

INDOOR AIR QUALITY, PUBLIC HEALTH AND COVID-19: A GUIDE FOR COMMUNITY SPACES

*Addressing COVID-19 and indoor air in
community spaces in Ontario
(December 15, 2022)*

OUR TIME TOGETHER

Amy and Amy will share:

- A bit about us
- The story of why we produced a checklist on indoor air quality and COVID-19 for community spaces;
- Highlights from the checklist;
- Next steps;
- Q and A.

OUR TEAM

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RESEARCH QUESTION (2021)

Toronto Public Health and **Public Health Ontario** publish guidance on how to reduce transmission of COVID-19 in congregate settings such as shelters, group homes, detention centres and long-term care homes.

Does this guidance include indoor air quality measures like ventilation and filtration?

If so, how are these measures framed in relation to other measures such as hand washing or disinfection?

BACKGROUND

FACT #1. BY JANUARY, 2021, IT IS KNOWN THAT COVID-19 IS TRANSMITTED THROUGH THE AIR.

In July, 2020, 239 scientists from around the world endorsed a commentary in the journal *Clinical Infectious Diseases* appealing “to the medical community and to the relevant national and international bodies to recognize the potential for airborne spread of coronavirus disease 2019...” By January, 2021, the potential for COVID-19 to spread through the air was well-known and supported by evidence from around the world.

PEER-REVIEWED OUTBREAK STUDIES DEMONSTRATING PROBABLE OR CERTAIN AIRBORNE TRANSMISSION

MARCH 2020 – MARCH 2021

Brlek, A., Vidovič, Š., Vuzem, S., Turk, K., & Simonović, Z. Possible indirect transmission of COVID-19 at a **squash court**, Slovenia, March 2020: case report. *Epidemiology and infection*, 148, e120. **2020**.

Kang, M. et al. Probable evidence of fecal aerosol transmission of SARS-CoV-2 in a **high-rise building**. *Annals of internal medicine*, 173(12), 974–980. **2020**.

Luo, K. et al. Transmission of SARS-CoV-2 in **public transportation vehicles**: A case study in Hunan Province, China. *Open forum infectious diseases*, 7(10), ofaa430. **2020**.

Günther, T. et al. SARS-CoV-2 outbreak investigation in a German **meat processing plant**. *EMBO molecular medicine*, 12(12), e13296. **2020**.

Kwon, K. S. et al. Evidence of long-distance droplet transmission of SARS-CoV-2 by direct air flow in a **restaurant** in Korea. *Journal of Korean medical science*, 35(46), e415. **2020**.

Almilaji, O. Air recirculation role in the spread of COVID-19 onboard the Diamond Princess **cruise ship** during a quarantine period. *Aerosol Air Qual. Res.* 21, 200495. **2021**.

Jiang, G. et al. Aerosol transmission, an indispensable route of COVID-19 spread: case study of a **department-store** cluster. *Frontiers of environmental science & engineering*, 15(3), 46. **2021**.

Klompas, M. et al. A SARS-CoV-2 cluster in an **acute care hospital**. *Annals of internal medicine*, 174(6), 794–802. **2021**.

WARNINGS AND GUIDANCE FROM SCIENTISTS **MARCH 2020 – MARCH 2021**

Correia, G., Rodrigues, L., Gameiro da Silva, M., & Gonçalves, T. Airborne route and bad use of ventilation systems as non-negligible factors in SARS-CoV-2 transmission. *Medical hypotheses*, 141, 109781. **April, 2020**

Setti, L. et al. (2020). Airborne Transmission Route of COVID-19: Why 2 Meters/6 Feet of Inter-Personal Distance Could Not Be Enough. *International journal of environmental research and public health*, 17(8), 2932. **April, 2020**

Anderson, E. L., Turnham, P., Griffin, J. R., & Clarke, C. C. Consideration of the Aerosol Transmission for COVID-19 and Public Health. *Risk analysis : an official publication of the Society for Risk Analysis*, 40(5), 902–907. **May, 2020**

Morawska L, Milton DK. It is time to address airborne transmission of Coronavirus Disease 2019 (COVID-19). *Clin Infect Dis*. **July, 2020**.

