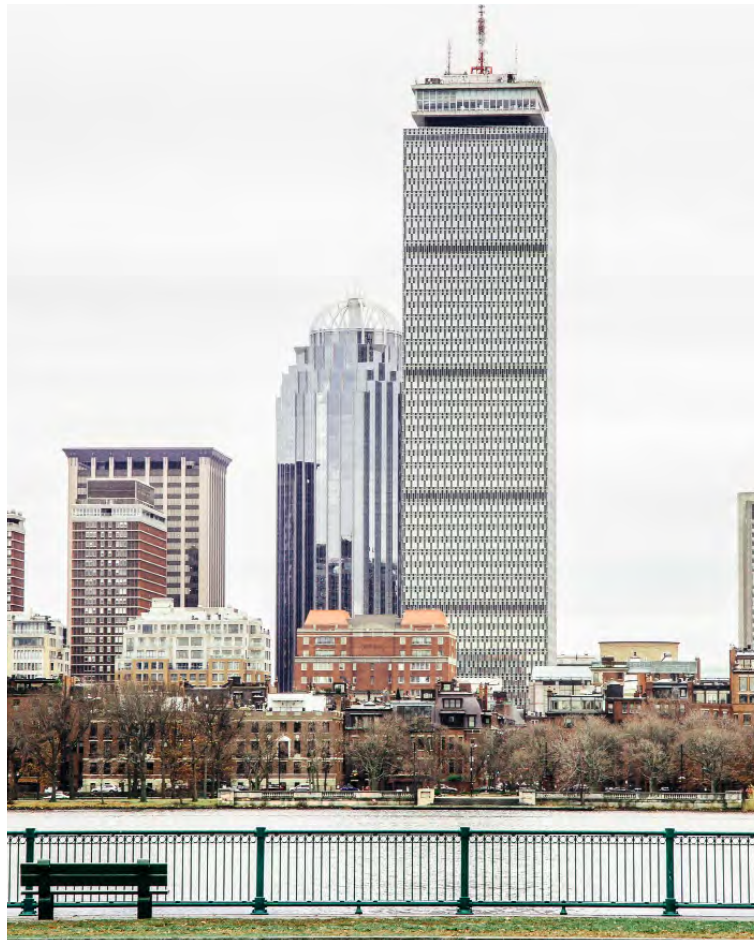


The Boston Real Estate

COVID CONSORTIUM



A knowledge share of current industry best practices and due diligence around workplace design and construction requirements adapting to changes in code and regulatory amendments in the post COVID-19 world.



OUR MISSION

Boston's Real Estate COVID Consortium's mission is to conduct a knowledge share of current industry best practices and due diligence around workplace design and construction requirements adapting to changes in codes and regulatory amendments in the post-COVID-19 world. Its members include professional multiple disciplines of real estate industry, including architecture and interior design, audio visual integrator, code consultants, commercial real estate brokerage, commissioning agents, environmental engineers, general contractors, furniture dealers, MEP/FP engineers and owner's project managers.

WE ARE HERE FOR YOU

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Since March 10th, when Governor Charlie Baker made the difficult decision to shut down large portions of Massachusetts, we have all been bombarded with a steady stream of COVID-19 impacts to the real estate industry, best practice guidelines and prognostications. Our mission is to curate this information and distill it down to the best of the best to help simplify & streamline your return to work planning process.

WE WANT TO HEAR FROM YOU

We aim to be a trusted resource for our valued Boston real estate community. If you have any questions or ideas for content, please don't hesitate to reach out to Denise Pied (denise.pied@stvinc.com).

Please note, that although our current focus is limited to standard office space, we plan to cover special considerations for Life Science/Pharma, Healthcare & Academic markets in future publications.

ISSUE 04 RETURN TO WORK TOOLKIT

Enhanced Cleaning Protocols

In last week's issue of the Boston Real Estate Consortium, Ray Doyle of WB Engineers and Consultants discussed indoor air quality and HVAC operations. Strong engineering controls coupled with an enhanced cleaning protocol can considerably reduce viral spread.

