December 2020

Pile of Bones

Published by the Regina Chapter of ASHRAE

President's Message

By Cailin Noll(MacPherson)

Happy holidays, Regina ASHRAE Chapter! Although this holiday season may look a little different, I hope you are still finding ways to connect with family and friends.

As expected, we will not have a December meeting or Christmas party. I will be donating what I typically spend on an ASHRAE Christmas Party ticket to The Regina Food Bank - https://reginafoodbank.ca/ If you have room in your budget, I challenge you to do the same and donate to an organization that is important to you.

If you are interested in attending the Virtual ASHRAE Winter Conference, to find information on how to register here: https://www.ashrae.org/conferences/2021-virtual-winter-conference

Wishing everyone a happy holiday season and a safe and healthy 2021!

Upcoming Events

December 2020 – Postponed
January 2021 - TBD

Vice President's Message

By Carla Drager

As 2020 comes to an end, I'd like to wish everyone a happy holiday season. Looking forward to seeing everyone back in the new year. And stay tuned for our upcoming meeting speakers.

Young Engineers in ASHRAE (YEA)

By Tyler Gamble

Happy Holidays everyone! I hope to see many of you in the New Year at our YEA Escape room event. Please reach out if you would like more details.

ASHRAE Issues Statements on Relationship Between COVID-19 and HVAC in Buildings

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.

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.

ASHRAE's GUIDANCE FOR RE-OPENING BUILDINGS

ASHRAE is a global professional society of over 55,000 members committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration and their allied fields. ASHRAE has established a Task Force to help deploy technical resources to address the challenges of the COVID-19 pandemic and possible future epidemics as it relates to the effects of heating, ventilation, and air-conditioning (HVAC) systems on disease transmission. Guidance and building readiness information for different operational conditions have been developed for several building types, including commercial; residential; schools and universities; and healthcare facilities, as well as general guidance for re-opening buildings.

ASHRAE's reopening guidance provides practical information to help your HVAC system mitigate the transmission of SARS-CoV-2. Some general recommendations are provided below. Please consult the full guidance for important details and consider reaching out to qualified design professionals for additional analysis as needed.

• Systems Evaluation: Inspect equipment, systems, and controls to check for existing issues. Evaluate outdoor air ventilation for compliance with design requirements. Make note of existing filters' MERV rating. Analyze each HVAC system for appropriate engineering controls to improve its potential to reduce virus transmission. Check calibration per the guidance in ASHRAE Guideline 11-2018, Field Testing of HVAC Control Components. • Inspection and Maintenance: Verify HVAC systems function per design intent using ASHRAE Standard 180-2018, Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems, or equivalent. Ensure that energy recovery devices can be operated safely.

- • Ventilation and Filtration: Confirm systems provide required minimum amounts of outdoor air for ventilation and that the filters are MERV 13 or better filters for recirculated air. Combine the effects of outdoor air, filtration, and air cleaners to exceed combined requirements of minimum ventilation and MERV-13 filters.
- • Building Readiness Plan: Create a plan to document the intended operation for the building, highlighting the mitigation strategies, temporary and permanent, to be implemented for the facility.
- o Non-HVAC Strategies: Note if face masks are required or recommended; implement social distancing, establish occupancy levels, and establish cleaning and handwashing requirements.
- o HVAC Strategies: Increased ventilation, improved filtration, and/or air cleaning technologies.
- • Pre- or Post-Occupancy Flush with Outdoor Air: Focus on removing bio-burden pre-or post-occupancy of the building. Flush building for a time required to achieve three air changes of outdoor air (or equivalent, including

effect of outdoor air, particulate filtration, and air cleaners).

- Modes of Operation for the Building: Operate in Occupied Mode when people are present in the building, including times when the building is occupied by a small fraction of its allowable capacity.
- Water Systems: In general, building water systems should be flushed before they are reopened. Refer to EPA Guidance on this topic here and ASHRAE Standard 188-2018, Legionellosis: Risk Management for Building Water Systems, and Guideline 12-2020, Managing the Risk of Legionellosis Associated with Building Water Systems.
- Energy Savings: During Evaluation and Inspection, determine optimized control strategies that can be implemented per ASHRAE Guideline 36-2018, High-Performance Sequences of Operation for HVAC Systems.

HVAC&R systems play an important role in minimizing the spread of harmful pathogens, and ASHRAE is ready to provide technical resources and answer questions.