Office of the Chief Science Advisor of Canada. The role of bioaerosols and indoor ventilation in COVID-19 transmission. **Sept., 2020**.

Glowacki, L. **Nov. 26, 2020**. Doctors, engineers call on Ontario to address airborne spread of COVID-19. *CBC news*.

Glowacki, L. **Jan. 5, 2021**. Hundreds of doctors, scientists call for action on COVID-19 aerosols. *CBC news*.

BACKGROUND

FACT #2. VENTILATION AND FILTRATION REMOVE RESPIRATORY PARTICLES FROM THE AIR.

Ventilation and filtration are time-tested building control measures used to mitigate transmission of airborne diseases such as tuberculosis and measles.

AIRBORNE TRANSMISSION OF COVID-19 CAN BE MITIGATED WITH VENTILATION AND FILTRATION

Morawska L, Tang JW, Bahnfleth W, et al. **How can airborne transmission of COVID-19 indoors be minimised?.** *Environ Int.* 2020.

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Epidemic Task Force. **Core recommendations for reducing airborne infectious aerosol exposure.** January 6, 2021.

Allen JG, Ibrahim AM. **Indoor Air Changes and Potential Implications for SARS-CoV-2 Transmission.** *JAMA.* 2021.

Conway Morris A, Sharrocks K, Bousfield R, et al. **The removal of airborne SARS-CoV-2 and other microbial bioaerosols by air filtration on COVID-19 surge units.** *Clin Infect Dis.* 2021.

Swiss Federal Laboratories for Materials Science and Technology. **More infections in poorly ventilation classrooms.** Dec., 2021.

Kong M, Li L, Eilts SM, Li L, Hogan CH, & Pope ZC. **Localized and Whole-Room Effects of Portable Air Filtration Units on Aerosol Particle Deposition and Concentration in a Classroom Environment.** *ACS EST Engg.* 2022.

BACKGROUND

FACT #3. CONGREGATE SETTINGS WHERE DINING AREAS, BATHROOMS, COMMON SPACES AND OFTEN BEDROOMS ARE SHARED PUT PEOPLE AT HIGH-RISK FOR CATCHING COVID-19.

As a result, it's particularly important that the COVID-19 guidance shared with these settings reflects the best evidence, and embeds the precautionary principle.

CONGREGATE SETTINGS ARE HIGH-RISK FOR COVID-19 TRANSMISSION

- By December 2021, some Ontario long-term care homes had lost more than 30 per cent of their residents to the pandemic (Loreto, 2021).
- By June 2022, 11 long-term care workers and more than 4,500 long-term care residents had died of COVID-19, constituting close to 35 per cent of COVID-19 deaths in Ontario (PHO, 2022)
- These deaths continued more than two years into the pandemic—between December 15 2021 and June 4 2022, 620 long-term care residents died of COVID-19 (PHO, 2022).

CONGREGATE SETTINGS ARE HIGH-RISK FOR COVID-19 TRANSMISSION

As far as we know, the province does not systematically report COVID-19 case counts and deaths for other types of congregate settings such as group homes, detention centres and shelters.

But we know from journalists and academic and independent researchers that the situation is not good.

CANADA

The COVID outbreaks that Ontario wasn't counting

Nora Loreto: It was clear that COVID-19 infection was more deadly for disabled adults. So how many died in care facilities, and why wasn't Ontario reporting the number?

By Nora Loreto
July 1, 2021



Toronto's homeless population had twice the odds of testing positive for COVID-19, study shows

February 23, 2022

TORONTO

50 COVID-19 outbreaks in Toronto's homeless shelter system, data says

As temperatures dip, Toronto's homeless people find themselves facing an awful choice: stay outside and freeze, or go inside and risk catching COVID-19, advocates say.

