



MILWAUKEE
JEWISH FEDERATION

Re: COVID-19 REOPENING UPDATE
Date: Thursday, May 21, 2020 7:05 pm CT

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikauch Nefesh*, the sanctity of life. We are collecting resources from the government, the Secure Community Network (SCN) and public health officials to guide the reopening process. These are recommendations and best practices for reopening to help all our community organizations make the best decisions for themselves. Please defer to the CDC, WI DHS and NSHD for the most up-to-date guidance from healthcare professionals. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders. If you have questions, please contact Anna Goldstein at AnnaG@MilwaukeeJewish.org or 414-390-5733.

National Resources

- ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, recently announced the creation of the [ASHRAE Epidemic Task Force](#) to help deploy ASHRAE's technical resources to address the challenges of the current pandemic and future epidemics as it relates to the effects of heating, ventilation and air-conditioning systems on disease transmission in healthcare facilities, the workplace, home, public and recreational environments.
 - Read [ASHRAE's Environmental Health Emerging Issue Brief](#) on the COVID-19 Pandemic and Airborne Transmission.
- The CDC has [Interim Guidance](#) for Businesses and Employers to Plan and Respond to COVID-19. The guidance updates strategies and recommendations for employers responding to COVID-19, including those seeking to resume normal or phased business operations. These strategies include:
 - Conducting daily health checks
 - Conducting a hazard assessment of the workplace
 - Encouraging employees to wear cloth face coverings in the workplace, if appropriate
 - Implementing policies and practices for social distancing in the workplace
 - Improving the building ventilation system
- Follow the National Institute for Occupational Safety and Health's (NIOSH) [Hierarchy of Controls](#) for guidance on controlling exposures to occupational hazards to protect workers.
- Read the CDC's updated [Situation Summary](#) of the COVID-19 Pandemic.
- Follow the Occupational Safety and Health Administration's (OSHA) and the U.S. Department of Health and Human Services' (HHS) [Guidance on Preparing Workplaces for COVID-19](#). Here are the steps all employers can take to reduce workers' risk of exposure to SARS-CoV-2:
 - Develop an Infectious Disease preparedness and Response Plan

- Prepare to Implement Basic Infection Prevention measures
- Develop Policies and Procedures for Prompt Identification and Isolation of Sick People, if Appropriate
- Develop, Implement, and Communicate about Workplace Flexibilities and Protections
- Implement Workplace Controls (i.e. engineering controls, administrative controls, safe work practices, personal protective equipment (PPE))
- Read [guidance](#) from the World Health Organization (WHO) on the COVID-19 outbreak. The WHO also provides guidance on [getting your workplace ready for COVID-19](#). See [ASHRAE's letter to WHO](#).
- The [IICRC](#), or the Institute of Inspection, Cleaning and Restoration Certification, is the non-profit certifying body for the cleaning and restoration industry.
- [ASHRAE's technical resources on filtration and disinfection](#) provide further information on COVID-19 transmission through air in toilet rooms; HVAC system maintenance and filter replacement during the COVID-19 pandemic; [mechanical air filters](#); HEPA filters; [electronic air filters](#); gas-phase air cleaners; [ultraviolet energy \(UV-C\)](#); [UV-C LEDs](#); UV-C In-Duct Air Disinfection; UV-C Upper-Air Disinfection; UV-C In-Duct Surface Disinfection; UV-C Portable Room Decontamination; [Photocatalytic Oxidation \(PCO\)](#); [Bipolar Ionization/Corona Discharge](#); [Ozone \(O3\)](#); [Chemical Disinfectants](#); Vaporized Hydrogen Peroxide (VHP); [Pulsed Xenon \(Pulsed UV\)](#); [405 nm Visible Light](#); [Far Ultraviolet](#); and other special precautions.
 - In summary, it is likely, but not yet shown, that COVID-19 could be spread through the air. Air cleaning can help mitigate disease transmission. Options for air cleaning include HVAC systems and in-room devices. Technologies that can be effective include mechanical air filters, electronic air filters/air cleaners, UV-C systems, and other emerging technologies. Care and professional judgement should be taken to understand choices for filtration and air disinfection, pros and cons of each and impact(s) on existing building systems.
- Read the [CDC's guidance](#) on cleaner air shelters and spaces.
- ATI is a National Leader in Decontamination and Disinfection. Read their [guidelines for COVID-19 cleaning](#).

Reopening Recommendations and Best Practices

HVAC

- [ASHRAE](#) has [published two statements](#) to define guidance on managing the spread of COVID-19 with respect to the operation and maintenance of HVAC systems in buildings. ASHRAE recommends operators continue to run systems during this time to help control the spread of the virus. Read the official statements and affiliated guidance on ASHRAE's [official COVID-19 page](#). Email covid-19@ashrae.org for questions. ASHRAE leadership has approved the following two statements regarding transmission of SARS-CoV-2 and the operation of HVAC systems during the COVID-19 pandemic.

