing totalling **\$12.6 million** was allocated to continue to meet the costs managing COVID-19 in schools
- **These investments totaling \$21.2 million** and has enabled schools to prioritise the health and safety of staff and young people including their wellbeing, while also allowing students to continue their learning.

Key Information

- The support provided under the ACT Government's COVID Response fund includes the following elements

- [Redacted]

- [Redacted]

- **Improving ventilation in ACT public schools, along with associated costs relating to increased HVAC maintenance and increased electricity usage**

- [Redacted]

- [Redacted]

- The Education Directorate continues to work closely with Treasury in assessing resourcing needs to support the safe return to on campus teaching and learning for students and staff.

Background Information

- The investments made by the ACT Government to support the safe return to school for students and staff were made in response to the ACT lockdown which commenced on 12 August 2021.

QUESTION TIME BRIEF

- Students returned to on-campus learning in a phased approach in line with the relevant Health advice from the beginning of Term 4 2021.
- The return to on campus learning was predicated on the relevant health advice, including the required changes to school operations, supports and measures that need to be put in place for students and staff to recommence safely to on campus learning.
- To the end of January 2022, the Education Directorate had spent \$3.5 million related to these support measures.

Flint, Katrina

From: Graham, Cathy
Sent: Wednesday, 6 April 2022 2:30 PM
To: CMTEDD ACTPG HVAC Services
Cc: Yapp, Phillip
Subject: FW: IAQ - Trial winter operation CO2 sensors

OFFICIAL

Hi Chris,

Please use IAQ reference number IAQ 21-22/344 for the below job.

Thanks,
Cathy

From: Yapp, Phillip <Phillip.Yapp@act.gov.au>
Sent: Wednesday, 6 April 2022 2:10 PM
To: Graham, Cathy <Cathy.Graham@act.gov.au>; OConnell, Chris <Chris.OConnell@act.gov.au>
Cc: Flint, Katrina <Katrina.Flint@act.gov.au>; Kidman, Fiona <Fiona.Kidman@act.gov.au>; CMTEDD ACTPG HVAC Services <ACTPGHVAC@act.gov.au>
Subject: IAQ - Trial winter operation CO2 sensors

Hi Cathy

Can you please raise an IAQ job to ACTPG to purchase sixty (60) CO2 monitors black, and sixty (60) USB-C chargers for our trial winter operation, and test and tag the chargers. Cost will be \$5,040 plus the test and tag.

I've looked into appropriate units, HeVAC have some that would be suitable and have NDIR sensors in them, I've discussed with [REDACTED] from their office and they have around 200 in stock.

We'll deploy around 30 to Torrens Primary School and 30 to Alfred Deakin High as trial of sites with only operable windows. Once arrived and tested/tagged, I'll pick up and take to Torrens in the first instance as I've discussed with them.

Contact: [REDACTED]
Delivery: 255 Canberra Ave, Fyshwick ACT 2609

Details:

- [H8-B-CO2 MONITOR with NDIR CELL. LOW COST suit PORTABLE or FIXED installations for SCHOOLS or OFFICES - Hevac](#)
- [PLUGPACK 240AC-5vDC FOR CO2 MONITOR - Hevac](#)

Any questions, please let me know.

Cheers
Phil

Phil Yapp | Assistant Director – Asset Strategies, Sustainability and Environment

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Infrastructure and Capital Works | Education | ACT Government
Level 4 220 London Circuit | GPO Box 158 Canberra ACT 2601 | www.det.act.gov.au

Flint, Katrina

From: CMTEDD ACTPG HVAC Services
Sent: Wednesday, 6 April 2022 3:06 PM
To: Accounts CBBS (accounts@capitalboiler.com.au)
Cc: [REDACTED] CMTEDD ACTPG HVAC Services; Yapp, Phillip; Graham, Cathy
Subject: IAQ - Trial winter operation CO2 sensors
Importance: High

OFFICIAL

Hi Lis

As discussed please see the below links for the purchase sixty (60) CO2 monitors black, and sixty (60) USB-C chargers for our trial winter operation, the cost will be \$5,040 plus CBBS 15% mark up.

A work order will be issued for this purchase shortly, Please use IAQ reference number IAQ 21-22/344 on your invoice along with the work order number.

Phil Yapp has discussed these units with [REDACTED] from the [REDACTED] office and they have around 200 in stock.

Contact: [REDACTED]

Delivery: Capital Boilers Office for pick up

Details:

- [H8-B-CO2 MONITOR with NDIR CELL. LOW COST suit PORTABLE or FIXED installations for SCHOOLS or OFFICES - Hevac](#)
- [PLUGPACK 240AC-5vDC FOR CO2 MONITOR - Hevac](#)

Any questions, please let me know.

Regards,

Chris O'Connell

A/G Assistant Director – Heating Ventilation and Air Conditioning Services

ACT PROPERTY GROUP | PROPERTY UPGRADES | CHIEF MINISTERS, TREASURY & ECONOMIC DEVELOPMENT DIRECTORATE | ACT GOVERNMENT | www.act.gov.au

M: 0466 601 655

Direct Email: chris.oconnell@act.gov.au or ACTPG HVAC Team ACTPGHVAC@act.gov.au

255 Canberra Avenue, Fyshwick, ACT 2609,

PO Box 777 Fyshwick ACT 2609

If you have any feedback for the ACT Property Group, please email actpgfeedback@act.gov.au

"ACTPG is engaged by the Education Directorate to ensure the management of all contractors, past and present HVAC works are providing a turn-key solution".

COVID-19: there are currently travel restrictions in place for people travelling to the ACT from specified locations around Australia. These restrictions apply to contractors and suppliers of ACT Property Group unless an exemption has been granted.

ACT Property Group requires all contractors and suppliers to comply with any restrictions that are in force which are applicable to them. If permitted to travel to the ACT please follow COVID-safe practices and use the [Check In CBR App](#) at venues to support contact tracing. Updates can be found at: <https://www.covid19.act.gov.au/travel/entering-the-act>. Please contact ACT Property Group on 6213 0700, or where applicable the project officer, to discuss any impact this may have on delivery of services to ACT Property Group.