There is still a prison pandemic

Depopulation with community supports and vaccination remain urgent needs for people incarcerated during the COVID-19 pandemic.

by Justin Piché, Kevin Walby, Abby Deshman

March 7, 2022

By March 2021, it was clear that jails, prisons and penitentiaries across Canada were significant vectors of COVID-19 **during the second wave** of the pandemic, with infections among imprisoned people and staff increasing in unprecedented ways. As the Omicron variant began rapidly spreading in our communities in December 2021, **authorities were warned** that without reducing prison populations and ramping up vaccinations, imprisoned people and prison staff would face another tsunami of COVID-19. Unfortunately, for those impacted by human caging the emergence of the more transmissible Omicron variant coupled with a punitive injustice system and government inaction has again led to another unprecedented increase in COVID-19 transmission behind bars.

BACKGROUND

FACT # 4. THE HEALTH AND SAFETY MEASURES RECOMMENDED TO CONGREGATE SETTINGS HAVE PARTICULAR IMPLICATIONS FOR HEALTH EQUITY IN ONTARIO.

The Canadian state and its institutions, by way of inter-related structures, processes, and ideologies such as colonization, white supremacy, and ableism, determine the populations that are compelled to live in settings such as group homes, shelters, and detention centres, and the populations that are generally able to avoid them.

For example, in Canada and other settler colonial contexts, state-sponsored colonial dispossession and white supremacy seek to actively produce different types of homelessness and forced institutionalization, although these attempts have always faced constant, courageous, and creative resistance.

Importantly, colonial dispossession and white supremacy are tools of both oppression and advantage—they are designed to enrich white, settler populations, generating direct material advantage. As a result, white upper class individuals and communities—and in particular communities to which decision-makers belong—are generally able to avoid settings such as group homes, shelters, and detention centres.

In the context of the dynamic outlined above, the health and safety measures prescribed for congregate settings have particular implications for health equity in Ontario.

- Allan B & Smylie J. First Peoples, second class treatment: **The role of racism in the health and well-being of Indigenous peoples in Canada**. Toronto, ON: the Wellesley Institute. 2015.
- Harris R & Forrester D. **Suburban origins of redlining: A Canadian case study, 1935-54**. *Urban Studies*, 40(13), 2661–2686. 2003.
- Nixon SA. **The coin model of privilege and critical allyship: implications for health**. *BMC public health*, 19(1), 1637. 2019.
- Reece R. **Carceral redlining: White supremacy is a weapon of mass incarceration for Indigenous and Black Peoples in Canada**. Yellowhead Institute. 2020.
- Thurber KA et al. **Risk of severe illness from COVID-19 among Aboriginal and Torres Strait Islander adults: the construct of 'vulnerable populations' obscures the root causes of health inequities**. *Australian and New Zealand journal of public health*, 45(6), 658–663. 2021.
- United Nations Working Group of Experts on People of African Descent. **Report of the Working Group of Experts on People of African Descent on its mission to Canada**. 2017.

RESEARCH QUESTION

By January 2021 it is known that:

- COVID-19 is transmitted through the air
- Transmission can be mitigated by IAQ measures like ventilation and filtration
- Congregate settings put workers and residents of high risk of infection

In 2021, did public health guidance in Ontario designed for congregate settings reflect evidence of the above?

No

May 14, 2021

Congregate Living Setting Resources Toolkit

This document provides an overview of resources for those working on COVID-19 prevention and response in congregate living settings (e.g., shelters, group homes, supportive housing).

Congregate Living Setting Resources

[COVID-19 Preparedness and Prevention in Congregate Living Settings](#) (Public Health Ontario):

This checklist can be used by administrators and staff members in a range of congregate living settings to help plan for, prevent and detect COVID-19.

[Managing COVID-19 Outbreaks in Congregate Living Settings](#) (Public Health Ontario):

This checklist can be used by congregate living setting administrators and staff members and local public health unit staff members when there is an outbreak or possible outbreak in a congregate living setting.

