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Improving Ventilation In Buildings

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What You Need to Know

- To improve ventilation in your building, keep your system operating as designed. Aim for at least 5 air changes each hour and upgrade to MERV-13 filters.
- Good ventilation is essential to maintaining a healthy indoor environment and protecting building occupants from respiratory infections.
- Improving [ventilation in buildings](#) can help reduce the number of viral particles in the air and lower occupants' risk of exposure to respiratory viruses.
- Implementing multiple infection prevention and control strategies at the same time can increase the overall effectiveness of ventilation interventions.
- Building owners and operators can participate in the [Clean Air in Building Challenge](#) to improve indoor air quality and protect public health.

Improving Ventilation in Buildings

Improving ventilation (air flow, filtration, and treatment) can help you protect building occupants from respiratory infections. Good ventilation can also help you provide clean air and maintain a healthy indoor environment.

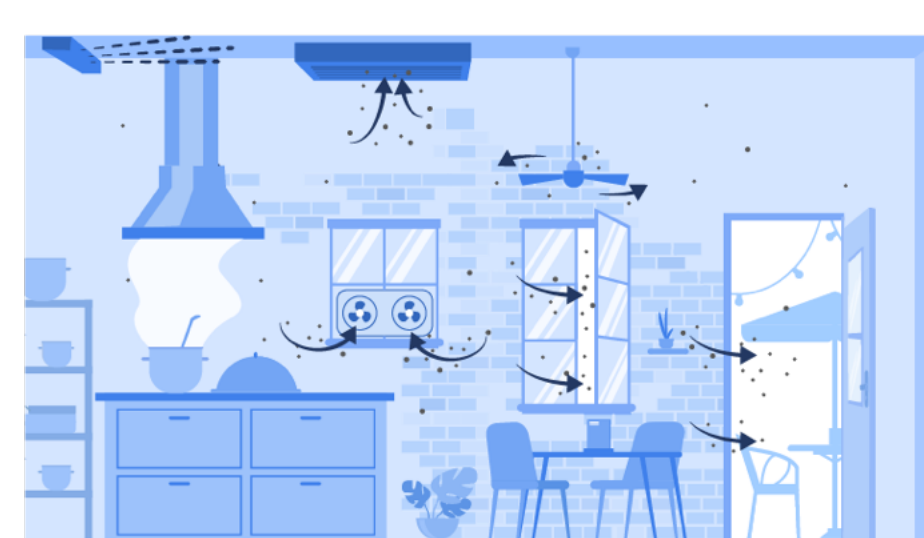
Droplets and small particles that people breathe out can contain viruses. Because people can get respiratory illnesses from breathing in these droplets and viral particles, it is important to use protective ventilation strategies to prevent them from accumulating in indoor air.

Ventilation systems bring fresh, outdoor air into rooms, filter or disinfect the air there, and improve air flow. Making ventilation system upgrades or improvements in your building can increase the delivery of clean air and reduce potential contaminants in indoor spaces. This can help reduce the number of viral particles in the air.

✗ Poor ventilation



✓ Good ventilation



How to Improve Ventilation in Your Building

Building owners and operators can take steps to improve ventilation and help prevent respiratory illnesses from spreading in indoor spaces. You can use a layered approach that combines ventilation strategies with other infection prevention and control measures. With each added layer of protection, the risk of exposure to respiratory viruses decreases.

Basic Strategies

Make sure your building's heating, ventilation, and air conditioning (HVAC) systems operate as designed. Older systems may need updating to meet current ventilation standards or to improve ventilation and filtration capability.

- Maintain regularly as recommended by the manufacturer.
- Change filters in your system regularly, according to the manufacturer's instructions.
- Ensure filters fit properly in the filter rack, so as little air as possible gets around the filters.

Enhanced Strategies

Improving ventilation, filtration, and air treatment systems in buildings can help lower the concentration of viral particles in the air.

- Aim for 5**
 Aim to deliver 5 or more air changes per hour (ACH) of clean air to rooms in your building. This will help reduce the number of viral particles in the air. You may need to use a combination of ventilation (air supply, filtration, and air treatment) strategies to reach this target.
- Upgrade filters**
 Use filters rated [MERV-13](#) or higher, when possible. Using higher-rated filters in your heating or air conditioning system can remove more germs in the air than lower-rated filters.
- Turn your HVAC system "ON"**
 Set your ventilation system to circulate more air when people are in the building. You can do this by setting the thermostat's fan control to the "ON" position instead of "AUTO." This will make the fan operate continuously but can increase fan energy use, so limit use to when needed.
- Add fresh air**
 Bring more clean outdoor air into spaces by opening windows and doors and using exhaust fans. Even small openings can help.
- Use air cleaners**
[Air cleaners](#) (also known as air purifiers) filter air with high-efficiency filters that remove germs from the air. Choose one that's the right size for your space.
- Install UV air treatment systems**
[UV air treatment](#) systems can kill germs in the air. They can also provide a high level of effective air changes per hour while using little energy.
- Use portable carbon dioxide (CO2) monitors**
 A portable CO₂ monitor can help you determine how stale or fresh the air is in rooms. Readings above 800 parts per million (ppm) suggest that you may need to bring more fresh, outdoor air into the space.

Low cost and low energy strategies are available. Learn more about using [CDC's building recommendations in your setting](#).

The [Clean Air in Buildings Challenge](#) helps building owners and operators improve indoor air quality and protect public health. Create your clean indoor air action plan today.

Related Pages

- [Ventilation in Buildings](#)
- [Ventilation in Schools and Childcare Programs](#)
- [Interactive School Ventilation Tool](#)
- [Upper-Room Ultraviolet Germicidal Irradiation \(UVGI\)](#)
- [Improving Ventilation in Your Home](#)

More Information

- [Clean Air in Buildings Challenge](#)
- [What is a MERV rating?](#)
- [Guide to Air Cleaners in the Home](#)
- [Implementing a Layered Approach to Address COVID-19 in Public Indoor Spaces](#)

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Source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