The most up-to-date ASHRAE COVID-19 guidance can be found here.

The most up-to-date information on building re-opening can be found here.

For further assistance, please contact GovAffairs@ashrae.org.

ASHRAE Epidemic Task Force Laboratory Subcommittee Guidance Document – *Epidemic Task Force* (ETF)

Introduction

SARS-CoV-2 virus, and other similar pathogens, may spread through various transmission routes, including direct or indirect contact with contaminated surfaces and exposure to respiratory droplets. While not initially considered, more data are becoming available that indicates that the potential for exposure from aerosolized particles must also be addressed. Both the World Health Organization (WHO) and the Center for Disease Control (CDC) have now made public statements recognizing the potential for airborne transmission. This has led to

ASHRAE developing the formal position (https://www.ashrae.org/technical-resources/ashrae- statement-regarding-transmission-of-sars-cov-2):

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 ventilation, and air conditioning systems, can reduce airborne exposures.

Initially, the laboratory environment was considered low risk for aerosol transmission because these facilities are already designed with the safety of occupants as a key performance indictor; typically through the use of 100% outside air (i.e., no recirculation) supply systems, higher air change rates, and exhaust systems designed to minimize re-entrainment of contaminated air. However, these same systems provide unique operating conditions that require distinct mitigation strategies to minimize the risk of transmission of aerosolized particles. Several recommended mitigation strategies that may be prudent for other building types should not be employed in a lab environment because they may adversely impact the air flow patterns within the lab and/or the performance of existing containment devices.

Therefore, the objective of this document is to address the mitigation strategies that are unique to the laboratory environment and to define those strategies that may be applicable to non-lab environments that should not be implemented within a laboratory or to its HVAC systems.

Before implementing changes to any of the systems within the laboratory, consult with professionals such as a Professional Engineer (refer to Building Readiness Team, https://www.ashrae.org/technical-resources/building-readiness#team, for more team members) to evaluate the effects the changes will have on the overall system. While the recommendations stated here are designed to make the laboratory safer, they cannot guarantee the safety of the occupants as the virus is spread from person-to-person and can linger in the air and/or on surfaces.

Definition of a Laboratory

The definition of what is or is not a laboratory is subject broad interpretation. As such, ASHRAE Technical Committee 9.10 (TC9.10), in conjunction with the American Industrial Hygiene Association (AIHA) and the Division of Chemical Health and Safety of the American Chemical Society (ACS) has developed a document titled "Classification of Laboratory Ventilation Design Level". This document classifies five levels of laboratory ventilation design levels (LVDL-0 through LVDL-4) based on the types and quantities of hazardous material that may be used within the facility and the potential for airborne generation of these materials.

For the purpose of this document, the term "laboratory" refers to the following types of facilities, which typically have single-pass airflow (i.e., the supply of 100% outside air):

• Teaching or research laboratories supporting the management of exposures to airborne chemicals generated during laboratory scale activities.
• Applications where hazardous chemicals are used on a nonproduction basis, as defined by the Occupational Safety and Health Administration (OSHA).
• Biological laboratories, operating at levels BSL-2 through BSL-3+.
• Vivaria operating at levels ABSL-2 through ABSL-3+.

For the purpose of this document, precision and/or specialty laboratory spaces such as laser laboratories for physics, atomic molecular optics, etc. or other laboratory spaces which utilize recirculation air as part of their strategy for environmental control are excluded. For direction on the operation of these facilities consult the ASHRAE Commercial Guideline (https://www.ashrae.org/technical-resources/commercial).

This document does not provide guidance specific to the direct handling of SARS-

CoV-2 virus samples in a laboratory environment. ASHRAE defers to the Center for Disease Control (CDC), the National Institutes for Health (NIH), and Health Canada for such guidance.

Guidance for the Operation of Existing Labs

General

ASHRAE guidance for many facilities is to consider increasing both the ventilation rates during occupied hours and/or increase the percentage of outside air. In the laboratory environment the HVAC systems are already equipped to provide 100% outside air, so they already meet this portion of the ASHREA guidance. Furthermore, based on environmental condition requirements, supply air is typically heated and humidified in the winter and cooled and dehumidified in the summer. As such, there is typically no opportunity to increase the percentage of outside air, and it is generally recommended that air change rates are not increased above design levels. Considering laboratory HVAC systems are already primarily designed to control the spread of contaminants, it is anticipated there will be few HVAC system adjustments needed to mitigate the spread of SARS-CoV-2 virus, as long as the system was properly designed and is currently operating at these design levels. Therefore, the primary recommendation is that existing HVAC system air flows, sequence of operation and pressure relationships should be verified.