- The resources listed in Toronto Public Health’s “Congregate Settings Toolkit” provide almost no guidance related to ventilation, HVAC systems, portable air filtration or ultraviolet disinfection.
- Most of the materials cited in TPH’s toolkit are sourced from Public Health Ontario, and most of these contain no references to airborne transmission of COVID-19 outside of the context of aerosol-generating medical procedures.

The rapid review, “Does Toronto Public Health emphasize indoor air quality in its public COVID-19 advice to congregate settings?: is available here: <https://maphealth.ca/public-health-ventilation/>

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Health
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publique
Ontario

AT A GLANCE

Planning for respiratory virus outbreaks in congregate living settings

September 2021

Introduction

During the fall and winter months, a number of respiratory viruses are known to commonly circulate in Ontario including influenza, respiratory syncytial virus (RSV), and rhinovirus. For the 2021-22 respiratory virus season, it is anticipated that SARS-CoV-2 (the virus that causes COVID-19) will continue to circulate.

There is no mention of ventilation, filtration, HVAC systems, portable HEPA filters, UV disinfection, bathroom exhaust fans or windows in any public COVID-19 guidance produced specifically for long-term care homes and congregate settings by Public Health Ontario between January, 2021 and October, 2021.*

*This remained the case until June, 2022

While PHO's checklists for long-term care homes and congregate settings **did not** include indoor air quality measures, PHO's checklists published during the same time period for summer camps, schools and clinical offices **did** include references to HVAC and ventilation.*

*The indoor air quality guidance in these documents is brief and incomplete, but at least it's there.

Infection prevention and control measures emphasized in guidance for long-term care and congregate settings:

- Personal protective equipment*
- Entrance screening
- Symptom-monitoring
- Surveillance and communication
- Cohorting
- Vaccination
- Hand hygiene
- Respiratory etiquette (such as covering mouth and nose with sleeve while sneezing)
- Cleaning and disinfection
- Physical distancing

* Explicitly says not to use N95 masks except for aerosol-generating medical procedures.

The study, “Systematically omitting indoor air quality: sub-standard guidance for shelters, group homes and long-term care during the COVID-19 pandemic,” is currently under review at a journal, and is available as a pre-print here:

<https://www.medrxiv.org/content/10.1101/2022.01.26.22269908v1.article-metrics>

A plain language summary of our findings is available here:

<https://theconversation.com/omitting-indoor-air-quality-from-covid-19-guidance-for-shelters-and-long-term-care-homes-is-a-grave-mistake-177421>

Reducing transmission of respiratory illness in community spaces through improved indoor air quality

July, 2021

The following is an edited summary of a conversation with [Dr. Jeffrey Siegel](#), Professor of Civil Engineering at the University of Toronto. Dr. Siegel is an expert on indoor air quality and ventilation. The conversation took place in late December, 2020. Updates were made in consultation with Dr. Siegel and Dr. Amy (Tianyuan) Li in July, 2021 and March, 2022.

Respiratory illnesses like COVID-19 are spread in a few ways, including through the air. When people are together indoors, infections can spread more easily. But there are things you can do to improve indoor air quality and help reduce transmission. While this is particularly urgent during the COVID-19 pandemic, improvements to indoor air quality are important long-term investments at any time. For example, these improvements can help reduce the transmission of long-standing respiratory illnesses such as flu and tuberculosis.

Please note, the below focuses on airborne transmission, and does not address or replace other infection control measures such as masks, handwashing, and the disinfection of surfaces.

Indoor air quality consultations for community spaces and congregate settings

*Presented by University of Toronto, University of Waterloo, and the MAP Centre for Urban Health Solutions,
with funding from the School of Cities at the University of Toronto.*

Do you work at a community space or congregate setting (like a shelter or a group home)? Would you like advice about reducing transmission of COVID-19 through indoor air quality measures like ventilation and filtration? Here's your chance! You can ask questions about HVAC systems, portable air filters, UV disinfection, and more! You can ask questions about particular rooms or your whole building. These sessions are open to anyone working in community spaces including facility managers; people responsible for infection prevention and control; and workers who have questions about how indoor air quality measures can help make workplaces safer for everyone.