The complexity and high level of contagion of the COVID-19 illness caused by the Human coronavirus SARS-CoV-2 presents difficult challenges in preventing the introduction of the virus to a facility and minimizing the spread. Reducing viral exposure in the workplace invariably relies on a multi-phased, layered approach consisting of administrative, operational and engineering measures. The question is not only what the employer will be doing to provide a safe environment when employees return, but what role should the employee - play in maintaining a safe work environment. The Centers for Disease Control (CDC) has specific guidance for cleaning and disinfecting. That information is readily available at www.coronavirus.gov.

Future issues will take a deeper dive to spotlight relevant and timely topics including:

- Technology - Things to Consider
- Change Management & Communication Plans
- Coronavirus Legal Advisory Topics
- Workplace Standards + Furniture
- Long Term Real Estate Strategies

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ROLES AND RESPONSIBILITIES

Nothing you do to clean or disinfect your facility will be effective without proper hygiene practices by building occupants.

Proper engineering controls (as discussed in Issue 3), cleaning, disinfection, and personal hygiene **combined** are the keys to a successful plan. You cannot have a successful cleaning and disinfection program without these elements working in concert with one another.

The success of the cleaning and disinfection program will depend upon a cooperative effort between building ownership, employer and employees. Each has an important role in ensuring the success of the plan.

Landlords have a general obligation to take reasonable measures to protect the health and safety of their tenants and anyone entering the building. In most cases they are responsible for cleaning and maintaining common areas and should prepare cleaning and disinfection protocols. Landlords (LL) should communicate their plan with tenants. Tenants should request a copy of the LL protocols to understand the impacts they will have on their operations and what will be required of them upon entering the building.

Tenants (employer) should prepare their own cleaning and disinfection plan. It is up to the employer to provide the tools and resources necessary to implement the plan. These resources could include training materials and resources that promote personal hygiene, anti-viral tissues, no-touch trash cans, hand soap, alcohol-based hand sanitizer containing at least 70 percent alcohol, disinfectants, and disposable towels or wipes for workers to clean their work surfaces. Sanitizing stations should be strategically placed throughout the space. Handwashing signage should be placed in restrooms, kitchen areas and throughout the work space. An internal email reminder can be sent out to employees daily, twice daily, or more, reminding them to apply hand sanitizer.

It is up to the employees to maintain proper hygiene such as handwashing and to practice good respiratory etiquette and distancing where possible. Employees should sanitize their hands when entering the tenant space from a main common lobby, elevator, or stairwell. Employees should also disinfect their cell phone prior to entering the tenant space.



Thank You to this week's
lead contributor

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A combination of disinfection and
personal hygiene are key to an effective
cleaning program.

CLEANING VS. DISINFECTING

Cleaning refers to the removal of germs, dirt, and impurities from surfaces. Cleaning with soap and water removes germs, dirt, and impurities from surfaces. Using microfiber cloth is highly recommended. **Disinfecting** refers to using chemicals to kill germs on surfaces.

Identify what will be Cleaned and /or Disinfected

Identify what items can be moved or removed completely to reduce frequent handling or contact from multiple people. Most surfaces and objects will just need normal routine cleaning. If a business has been unoccupied for 7 days or more, it may only need your normal routine cleaning to reopen the area. However, areas that remained operational during the closure such as security offices or stations, facilities personnel offices, storage areas, and breakrooms for cleaning staff may require deep cleaning and disinfection.

Identify high touch surfaces that will need to be cleaned and then disinfected. **Always clean first**, then disinfect using a United States Environmental Protection Agency (EPA) approved disinfectant (www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2).

Each business or facility should compose a list of the different surfaces and objects that are frequently touched by multiple people.

High traffic (touch) areas:

- Door handles, particularly in areas with high volume usage such as near elevator lobbies or the cafeteria
- Touch screens
- Elevator call buttons
- Light switches
- Bannisters in stairwells
- Pantry surfaces including refrigerator door handles, microwaves, sink faucets, and counters near microwaves or sinks
- Bathroom surfaces including flush levers on commodes and faucets
- Security desk where visitors and employees check-in

Low to moderate traffic (touch) areas:

- Unshared individual offices or cubes
- Desks phones, keyboards
- Conference or telephone booth tables
- Chair arms

Soft and porous materials are generally not very easy to disinfect. EPA has listed a limited number of products approved for disinfection for use on soft and porous materials. Soft and porous materials that are not frequently touched should only be cleaned or laundered, following the directions on the item's label, using the warmest appropriate water setting.