Existing laboratories are typically designed as the following:

- ventilation dominant,
- hood dominant, or
- thermally dominant.

Ventilation dominant labs have the maximum supply airflow rate designed based on a minimum ventilation rate which is greater than the cooling/heating load airflow or hood make- up airflow. Hood dominant labs have the maximum supply airflow based on the required airflow to meet the airflow demands of the fume hoods and other containment devices located within the lab. Thermally dominant labs have the maximum supply airflow based on their cooling/heating loads. Hood dominant and thermally dominant labs, when designed with variable volume systems, may switch between any of the three types depending on hoods in use or space cooling/heating loads. Most control systems automatically prevent a system from going below the ventilation minimum supply flow rate programmed into the system.

Arbitrarily increasing the ventilation rate in a laboratory can have undesired consequences. Ventilation rates in laboratories are typically higher than normal office spaces to begin with. Increased rates have the potential to disrupt airflow patterns in the space and the ability of

source capture devices (fume hoods, snorkels, etc.) from properly containing or capturing the contaminants they are designed to capture. A CFD model or evaluation by a professional engineer familiar with laboratory systems should be consulted before modifying airflow rates from the original design levels.

<u>Ventilation Demand Driven Laboratories</u>

Laboratories are typically designed to operate in the range of 4 -12 air changes per hour of outdoor air. Because laboratory HVAC systems have 100% outdoor air and provide a relatively clean air environment for conducting experiments and research, increasing the air change rates above the original design is probably unnecessary. When a lab space includes an unoccupied ventilation mode or is equipped with a demand control ventilation system, occupancy sensors, or room scheduling, a risk analysis should be performed to determine if the reduced air change rates should be increased to the desired air exchange rates.

Increasing air changes per hour can enhance overall dilution of contaminants but may not achieve well-mixed conditions with uniform concentration in the entire space. Local airflow patterns determine the non-uniformity of concentrations and, hence, resulting exposure risk.

Fume Hood Driven Ventilation Demand

The total flow through a laboratory containing a variable-air-volume fume hood can vary depending on the operating mode. Exhaust flow through the fume hood can modulate from low flow with the sash closed to a much higher flow when the sash is open. The air change rate within the lab will vary in proportion to the flow through the fume hood and can be as much as 3 or 4 times greater when the sash is open versus closed. It is critical that the air supply and exhaust flow are coupled and modulate their flow in tandem to maintain the appropriate lab pressurization. Adjusting either the air supply or exhaust flow rates can adversely impact the performance of the fume hood, reducing its capture efficiency.

Thermally Driven Ventilation Demand

The primary objective of laboratory ventilation systems is to provide a safe and comfortable environment to personnel. The heat load within a laboratory may not be significantly greater than for a typical commercial building. It is usually defined by solar gain on the façade, occupants, lighting, and equipment loads. What is unique about laboratories is that the high ventilation rates may provide excess cooling depending upon the balance between the heat loads and the ventilation rates and supply air temperatures. If this imbalance would cause room temperatures below design conditions, re-heat is added in the supply ducts to increase the supply air temperatures to the labs. If the imbalance would cause the room temperatures to be above design conditions, or necessitate excess ventilation to meet the cooling load, additional cooling can be provided through local cooling coils, fan coil units, chilled beams, or other terminal cooling devices. In either situation, increasing ventilation rates within the laboratory can impact the room temperatures, increasing or decreasing them beyond acceptable levels and potentially causing condensation on cooler surfaces.

Ventilation Effectiveness

Often high airflow rates or air-change-rates per hour (ACH) are specified to cover the risk of chemical exposure in laboratory spaces. Although high supply airflow rates can reduce the overall concentration of contaminants, it may not ensure acceptable concentration levels everywhere in the occupied zone. Importantly, locations of high concentration, especially those

in the breathing zone of occupants, can pose potentially higher exposure risk. Ideally the clean supply air should sweep the contaminants from the breathing zone without significant recirculation and stagnation which can promote high concentration levels. At the same time, the clean air should not escape or short-circuit the space without collection and removal of contaminants from the breathing zone. Since air takes the path of least resistance the effectiveness of ventilation can depend on several factors related to the design and operation of laboratory ventilation systems.