What: A free, 25 minute, online consultation with indoor air quality experts from the University of Toronto and the University of Waterloo.

When: Tuesday, October 11 and Tuesday, October 18
Tuesday, November 8 and Tuesday, November 22
Tuesday, December 13

What time: Each week, we have two, 25 minute, online appointments available. The first one starts at 11:00 am, and the second one starts at 11:30 am.

How to register: To schedule an online appointment email: Pearl.Buhariwala@unityhealth.to. Include your preferred appointment day and time, type of facility you work at, and any specific questions you have so we can prepare for your appointment.

How to prepare: Please explore [this backgrounder](#). Please also bring as much information as possible. For example, if you have questions about your HVAC system, find out as much about it as you can before the appointment.

REDUCING TRANSMISSION OF COVID-19 THROUGH IMPROVEMENTS TO INDOOR AIR QUALITY: A CHECKLIST FOR COMMUNITY SPACES

CONTENTS

Contents	02
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1.0	Introduction	03
2.0	Best practices checklist	06
3.0	Definitions and context	08
4.0	Detailed checklist	12
4.1	Centralized forced-air HVAC systems	13
4.2	Portable air filters with high efficiency filters	16
4.3	Bathrooms	18
4.4	Upper-room and in-duct ultraviolet (UV) disinfection	19
4.5	Additional (and important) indoor air quality measures	19
4.6	Identifying higher-risk spaces in your building	21
4.7	Masks and other non-indoor air quality strategies	22
4.8	Cautionary notes	23
5.0	Measuring ventilation through CO₂ monitoring	25
6.0	The people in the space	28
7.0	Resources and references	30

Here's a quick list illustrating what a building looks like when best indoor air quality practices are in place. We share details about each of these points in the following sections. Check with an HVAC professional before changing any aspect of your HVAC system—for example, before upgrading your filters. If you can't achieve each point right away, don't worry. Using different measures in combination can help you meet your goal of providing good indoor air quality and a safer environment for everyone in the building. You will find definitions of the terms used below in the next section.

- ☐ HVAC system is regularly maintained by an **HVAC professional**.
- ☐ HVAC system uses filters that have a **Minimum Efficiency Reporting Value** or **"MERV" of 13** or higher (check with HVAC professional before upgrading filters).
- ☐ HVAC filters are surrounded by a **good seal**, so that no air by-passes them.
- ☐ Each room has a minimum of **six total air changes per hour**.
- ☐ Where you are not confident that your HVAC system provides six total air changes per hour, or where there is no HVAC system, each room has **appropriately-sized portable air filters**.
- ☐ HVAC system brings in some outdoor air and, at a minimum, meets **ventilation standards**.
- ☐ HVAC system provides ventilation and filtration **at all times** while building is in use.
- ☐ In higher-risk spaces, such as communal eating or sleeping areas, **additional measures** are used to achieve more than six total air changes an hour. For example, additional measures may include:
 - o If possible, HVAC system brings in **100 per cent outdoor air**.
 - o Where room conditions such as ceiling height allow, a professional has installed **upper-room ultraviolet disinfection**.
- ☐ Bathrooms are equipped with appropriate-sized fans that **exhaust to the outside**.
- ☐ Room air is changed over **at least three times** between appointments or groups.

The goal of this checklist is to make sure that the air in each room is relatively free of respiratory particles and other contaminants. Every small thing will help make the space a bit safer.

4.1 CENTRALIZED FORCED-AIR HVAC SYSTEMS

Here are some best practices to apply to centralized **forced-air HVAC systems** to minimize the transmission of infectious respiratory diseases like COVID-19. These best practices should be applied in consultation with an HVAC professional, especially if you upgrade filters or modify equipment.

If your building does not have an operating, centralized, forced-air HVAC system, consult with an HVAC professional about the possibility of installing one. In the meantime, you can implement strategies 4.2, 4.3, 4.4 and 4.5 to improve indoor air quality.