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikauach Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.

- Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.
- Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of SARS-CoV-2 and thus the risk of transmission through the air. Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection. In general, disabling of heating, ventilating, and air-conditioning systems is not a recommended measure to reduce the transmission of the virus.
- Read ASHRAE's [FAQ & Glossary of Terms](#) for frequently asked questions on filtration and disinfection, healthcare, HVAC system operation during building shutdown, how to return the HVAC system to normal operation, and residences.
 - The [ASHRAE Position Document on Infectious Aerosols](#) and the [ASHRAE Position Document on Filtration and Air Cleaning](#) do not currently take a position for or against the use of bipolar ionizing (BPI) air cleaners due to a lack of sufficiently clear scientific data on these air cleaners.
 - Normal operating temperature set points should be maintained based on the existing licensing requirements for the space use and occupancy. Consider maintaining relative humidity between 40% - 60% RH, as [recommended by ASHRAE](#). [ASHRAE Research Project CO-RP-03](#) reports that scientific literature generally reflects the most unfavorable survival for micro-organisms when the RH is between 40% - 60%.
 - Prior to starting the building, operators may want to create a strategic plan that includes the following:
 - Create measures to make occupants feel safer
 - Ensure supply chain for critical items, such as filters, as confirmed for delivery
 - Review contractual agreements with tenants with regards to building support
 - Establish a communication protocol with tenants and include key contacts
 - Prepare and provide training for tenants on safety measures
 - General Recommendations:
 - Notify relevant people – include exact dates and times that the building will be reopened
 - Follow all local, state and federal executive orders, statutes, regulations, guidelines, restrictions and limitations on use, occupancy and separation until they have been officially relaxed or lifted
 - Follow CDC advice regarding PPE
 - Follow OSHA Guidelines
 - Ensure that custodial scope includes proper cleaning procedures built from EPA and CDC guidelines on approved products and methods:

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikauach Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.

- Disinfect high-touch areas of HVAC and other building service systems (e.g. on/off switches, thermostats)
 - Disinfect interior of refrigerated devices, e.g. refrigerators, where the virus can potentially survive for long periods of time
 - In buildings with operable windows, if the outside air temperature and humidity are moderate, open all windows for two hours minimum before the reoccupation
 - Review programming to provide flushing two hours before and post occupancies. This includes operating the exhaust fans as well as opening the outside air dampers
 - Run the system on minimum outside air when unoccupied
 - Garage exhaust, if any, should run two hours before occupancy
 - Install signage to encourage tenants to use a revolving door, if any, rather than opening swing doors in lobby area
 - Review all procedures to consider the addition of “touchless” interactions where applicable. As an example, auto-flush valves are considered “touchless”.
 - Consider future renovations, to be included in the capital budget, to incorporate some strategies to mitigate transmission of viruses
- On April 14, 2020, the ASHRAE Board of Directors approved the [ASHRAE Position Document on Infectious Aerosols](#). This position document replaces the ASHRAE Position Document on Airborne Infectious Diseases.
 - Conclusions and Recommendations:
 - Infectious aerosols can be disseminated through buildings by pathways that include air distribution systems and interzone airflows.
 - Various strategies have been found to be effective at controlling transmission, including optimized airflow patterns, directional airflow, zone pressurization, dilution ventilation, in-room air-cleaning systems, general exhaust ventilation, personalized ventilation, local exhaust ventilation at the source, central system filtration, UVGI, and controlling indoor temperature and relative humidity.
 - Research on the role of airborne dissemination and resuspension from surfaces in pathogen transmission is rapidly evolving.
 - Managing indoor air to control distribution of infectious aerosols is an effective intervention which adds another strategy to medical treatments and behavioral interventions in disease prevention
 - Non-healthcare buildings should have a plan for an emergency response. The following modifications to building HVAC system operation should be considered:
 - Increase outdoor air ventilation (disable demand-controlled ventilation and open outdoor air dampers to 100% as indoor and outdoor conditions permit)
 - Improve central air and other HVAC filtration to MERV-13 (ASHRAE 2017b) or the highest level achievable

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation’s work of caring for the needs of the Jewish people and our guiding principle of *Pikauch Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.