The following principles can help improve ventilation effectiveness:

- Increase the number and size of exhaust grilles and/or exhaust outlets in a space.
- Place exhaust outlets away from the occupied zone to avoid stagnation of contaminants.
- Minimize turbulence of the supply air in the occupied breathing zone by appropriate selection of ACH and supply diffusers.

• Promote "single pass" sweep layout for HVAC designs.

The impact of each of these principles can be optimized by performing Computational Fluid Dynamics (CFD) simulations to evaluate the ventilation effectiveness of the of supply and exhaust systems. Arbitrarily increasing the ventilation rates within the entire lab and/or within individual zones, can adversely impact the ventilation efficiency of the system, increasing the potential for contaminated air within the breathing zone.

Demand Control Ventilation Systems

Demand control ventilation (DCV) systems utilized in the laboratory environment are often equipped with sensor groups that are designed to detect TVOCs and particulates, in addition to the CO2 sensors commonly used in commercial applications. When the measured concentrations from all sensors are below defined trigger levels, the ventilation system operates at a minimum flow rate. If any of the measured parameters exceed the trigger level, the laboratory ventilation system will increase ventilation to a purge condition. While the particle counters used with the laboratory DVC systems cannot specifically detect the presence of the SARS-CoV-2 virus, some DCV systems can detect particles within the size range of human exhaled aerosols and droplets (typically considered to be in the range of 0.3µm to 3.µm when aerosolized and 5µm to 10µm as a droplet). The increase in ventilation due to the particulate threshold being exceeded in a DCV system could possibly provide additional benefit by diluting a potential Covid event. Although, the minimum ventilation rates of these systems, as well as

the minimum ventilation rates of labs that do not use Lab DCV can be increased, it should not normally be warranted for most situations and facilities.

Transfer Air

In most lab HVAC systems, the only source of air into the lab is the outside air drawn by the air handler. In some systems part of the air delivered to the lab is drawn from other occupied spaces, such as neighboring offices and conference rooms. This transfer air may come through the air handling system, driven by fans, or it may come through designed transfer grills or transfer ducts, drawn by the pressure difference between the spaces. Or this may occur by mechanical methods. Either way, bringing air from other spaces into the lab raises the possibility of contamination. If the lab ventilation source includes air transferred from other spaces, an engineer and a safety professional should assess the risk and consider measures to reduce it.

In the case of air transferred through the air handling system, it may be practical to add filters to reduce the risk. In the case of air driven by space pressure, filtration is probably not practical. It may be necessary to close the transfer path and adjust powered supply and exhaust flow rates accordingly.

Filtration

Additional filtration is typically not needed in laboratory air handling units since these units are already designed to provide 100% outside air. In addition, MERV 13 or 14 filters are commonly provided in these units to meet programmatic requirements to remove particles from outside. Where air handling units do include recirculated air from areas outside the laboratory, it is recommended the air handling unit filtration efficiency is increased to a minimum of MERV 13 or 14 where possible and that the filters are inspected to ensure that they are properly sealed to reduce bypass air.

Air handling units that serve adjoining non-laboratory spaces where some or all of the supply air is designed to infiltrate into the laboratory, should be equipped with MERV13 or 14 filters, unless they are also supplied with 100% outside air and meet the laboratory's programmatic requirements for filtration.

In-room HEPA units

In-room HEPA filter units should be avoided in laboratory spaces as they can significantly affect airflow patterns. Disruption of airflow patterns can affect the ability of source capture devices (such as hoods and snorkels) from providing proper containment of potential contaminants.

Furthermore, these portable filtration devices may create additional internal recirculation of the laboratory air; increasing the risk of exposure to any contaminants within the laboratory.

Air Cleaners
Overview

Electronic Air Cleaning is a unique and evolving technology within the larger air cleaning industry. Some Electronic Air Cleaning Technologies are stated to reduce and/or remove particle mass, VOC's, odors, molds and other IAQ contaminants within the breathing zone. Furthermore, some of the technologies have been reported to neutralize viruses and bacteria like SARS-CoV-2 that causes COVID-19. ASHRAE's general guidance on air cleaner types and their use is provided at: https://www.ashrae.org/technical-resources/filtration-disinfection.