- ☐ Your HVAC system is changing over the air in each room at least six times per hour. This means that, six times each hour, your building's HVAC system is replacing stale air with fresh outdoor air and/or well-filtered air. Air changes do not include simply recirculating stale or poorly-filtered air through the HVAC system. You can use a variety of strategies in addition to the HVAC system to increase total air changes per hour, including portable air filters (see 4.2) and ultraviolet disinfection (see 4.4). To calculate the total air changes per hour achieved in each room by your HVAC system—or your HVAC system in combination with other measures—you will likely need to talk to an HVAC professional.
- ☐ Your HVAC system is bringing in a high ratio of outdoor air. Most HVAC systems in non-residential buildings use a combination of fresh air brought in from the outside and air that is recirculated from the rooms on the same system. You want to bring in as much outdoor air as possible, and use as little recirculated air as possible, while maintaining a comfortable temperature. We can't give you an exact ratio as it will depend on your specific set-up, but ask an HVAC professional if it's possible to increase the amount of outdoor air running through your HVAC system.

Bringing in more outdoor air through your HVAC system may use more energy (particularly in extreme weather). So investigate options like heat or energy recovery ventilators—they allow you to bring in lots of fresh air without using as much energy. For higher-risk areas such as communal eating and sleeping areas, consider bringing in 100 per cent outdoor air if possible.

HIGHER RISK SPACES AND ACTIVITIES (NOT PEOPLE)

4.6 IDENTIFYING HIGHER-RISK SPACES IN YOUR BUILDING

When considering where to focus your attention, it's important to identify the spaces and activities that are most likely to put people at risk of catching COVID-19 through the air. **These are the spaces that are most in need of excellent ventilation and filtration.** Some of these spaces may also be good candidates for **upper-room UV disinfection.**

To identify these rooms and activities, consider the factors that: a) help virus build up in the air; and b) make it more likely someone will breathe in enough virus to get sick. Pay special attention to spaces where:

- ☐ **People are not wearing masks.** If a person *who has COVID-19* is wearing a mask, this will reduce the degree to which particles that contain the virus enter the room, depending on mask fit and quality. This is called source control because it helps stop the virus at its source. If a person *who does not have COVID-19* is wearing a well-fitted respirator, this will make it less likely they will become infected (although it is still possible). Rooms where people are not wearing masks because they are eating—such as a **break rooms** and **dining rooms**—should be considered higher-risk spaces.
- ☐ **There are many people in the space.** The more people in the space, the higher the risk, which may occur in **common areas**. This risk increases if people are not able to maintain a lot of distance from each other.
- ☐ **People are spending a long time together.** The longer a person is exposed to virus in the air, the more likely it is they will get infected. That is why spaces like **sleeping areas**, **waiting rooms** and **shared work areas** require special attention.
- ☐ **The room is small.** In smaller rooms, the virus will build up faster in the air. Ceiling height makes a difference, too. That why, in some cases, **consultation rooms**, especially when people are spending a long time together inside, could be considered higher-risk spaces.
- ☐ **People are breathing hard, talking loudly, shouting or singing.** While people release particles that contain viruses just by breathing, when they are expelling more air, they will release more particles. That's why **areas where there is exercise or singing** need special attention.

This section contains some definitions and basic principles related to indoor air quality. It answers frequently asked questions and will give you context for the detailed checklist that comes next.

How COVID-19 spreads through the air. Small particles (sometimes referred to as **aerosols**) can float in the air, in some cases for hours. When a person has COVID-19, they release small particles that contain the virus when they breathe, talk, sing, cough or sneeze. These are often referred to as **respiratory particles**. Most of these small particles initially hover around an infected person's face—that's why keeping a distance can help reduce infections. But small particles can also move, like cigarette smoke. When someone develops COVID-19 by breathing in small particles that contain the virus, this is often referred to as **airborne transmission** or **aerosol transmission**. If a person who has COVID-19 is wearing a good, well-fitted **respirator**-type mask, such as an N95, this is called **source control**, because it helps prevent small particles that contain the virus from entering the room.