Outdoor Areas

Outdoor areas can be cleaned and maintained as usual and should not require complete disinfection. The targeted use of disinfectants can be done effectively, efficiently and safely on outdoor hard surfaces and objects frequently touched by multiple people. Spraying disinfectant on sidewalks and in outdoor common areas is not an efficient use of disinfectant supplies and has not been proven to reduce the risk of COVID-19 to the public.



DISINFECTING PRODUCT SELECTION

The EPA maintains a list of approved disinfecting products for use against SARS-CoV-2 (List N). Previously, all products on List N had to have either an EPA emerging viral pathogen claim or have demonstrated efficacy against another human coronavirus. Now, List N also includes products on EPA's List G: Products effective against norovirus and List L: Products effective against the Ebola virus as these products also meet EPA's criteria for use against SARS-CoV-2. In addition, EPA has updated List N to include the types of surfaces products that can be used on (e.g., hard or soft) and use sites (e.g., hospital, institutional or residential). Products that can be applied via fogging are now noted in the formulation column. This additional information will empower the public to choose products that are appropriate for their specific circumstances.

Use the following guidelines for selecting a virucide.

1. EPA "N" List: The product should be listed and registered with EPA (EPA "N" List) as a disinfectant for use against SARS-CoV-2;
2. Contact Time: The product efficacy should be measured in terms of its listed kill time for the virus (lowest contact time is the most desirable as it will assure adequate contact time with the virus during the disinfecting and not slow down the cleaners);
3. Safe: The product should have a minimal risk of a negative impact on the health of the occupants and users. The Safety Data Sheets for those under consideration should be obtained and reviewed before selection.

Some states have excluded or limited concentrations of certain chemical virucides. Check with your state and local health and environmental protection agency. Consider choosing a different disinfectant if your first choice is in short supply. Below is a list and description of some of the more widely used disinfectants from over 400 on the EPA "N" list.

Quaternary ammonium compounds

General use as a disinfectant, are mid-range on negative health impact, and very effective disinfectants. Colorless, odorless, non-toxic, less corrosive, and highly stable. Concentrates prior to dilution for cleaning can cause eye and skin irritations.

Hydrogen peroxide-based disinfectants

The mildest of products, equally effective and the least likely to cause a health-related reaction. Hydrogen peroxide is available most commonly as an aqueous solution, (usually at 3%) and is stable and odorless.

Sodium Hypochlorite (Bleach)

Bleach based products are usually the cheapest disinfectants. However, they require protective equipment, can damage and irritate eyes, burn skin, and the vapors can cause respiratory tract irritation, coughing, and exacerbate asthmatic conditions. They also have a persistent objectionable odor. If mixed by accident with an ammonia, they can generate a toxic and/or irritating gas resulting in evacuation of the area or building.

Alcohol-based

Aqueous alcohol solutions are not recommended for surface decontamination because of the evaporative nature of the solution and because their contact time is ten minutes or more.

Be sure to review the [EPA "N" List](#): Disinfectants for use against SARS-CoV-2



EMERGING TECHNOLOGIES

Ultraviolet germicidal irradiation (UVGI)

According to the CDC “More research is required to clarify the effectiveness and reliability of UV irradiation. While UV light is documented to work, however, it has the potential to damage eyes and burn skin, and therefore should only be used in ways where no human exposure can occur - typically with shielding and in the upper levels of a room.

Anti-Microbial Materials

Antimicrobial coatings are sometimes applied to counters, walls, door handles, and other high-touch areas; HVAC vents and mechanicals; and many other surfaces. Some research suggests that metals such as copper and silver have been shown to slow the spread of acute respiratory diseases, like SARS and MERS. However, the CDC “has found no evidence to suggest [antimicrobial coatings] offer any enhanced protection from the spread of bacteria and germs and that proper cleaning and handwashing are the best ways to prevent infection.”

Disinfecting by Fogging and Misting

Although the EPA has included a list of products that can be applied via fogging the EPA is concerned that fogging/misting products may not be as effective as claimed.

According to EPA:

Application by fogging/misting results in much smaller particle sizes, different surface coverage characteristics, and potentially reduced efficacy when compared to sanitization or disinfection product applications by spraying, sponging, wiping or mopping.

The absence of pre-cleaning in the presence of soil contamination, potential reaction with or absorption of the active ingredient for different surfaces, and humidity/temperature fluctuations can also impact distribution and efficacy of the product.