Electronic Cleaning in a Lab Environment

The building owner or end user should fully understand the unique capabilities of the air cleaning technology that they are to be considering to implement in order to assure it will not impact the scientific activities in which they are involved. The cleaning and sanitizing capabilities may be detrimental to the experiments being performed. This would be specifically significant in a biological research lab where killing or neutralizing a specimen might not be desired. The other concern from a scientific perspective is understanding how the technology does its air cleaning so that introduction of ions, hydroxyl radicals, titanium oxides or other reactive species in the air impacts the science being performed.

Since the majority of laboratories use a high percentage of outside air, the air cleaning technologies will generally require higher concentrations of ions, etc. which needs to be taken into consideration. It is also likely improbable that a portable air cleaning device of any type would be effective in a lab space with a high outside air percentage. It might be more appropriate to consider electronic air cleaning systems in support spaces that are adjacent to the labs because of the benefits they can offer for IAQ. If the lab support spaces are not served by the lab HVAC systems, then a central electronic air cleaning system would likely be the most appropriate and most cost effective. But certainly, the technologies can be adaptable to HVAC terminal units or branch duct systems where the HVAC systems serve both the labs and the support spaces.

Humidification

Consider maintaining the space relative humidity between 40% and 60% RH. Optimal relative humidity levels for the purpose of infection control continue to be an area of research. ASHRAE Standard 55 provides guidance on temperature and humidity ranges for human comfort, and

not necessarily the prevention of disease transmission. Laboratories typically have temperature and humidity requirements that are not only for human comfort but also for maintaining consistency in experiments and or processes.

Specific to laboratories, relative humidity thresholds should be closely coordinated with the specific programmatic and research requirements to ensure that space relative humidity is maintained within optimal levels for the research and/or laboratory equipment.

Spaces with relative humidity below 40% RH have been shown to:

- Reduce healthy immune system function (respiratory epithelium, skin, etc.);
- Increase transmission of some airborne viruses and droplets (COVID-19 still being studied);
- Increase survival rate of pathogens; and
- Decrease effectiveness of hand hygiene and surface cleaning because of surface recontamination or too-quick drying of disinfectants.

When reactivating a dormant humidification system, verify proper operation and that high supply air relative humidity sensors are included. Watch interior spaces to confirm no condensation is occurring, which would permit mold and moisture issues.

Energy Recovery

Refer to the Practical Guidance for Epidemic Operation of Energy Recovery Ventilation Systems, authored by ASHRAE TC5.5, including specific Notes on Medical Facilities, to determine if energy recovery devices should remain operational for your facility.

Controls

Consult the Building Automation Systems section of ASHRAE's Building Readiness Guide. (https://www.ashrae.org/technical-resources/building-readiness#epidemic) Some major points in the guide are presented in the following paragraphs.

Evaluate the current state of the BAS. Know what you have and what it does. Consider your needs for remote access to the system. You might need to update or enhance that aspect of the BAS. If so, carefully consider the type of access needed for each user and cybersecurity. Engage a BAS service contractor and your IT department in this process.

Before changing any aspect of the system, back it all up and make a record of what you have. The Building Readiness guide elaborates on this point. This step may include testing or recommissioning selected aspects of the system. Automated tests may be cost effective.

Operational aspects of a laboratory BAS most likely to warrant changes include:

- Schedules for operating equipment and for use of the space

- Air flow rates for terminals serving specific spaces

- Capability to sense presence of occupants

In many cases, the selected changes should be made by a BAS service contractor at the direction of an owner or HVAC engineer.

Diffusers

Depending on the type, diffusers utilized in a space can either produce laminar flow that helps sweep the air from the diffuser to the exhaust grilles or they can induce air into the supply air stream and recirculate air throughout the space. The mixing of air dilutes contaminants to a lower level. Unfortunately, this will also spread aerosols from one person to another. If it becomes known that a person in the space was infected with Covid-19, then all surfaces including the diffusers should be disinfected.

Chilled Beams and Fan Coil Units

As an energy conservation measure, chilled beams and/or fan coil units may be included in laboratory spaces having high sensible cooling loads which would otherwise require additional supply air from the laboratory air handling system to meet the space temperature setpoint. The inclusion of chilled beams and/or fan coils units as supplemental cooling devices in laboratories

requires further consideration/review during a pandemic as each of these terminal devices results in the recirculation of some room air within the laboratory which would otherwise not exist.

Fan Coil Units

Unlike the primary laboratory air handling and exhaust systems, fan coil units recirculate a portion of the total volume of air within the laboratory space. Similar to other recirculating systems found in non-laboratory spaces, this could result in the spread of airborne disease(s) such as SARS-CoV-2 throughout the space from an infected occupant to other occupants.