Ventilation. In this document, we are using **ventilation** to refer to the process of bringing fresh air from outside into a building or a room while removing stale air from the same space. If a room feels stuffy or there are a lot of odours, this may be an indication that it is not well ventilated.

Natural ventilation happens without the help of fans, for example, when you open a window. **Mechanical ventilation** uses your building's mechanical systems, including the centralized heating, ventilation and air-conditioning system (the **HVAC system**), to bring fresh air in and exhaust stale air out. This air exchange process helps to remove virus-containing particles from a room.

Ventilation is not just moving indoor air around in the building or room. For example, ceiling fans and portable air conditioners only circulate air in the same building or room, but do not exchange indoor and outdoor air. In addition, some forced-air HVAC systems only provide heating and cooling and do not bring in outdoor air at all. In other words, these HVAC systems simply recirculate the same air throughout the building.

Filtration refers to the process of passing air through a filter. It is different from ventilation, as there is not necessarily outdoor air involved. Most centralized, forced-air HVAC systems use filters to protect equipment from debris like hair or larger dust particles. Many HVAC systems, however, don't use filters that are high-efficiency enough to filter out the smaller particles that carry viruses. In some buildings, there may be opportunities to upgrade HVAC filters to improve the filtration performance of the HVAC system. In addition to centralized HVAC systems, portable air filters also help to filter smaller particles out of the air.

It's important to make sure improvements to indoor air quality work for everyone. And it's important to centre the comfort and rights of the people who use the space. Here are a few tips for making sure that improvements to indoor air quality are sustainable, and work for everyone:

- ☐ **Communicate what you are doing** and why you're doing it at every stage to people who are regularly in the space. Use opportunities like orientation, training and meetings to talk about indoor air quality measures. Post signs with clear language, and let people know who to ask if they have any questions.
- ☐ **Talk to people about portable air filters.** Explain how they contribute to the safety of the space, and why they are placed where they are. Ask people if they have any concerns. For example, portable air filters make noise, and this may bother some people in their living or working space. Work with everyone to resolve any concerns. Maybe the portable air filter can be placed in a different spot in the room; maybe you can run multiple portable air filters on lower settings; or maybe you can choose a portable air filter that is oversized for the room and run it on a lower setting.
- ☐ If you have CO₂ and other indoor air quality measurement devices posted publicly, **explain to people what they're doing there**, and what the measurements mean. Let them know what to do and who to alert if they notice unusual readings or have concerns.
- ☐ Sometimes, indoor air quality measures such as opening windows or increased use of outdoor air through ventilation systems can interfere with comfortable temperatures. As mentioned earlier, **consider Heat Recovery Ventilators or Energy Recovery Ventilators**—they can help keep temperatures comfortable while you bring in lots of outdoor air through your HVAC system. In the meantime, **keep open communication with people who use the space, and remember that comfort is always important**, in particular during extremely hot or cold weather.
- ☐ Make sure that indoor air quality measuring and rules **do not interfere with people's privacy, rights, or regular daily activities**. Indoor air quality measurement should not become a way of policing or stigmatizing anyone. Nor should it interfere with the rights of residents, workers or visitors.

REDUCING TRANSMISSION OF COVID-19 THROUGH IMPROVEMENTS TO INDOOR AIR QUALITY: A CHECKLIST FOR COMMUNITY SPACES

For public health: undertake an urgent, public and systematic process to equip long-term care homes and congregate settings to meet specific benchmarks for indoor air quality. This must be done in partnership with indoor air quality experts and include:

- Raising public and sector-specific awareness about changes to public health guidance.
- Systematically updating both public health guidance and IPAC training.
- Equipping public health inspectors, including at the local level, to assess indoor air quality.
- Working with funders to ensure facilities have the resources they need to achieve adequate indoor air quality.
- Update standards for facilities to reflect importance of ventilation and filtration.

maphealth.ca/ventilation