A surface treated by fogging/misting does not receive the same amount of active ingredient per unit area as the standard methods of application and, as a result, the level of efficacy actually achieved may not be the same level claimed on the label.

The CDC's position on disinfectant fogging ozone mists, vaporized hydrogen peroxide is the following:

“More research is required to clarify the effectiveness and reliability of fogging, UV irradiation, and ozone mists to reduce norovirus environmental contamination. (No recommendation/unresolved issue).”

The CDC does not yet make a recommendation regarding these newer technologies. This issue will be revisited as additional evidence becomes available.

A study evaluating rotavirus, rhinovirus, and influenza found that risk reduction from surface disinfection and cleaning was 25-35%. When hand washing or hand sanitizing is added to surface disinfection and cleaning, risk reduction increases to 45-90%.

JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE
2020, VOL. 17, NO. 1, 30-37
<https://doi.org/10.1080/15459624.2019.1691219>
Published online: 19 Dec 2019

Assessing virus infection probability in an office setting using stochastic simulation
R. David Contreras, Amanda M. Wilson, Fernanda Garavito, Jonathan D. Sexton, Kelly A. Reynolds & Robert A. Canales

IMPLEMENTATION

Proper handling and use of cleaning and disinfection products is paramount. Users should read labels carefully to ensure the correct product is selected for the intended use and applied in accordance with the label. Proper PPE should be worn during cleaning and disinfecting.

Occupational diseases have been associated with use of several disinfectants. Precautions should be taken to minimize exposure. Asthma and reactive airway diseases can occur in sensitized persons exposed to any airborne chemical, including germicides.

A normal routine of cleaning with soap and water alone can reduce risk of exposure and is a necessary step before disinfecting dirty surfaces. *Cleaning and disinfecting should be performed at least once per day. More frequent cleaning and disinfection may be required based on level of use. For example, surfaces frequently touched by multiple people, such as door handles, desks, phones, light switches, and faucets, should be cleaned and disinfected more often.*

Always follow manufacturer's instructions for the cleaning and disinfection products chosen. *In order to deactivate the Covid 19 virus, surfaces must be completely wet for at least the kill time specified in the product instructions.* Many product labels recommend keeping the surface wet for a specific amount of time. The label will also list precautions such as wearing gloves and making sure you have good ventilation during use of the product. Allow sufficient contact time after applying the disinfectant. If the contact time is too brief, the surface will not be thoroughly disinfected.

Avoid using concentrated or undiluted solutions of your disinfectant to "speed up" the inactivation process. The surface that is being disinfected may be adversely affected by strong chemicals. This is especially significant when working with bleach, which is a very strong corrosive. Some disinfectants will leave a residue of chemicals behind.

Wash hands thoroughly with soap and water when finished cleaning.

COVID-19

SANITIZING & CLEANING RECOMMENDATIONS

Covid-19 is a respiratory illness that primarily spreads through the air and personal contact with infected people and surfaces where the virus is dwelling on. New research reveals that the SARS-Cov-2 Virus is able to survive on surfaces like metals for up to 72 hours and cardboard for 24 hours. Remember to **CLEAN, SANITISE AND KEEP SAFE** with necessary protective gear.

CLEAN DISINFECT WAIT



Remove visible soil and dirt using soap and water



Use alcohol based disinfectants which are effective in killing enveloped viruses.



Disinfect effectively by waiting for the appropriate contact time as directed.

courtesy
[IGL Coatings](#)

05.26.2020 | Issue 04: Return to Work Toolkit | Enhanced Cleaning Protocols

EFFICACY TESTING

To determine the efficacy of your cleaning and disinfection program, it may be appropriate to have a third party perform testing to verify properly cleaned and/or disinfected surfaces. SARS-CoV-2 virus may remain viable and infective on surfaces for hours to days, depending on the surface's material type (fabric, tile, steel, etc.). There are several methods for determining if your cleaning program is effective.

Swab RT-qPCR test / Targets the SARS-CoV-2-nucleocapsid N gene. This method is specified by the Centers for Disease Control (CDC) and authorized by the U.S. Food and Drug Administration (FDA) for clinical COVID-19 diagnostics. Although swab cultures are easy to use, they are expensive and there is a wait time for results.