Similar to other recirculating systems in non-laboratory spaces, recommendations such as improving filtration, the addition of single pass UV inactivation, etc. should be evaluated for supplemental fan coils units provided in laboratories.

Often supplemental fan coil units found in laboratories are small and it may not be practical or feasible to enhance them without physical replacement. Thus, consideration for disabling of fan coil units should be provided if doing so would not adversely affect the laboratory environment.

Chilled Beams

There are two (2) types of chilled beams that may be provided in a laboratory space to provide additional sensible cooling - active and passive.

Passive chilled beams utilize natural convection to provide sensible cooling and thus do not directly impact airflow within a space; therefore, they should be able to operate as normal.

Unlike passive chilled beams, active chilled beams utilize the induction of room air to provide sensible cooling. Active chilled beams mix air from within the space with primary air from the laboratory air handling system and therefore provide some level of recirculation. While the volume of primary (ventilation) air provided to an active chilled beam may be able to be increased.

If it becomes known that a person in the space was infected with Covid-19, then all surfaces including cooling coils, nozzles, fans, etc., as well as interior surfaces exposed to the airstream of the chilled beam and/or fan coil should be disinfected.

Separation Barriers

Providing separation barriers to reduce the need for 6 ft separation between people in the laboratory may seem like a good idea, however, it can disrupt the airflow and dilution patterns of the airflow in the space. Therefore, installation of barriers is not recommended within a laboratory, particularly on the bench top or near containment devices.

Space pressurization

Space pressurization is a ventilation technology applied to control migration of air between areas in a building. This tool for limiting exposure to air contaminants is applied in many circumstances with a known location of contamination and known locations of people to
protect. The idea is to arrange air movement from the “clean” area and toward the

“dirty” area.

If the air contaminant is infectious effluent from unidentified sick workers, pressurization is not
an effective tool because the “clean” area and the “dirty” area are not known.

Nevertheless, facility operators are advised to confirm or correct pressurization relationships in laboratories and surrounding spaces. Air moving between spaces, whether intended or not, could spread pathogens and disease. It is much better to find deficiencies while inspecting or recommissioning a space, than when investigating an outbreak.

Space pressure monitors can continuously monitor the laboratory differential pressure. This helps the facility staff maintain the intended air movement, and record that it has been maintained. When selecting a space pressure monitor, consider the accuracy and low differential pressure being read along with maintenance.

Laboratory Exhaust Systems

Laboratory exhaust systems that service potentially contaminated laboratory room air, fume hood exhaust, bio-safety cabinet exhaust, chemical storage cabinets, and/or vivarium spaces, are commonly designed to avoid adverse re-entrainment of these potential contaminants into nearby air intakes, or adversely expose individuals within the near vicinity of the exhaust system. To meet the requirements for these systems, the allowable downwind dilutions are typically on the order of 1:100 to 1:3000, or greater. This provides much greater protection (i.e., dilution) than the standard guidance of employing at least MERV 13 air filters in a recirculated air stream.

Therefore, if the laboratory exhaust system was designed and is operating properly, the risk of adverse exposure to the SARS-CoV-2 virus due to re-entrainment of the laboratory exhaust system is minimal.

For non-laboratory exhaust systems, such as areas serving ASHRAE Standard 62.1 Class 2 or Class 3 office and/or auxiliary spaces, the ASHRAE Building Readiness Guidance (https://www.ashrae.org/technical-resources/building-readiness#increasedvent) includes an Exhaust Re-Entrainment Guide (https://www.ashrae.org/file%20library/technical%20resources/covid-19/exhaust-re- entrainment-guide.pdf) that can used to help evaluate whether or not re-entrainment for any non-contaminated exhaust systems are a potential risk for creating adverse exposure to the SARS-CoV-2 virus.

More information at:
https://www.ashrae.org/file%20library/technical%20resources/covid-19/ashrae-etf---lab-guidance.pdf

2020-2021 Meetings and Events

December, 2020 - Postponed

Time – 12:00 – 12:40 presentation
12:40 – 1:00 Regina Chapter

Presenter – **TBD**

Topic – **TBD**

Location: GoTo Meeting

Access Code: TBD

January
2021
Topic: TBD
Date & Time TBD

Other Chapter Meetings will be announced in future newsletter

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