- Keep systems running longer hours (24/7 if possible)
 - Add portable room air cleaners with HEPA or high-MERV filters with due consideration to the clean air delivery rate (AHAM 2015)
 - Add duct- or air-handling-unit-mounted, upper room, and/or portable UVGI devices in connection to in-room fans in high-density spaces such as waiting rooms, prisons, and shelters
 - Maintain temperature and humidity as applicable to the infectious aerosol of concern
 - Bypass energy recovery ventilation systems that leak potentially contaminated exhaust air back into the outdoor air supply
 - Design and build inherent capabilities to respond to emerging threats and plan and practice for them.
- [Read an interview](#) with M. Dennis Knight, P.E., FASHRAE, principal/engineer at Whole Building Systems in Charleston, South Carolina, and member of ASHRAE's Epidemic Task Force. Knight talks about how contractors can help commercial building owners make sure their HVAC systems are operating safely and efficiently after COVID-19 restrictions are lifted and occupants start returning to work.
 - See ["Filtration and Air-Cleaning Systems to Protect Building Environments" document](#) from NIOSH for additional guidance.
 - [OSHA and HHS recommend](#) implementing engineering controls into the workplace. Engineering controls involve isolating employees from work-related hazards. In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on worker behavior and can be the most cost-effective solution to implement. Engineering controls for SARS-CoV-2 include:
 - Installing high-efficiency air filters
 - Increasing ventilation rates in the work environment
 - Installing physical barriers, such as clear plastic sneeze guards
 - Installing a drive-through window for customer service
 - Specialized negative pressure ventilation in some settings, such as for aerosol generating procedures (e.g., airborne infection isolation rooms in healthcare settings and specialized autopsy suites in mortuary settings)
 - [Read recommendations](#) for the cleaning and remediation of flood-contaminated HVAC systems – a guide for building owners and managers.
 - [NADCA](#), the National Air Duct Cleaners Association, is a non-for-profit trade association that serves the HVAC inspection, cleaning and restoration industry.
 - The Commonwealth of Pennsylvania's Department of Environmental Protection offers [guidance](#) on flood recovery for heating and cooling systems.
 - The EPA provides [HVAC guidance](#) for building and maintenance professionals to follow to help protect from COVID-19.
 - The [CDC reported](#) on a COVID-19 outbreak associated with air conditioning in a restaurant in Guangzhou, China.
 - REHVA, the Federation of European Heating, Ventilation and Air Conditioning Associations has drafted a [guidance document](#) on how to operate and use building

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikach Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.

services in areas with a coronavirus outbreak to prevent the spread of COVID-19 depending on HVAC or plumbing systems related factors. [Read REHVA's Guidance Document V2](#). [Read REHVA's answers to FAQs](#). [View REHVA's webinar recording and slides](#) of their COVID-19 guidance.

- Practical recommendations for building services operation include:
 - Increase air supply and exhaust ventilation
 - Use more window airing
 - Humidification and air-conditioning have no practical effect
 - Safe use of heat recovery sections
 - No use of recirculation
 - Duct cleaning has no practical effect
 - Change of outdoor air filters is not necessary
 - Room air cleaners can be useful in specific situations
 - Toilet lid use instructions
- View [AiCARR's Infographic](#) on Reducing SARS-CoV2-19 diffusion in buildings.

Air Purifiers

- [Read about](#) what you need to know about air purifiers and COVID-19.
- NAFA, the National Air Filtration Association answers [frequently asked questions](#) about COVID-19 and air filtration. [Listen to the guidance as a podcast](#).
 - Similar to building filtration, there is no direct clinical evidence of the benefit of portable air cleaners for reducing infectious disease risk, but some benefit can be reasonably inferred for appropriately sized (e.g., their removal rate is appropriate for the room), maintained, and operated portable HEPA filters. As with building filtration, the details are important (e.g., efficiency and airflow rate of the air cleaner, sizing and placement within the space, maintenance and filter change, nature of space that is being cleaned) and appropriate portable filtration is only likely to be effective in concert with other measures.
- Read the [FDA's guidance](#) for sterilizers, disinfectant devices and air purifiers during the COVID-19 public health emergency.

Personal Protective Equipment (PPE)

- Technology for the Decontamination and Re-use of N95 respirators has been [established by the FDA](#).
- A variety of approaches have been experimented with and while there is debate about the complete effectiveness, a shortage of PPE creates a need to re-use masks. [This guidance](#) from the Anesthesia Patient Safety Foundation provides information about the CDC's official guidance on the short-term use of N95 masks.

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikauch Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.

- If the building opening takes place when PPE requirements are still in place, [ASHRAE's Occupancy Guides](#) can be referenced to deal with functioning buildings during the epidemic.