ATP Bioluminescence / As an alternative or supplement to direct testing for SARS-CoV-2 virus, proxy testing checks the overall efficacy of the disinfection procedures at the facility. The measurement of organic ATP (an indicator of microbial presence) on surfaces using a luciferase assay and luminometer has been used to evaluate cleanliness of food preparation surfaces for more than thirty years. A specialized swab is used to sample a standardized surface area which is then analyzed using a portable handheld luminometer. The total amount of ATP, both microbial and non-microbial, is quantified and expressed as relative light units. ATP systems measure organic debris as well as viable bacterial counts. The results are instantaneous.

Agar Slide Cultures / Agar coated glass slides with finger holds were developed to simplify quantitative cultures of liquids. The slides have been adopted for use in environmental surface monitoring in healthcare settings. Cultured samples are the only method that differentiates between live and dead microbial material, however, there is a wait time for results.

Fluorescent Markers / A monitoring system using this gel was developed specifically to evaluate the thoroughness of environmental cleaning in healthcare settings. Several studies have demonstrated the accuracy of the system in objectively evaluating cleaning practice and quantifying the favorable impact of interventions on such cleaning.

CONCLUSION

Reducing viral exposure in the workplace relies on a cooperative effort between Landlord and tenant and employer and employee. It can not be stressed enough that cleaning and disinfection alone will not be effective without occupants practicing proper personal hygiene. Nothing can completely eliminate the virus from entering the workplace. However, a plan that includes engineering controls, administrative and operational measures, and employee cooperation can significantly reduce the chances of introduction and/or spread. Some key elements to consider:

1. Proper personal hygiene is a must
2. Employer should provide training and sanitizing products
3. Use safe (EPA approved) cleaning and disinfecting products
4. Clean first and disinfect second
5. Clean and disinfect at least once per day. More may be required based on level of use.
6. Fogging and other emerging technologies should not be relied on as the sole method of cleaning and disinfecting. However, they can supplement a cleaning and disinfecting protocol.
7. Testing can confirm that your cleaning and disinfecting program is effective
8. Adapt plan as more information becomes available

CODE:THE MORE YOU KNOW

Stocking up on Alcohol Based Hand Sanitizer? What You Need to Know to Avoid Creating a Fire Hazard.

Facilities with infection control protocols, such as most healthcare related occupancies are well versed in the proper use of alcohol-based hand rub dispensers (ABHRs). With the flood of new businesses tasked with setting up hand washing stations at multiple locations throughout their business due to the COVID-19 pandemic, there is an increased risk that fire hazards will unknowingly be introduced in to buildings.

Most Alcohol Based Hand Sanitizers are Flammable Liquids

Alcohol based hand sanitizer typically contain between 60-70% ethanol or isopropanol to be an effective disinfectant per the CDC guidelines (<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>). These sanitizers are commonly consistent with the definition of a Class IC flammable liquid.

What Hazards do they Present?

The small amount of sanitizer applied to one's hands is not considered a fire hazard, as the relatively small amount of flammable vapor released dissipates quickly and does not generally pose a threat, assuming proper drying occurs. The storage and dispensing of containers does present a hazard, where the larger quantities could emit flammable vapors if spilled or could cause rapid fire spread if involved in a fire scenario.

What Code Requirements Apply?

The applicable requirements will vary based on occupancy type.

- State Building and Fire Codes: All occupancies will follow the state building and fire codes or local ordinances. Each state has different code requirements, which can often be easily found through an online search. In Massachusetts, the state building code, referred to as 780 CMR, is an amended version of the 2015 International Building Code and the State Fire Code, referred to as 527 CMR 1.00, is an amended version of NFPA I, the National Fire Code, 2015 Edition.
- NFPA 101, the Life Safety Code, 2012 Edition: Accredited healthcare occupancies and licensed outpatient medical centers are subject to requirements from the Department of Public Health as well as the Center for Medicare and Medicaid Services (CMS). Massachusetts only adopts NFPA 101 through the Department Public Health. Other states may adopt it through amendments to the state building or fire code as well.

Requirements for Dispensers and Dispensing Locations:

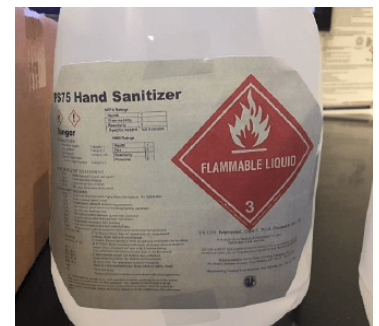
The Massachusetts State Building Code and Comprehensive Fire Code do not contain requirements specific to the placement of ABHR dispensers in any occupancy type, but rather, these codes contain requirements pertaining to the aggregate use and storage of flammable liquids. NFPA 101 does contain requirements specific to the hazards of ABHR dispensers. While these requirements are only specifically applicable to Healthcare Occupancies, they represent good practice for any occupancy looking to safely install these devices. In addition to the code requirements, manufacturer instructions should also be followed.



Thank You to
contributor

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Alcohol-Based Hand
Sanitizers Are Flammable

Maximum individual dispenser size	0.32 gallons in corridors and spaces open to the corridor 0.53 gallons in rooms or spaces separated from corridors
Separation between dispensers	48" horizontally
Max quantity in use in a single floor, fire area or smoke compartment outside of liquid storage cabinet	10 gallons (not including 1 dispenser per room located in that room)
Maximum container size in storage	5 gallons; Larger size containers possible if in compliance with NFPA 30, Flammable and Combustible Liquids code
Dispenser locations near Ignition Sources	Not installed above, to the side, or beneath an ignition source (i.e. electrical outlet) within 1"
Flooring	Dispensers only permitted above carpeted floors where the building is sprinkler protected
Dispenser Operation	Activation of dispenser occurs when an object is placed within 4" of the sensing device <ul style="list-style-type: none"> An object placed within the activation zone and left in place should not cause more than 1 activation The dispenser should not dispense more solution than the amount required by manufacturer's instructions The dispenser should be designed, constructed and operated in a manner that ensure accidental or malicious activation of the dispensing device is minimized The dispenser is required to be tested in accordance with the manufacturer's instructions each time a refill is installed
Alcohol Concentration	Sanitizer not permitted to exceed 95% alcohol by volume

Table summarizes the major requirements contained in NFPA 101

**CMS has issued a 1135 waiver due to the COVID 19 Pandemic for regulations pertaining to the placement of alcohol based hand rub dispensers.*

Beware of Fire Hazards if Storing Large Amounts or Dispensing from Bulk Containers

Prior to COVID 19, it would be unheard of to have most commercial business storing gallons of alcohol-based hand sanitizer. With supplies difficult to come by, many businesses are buying in bulk and even acquiring the ingredients to mix their own hand sanitizer. Creating stockpiles of flammable liquids or potentially dispensing from containers without proper protection can be a recipe for disaster. Regardless if NFPA 101 is adopted and applicable to a given building, it offers a useful guideline for establishing a threshold that building owners, tenants, and property managers should proceed very carefully before crossing. **The storage of containers larger than 5 gallons or the aggregate storage of more than 10 gallons of alcohol-based hand sanitizer outside of flammable liquid cabinets or spaces specifically designed to handle flammable liquids should be avoided.**

If alcohol is being dispensed to make hand sanitizer, even greater caution should be exercised, as the flammable vapors released in the air could be ignited by adjacent electrical outlets or other ignition sources. It is strongly recommended that design professionals that have experience protecting these hazards be consulted in addition to gaining proper approvals by the regulating authorities prior to the introduction of significant quantities of flammable liquids into a building.

We all have the best of intentions in protecting each other from the spread of COVID 19 and hopefully this guidance helps provide awareness of the hazards that the alcohol based hand sanitizer can present.

References

NFPA 101, the Life Safety Code, 2012 Edition
780 CMR, The Massachusetts State Building Code, 9th Edition
The 2015 International Building Code
527 CMR 1.00 the Massachusetts Comprehensive Fire Code
NFPA 1, National Fire Code, 2015 Edition
NFPA 30, Flammable and Combustible Liquids Code 2015 Edition
<https://www.cdc.gov/handhygiene/firesafety/index.html>

MEET THE TEAM

HEAR FROM THE INDUSTRY EXPERTS

STV|DPM has brought together a multidiscipline industry team (Project Management, Construction, Commercial Real Estate Brokerage, Commissioning, Code Review, Design, Environmental Engineering, Technology & Furniture) to conduct a knowledge share of current industry best practices and due diligence around workplace design and construction requirements adapting to changes in codes and regulatory amendments in the post-COVID-19 world. We strongly believe innovative project strategies & checklists around these disciplines could assist our active clients and other Real Estate leaders in assessing new in office & remote work requirements as they bring their employees back to work and going forward. The ultimate goal is to develop a "Toolkit" of best practices resources that could be rolled out as part of ongoing & new project work.