Plumbing Systems

- A decrease in water usage in buildings closed or with limited access during the pandemic can increase the risk of bacteria growth in building plumbing and associated equipment. Facility managers and building owners can help mitigate the risk of waterborne pathogens, such as Legionella bacteria, the cause of Legionnaire's disease, by developing a water management plan. The [ASHRAE Standard 188-2018, Legionellosis: Risk Management for Building Water Systems](#) document provides guidance and protocols to minimize the risk of waterborne pathogens, such as legionella pneumophila in utility water systems.
 - Turn on the water and run the drinking fountains, lavatories, urinals, water closets, and pantries to ensure water quality before usage.
 - Make sure all P and U-traps on plumbing drains are wet
 - Distributed domestic hot water systems – if possible, keep these systems circulating. Keep water above 140°F to avoid microbial incursion. Do not let it drop below 120°F. If circulation was stopped, try to circulate once every two weeks for two hours at temperature. If the hot water recirculating system goes down for extended duration, do a high temperature flush and pull the strainers before going back online.
 - Maintenance should wear epidemic-level PPE when maintaining any of the sewage ejectors and lift stations until those systems are sterilized
- Follow the [CDC Guidance for Building Water Systems](#) which describes 8 steps to take before you reopen your business or building.
 - After a prolonged shutdown and before occupants return, buildings should be assessed for mold and excess moisture.
 - NIOSH [offers tools and instructions](#) to assess dampness and mold in schools and general buildings. These tools can be used by building maintenance staff as well as industrial hygienists.
 - If dampness or mold is detected, address the source of water entry first. Clean-up and remediation should then be conducted before the building is reoccupied. Plan the remediation before beginning work.
 - Resources for the remediation of buildings and homes with mold are provided by the [New York City Department of Health and Mental Hygiene](#), the [EPA](#), and [CDC](#).
 - [Additional information and CDC guidance](#) on controlling dampness issues that result in indoor mold growth, as well as on renovation and remediation if indoor mold has become an issue is available from NIOSH.

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikauach Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.

Electrical Systems

- Plug in all appliances that were unplugged to avoid phantom electrical loads, including but not limited to: computer, routers, modems, televisions, printers, chargers, microwaves, and things that turn on with a remote control.¹

Special Systems

- Check on fire alarms and other equipment with batter backup power supplies. Consider having an electrical technician come and check that everything is working properly.²
- Have fire protection sprinkler systems, fire alarm systems, emergency lighting systems and other life-safety systems inspected by local authorities having jurisdiction (AHJs), if required by state and local statutes and ordinances, and by contract service professionals who routinely maintain these systems.
- Check on the battery backup power supplies for Information Technology (IT) and Internet of Things (IOT) devices, especially the ones that are mission critical. That would include servers, building automation systems (BAS), communication systems, lighting control systems and security systems.
- If the building is equipped with an emergency or backup generator, arrange to have it tested as required by codes, local jurisdictions and the manufacturer's recommendations.

UV Systems

- Look for equipment meeting UL Standard 2998 Environmental Claim Validation Procedure (ECVP) for Zero Ozone Emissions from Air Cleaners. It is important to avoid ozone production because it is a contaminant of concern. This kind of germicidal equipment uses mercury vapor lamps that produce ultraviolet light at 254nm, which is effective at inactivating many pathogens including SARS-CoV-2. Light at this wavelength does not produce ozone, but the mercury vapor lamps also produce ultraviolet light at shorter wavelengths that do produce ozone. Manufacturers have overcome this problem by using titanium-doped quartz in the lamps, which block the ozone-producing wavelengths. These products require careful design, installation and maintenance to be most effective.³
- UV systems and ionization units are more relevant for healthcare facilities. UV-treatment of outdoor air in air handling units is not necessary.⁴
- A properly designed and maintained UV system, often in concert with filtration, humidity control, and airflow management, has been shown to reduce infections from other viruses. The details of the system are very important (e.g., design of fixtures, lamp type,

¹ <https://www.ashrae.org/technical-resources/frequently-asked-questions-faq>

² <https://www.ashrae.org/technical-resources/frequently-asked-questions-faq>

³ <https://www.ashrae.org/technical-resources/frequently-asked-questions-faq>

⁴ <https://www.rehva.eu/activities/covid-19-guidance#c1321>

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikauch Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.

lamp placement airflow amount and mixing, etc.). Simply adding UV to an existing system without consideration of these factors has not been demonstrated to have a benefit.⁵

- There is no proven evidence that ionizers, ozone generators, plasma, and other air cleaning technologies reduce infection in real buildings, even if they have promise based on tests in a laboratory or idealized setting. Some of them have substantial concerns about secondary issues (such as ozone production).
- The MTA is using ultraviolet technology on NYC subways to kill COVID-19.⁶

⁵ <https://www.nafahq.org/covid-19-corona-virus-and-air-filtration-frequently-asked-questions-faqs/>

⁶ <https://abc7ny.com/ultraviolet-subway-cleaning-coronavirus-nyc-reopen/6196556/>

This memo is a synthesis of critical information, resources and trends about the reopening process during the pandemic that are relevant to the Milwaukee Jewish Federation's work of caring for the needs of the Jewish people and our guiding principle of *Pikauch Nefesh*, the sanctity of life. While the information is intended for use by MJF leadership, we are also sharing it with other community leaders.