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Furniture

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Furniture

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MEP Engineers

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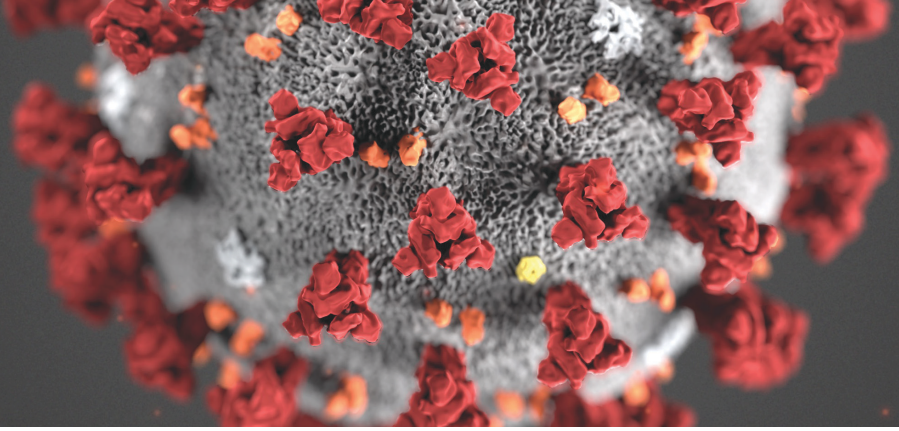
Ray is the Managing Principal of WB Engineers + Consultants' office in Washington, DC, and a Practice Leader for Life Sciences. With over 25 years of experience, Ray helps clients find solutions to improve indoor air quality and reduce tenants' exposure to COVID-19.

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Note: The resources provided in this guide should not be interpreted as legal advice. If you have any questions, please consult your legal counsel. Neither the Boston Real Estate COVID Consortium nor its individual members are responsible to anyone for the contents of this page and shall have no liability to anyone for the same. The views and opinions in this page are that of the author and not necessarily of the author's employer.

APPENDIX

1. OSHA: Ten Steps All Workplaces Can Take to Reduce Risk of Exposure to Coronavirus (PDF)
2. CDC: ReOpening America / Guidance for Cleaning and Disinfecting (PDF)



Ten Steps All Workplaces Can Take to Reduce Risk of Exposure to Coronavirus

All workplaces can take the following infection prevention measures to protect workers:

- 1** Encourage workers to stay home if sick.
- 2** Encourage respiratory etiquette, including covering coughs and sneezes.
- 3** Provide a place to wash hands or alcohol-based hand rubs containing at least 60% alcohol.
- 4** Limit worksite access to only essential workers, if possible.
- 5** Establish flexible worksites (e.g., telecommuting) and flexible work hours (e.g., staggered shifts), if feasible.
- 6** Discourage workers from using other workers' phones, desks, or other work tools and equipment.
- 7** Regularly clean and disinfect surfaces, equipment, and other elements of the work environment.
- 8** Use Environmental Protection Agency (EPA)-approved cleaning chemicals with label claims against the coronavirus.
- 9** Follow the manufacturer's instructions for use of all cleaning and disinfection products.
- 10** Encourage workers to report any safety and health concerns.

For more information, visit www.osha.gov/coronavirus or call 1-800-321-OSHA (6742).



GUIDANCE FOR CLEANING AND DISINFECTING

PUBLIC SPACES, WORKPLACES, BUSINESSES, SCHOOLS, AND HOMES



SCAN HERE
FOR MORE
INFORMATION

This guidance is intended for all Americans, whether you own a business, run a school, or want to ensure the cleanliness and safety of your home. Reopening America requires all of us to move forward together by practicing social distancing and other [daily habits](#) to reduce our risk of exposure to the virus that causes COVID-19. Reopening the country also strongly relies on public health strategies, including increased testing of people for the virus, social distancing, isolation, and keeping track of how someone infected might have infected other people. This plan is part of the larger [United States Government plan](#) and focuses on cleaning and disinfecting public spaces, workplaces, businesses, schools, and can also be applied to your home.

Cleaning and disinfecting public spaces including your workplace, school, home, and business will require you to:

- Develop your plan
- Implement your plan
- Maintain and revise your plan

Reducing the risk of exposure to COVID-19 by cleaning and disinfection is an important part of reopening public spaces that will require careful planning. Every American has been called upon to slow the spread of the virus through social distancing and prevention hygiene, such as frequently washing your hands and wearing face coverings. Everyone also has a role in making sure our communities are as safe as possible to reopen and remain open.

The virus that causes COVID-19 can be killed if you use the right products. EPA has compiled a list of disinfectant products that can be used against COVID-19, including ready-to-use sprays, concentrates, and wipes. Each product has been shown to be effective against viruses that are harder to kill than viruses like the one that causes COVID-19.

For more information, please visit **CORONAVIRUS.GOV**



This document provides a general framework for cleaning and disinfection practices. The framework is based on doing the following:

1. Normal routine cleaning with soap and water will decrease how much of the virus is on surfaces and objects, which reduces the risk of exposure.
2. Disinfection using [EPA-approved disinfectants against COVID-19](#) can also help reduce the risk. Frequent disinfection of surfaces and objects touched by multiple people is important.
3. When [EPA-approved disinfectants](#) are not available, alternative disinfectants can be used (for example, 1/3 cup of bleach added to 1 gallon of water, or 70% alcohol solutions). Do not mix bleach or other cleaning and disinfection products together--this can cause fumes that may be very dangerous to breathe in. Keep all disinfectants out of the reach of children.

Links to specific recommendations for many public spaces that use this framework, can be found at the end of this document.

It's important to continue to follow federal, state, tribal, territorial, and local guidance for reopening America.

A Few Important Reminders about Coronaviruses and Reducing the Risk of Exposure:

- Coronaviruses on surfaces and objects naturally die within hours to days. Warmer temperatures and exposure to sunlight will reduce the time the virus survives on surfaces and objects.
- Normal routine cleaning with soap and water removes germs and dirt from surfaces. It lowers the risk of spreading COVID-19 infection.
- Disinfectants kill germs on surfaces. By killing germs on a surface after cleaning, you can further lower the risk of spreading infection. [EPA-approved disinfectants](#) are an important part of reducing the risk of exposure to COVID-19. If disinfectants on this list are in short supply, alternative disinfectants can be used (for example, 1/3 cup of bleach added to 1 gallon of water, or 70% alcohol solutions).
- Store and use disinfectants in a responsible and appropriate manner according to the label. Do not mix bleach or other cleaning and disinfection products together--this can cause fumes that may be very dangerous to breathe in. Keep all disinfectants out of the reach of children.
- Do not overuse or stockpile disinfectants or other supplies. This can result in shortages of appropriate products for others to use in critical situations.
- Always wear gloves appropriate for the chemicals being used when you are cleaning and disinfecting. Additional personal protective equipment (PPE) may be needed based on setting and product. For more information, see [CDC's website on Cleaning and Disinfection for Community Facilities](#).
- Practice social distancing, wear facial coverings, and follow proper prevention hygiene, such as washing your hands frequently and using alcohol-based (at least 60% alcohol) hand sanitizer when soap and water are not available.

If you oversee staff in a workplace, your plan should include considerations about the safety of custodial staff and other people who are carrying out the cleaning or disinfecting. These people are at increased risk of being exposed to the virus and to any toxic effects of the cleaning chemicals. These staff should wear appropriate PPE for cleaning and disinfecting. To protect your staff and to ensure that the products are used effectively, staff should be instructed on how to apply the disinfectants according to the label. For more information on concerns related to cleaning staff, visit the Occupational Safety and Health Administration's website on [Control and Prevention](#).

DEVELOP YOUR PLAN

Evaluate your workplace, school, home, or business to determine what kinds of surfaces and materials make up that area. Most surfaces and objects will just need normal routine cleaning. Frequently touched surfaces and objects like light switches and doorknobs will need to be cleaned and then disinfected to further reduce the risk of germs on surfaces and objects.

- First, clean the surface or object with soap and water.
- Then, disinfect using an [EPA-approved disinfectant](#).
- If an EPA-approved disinfectant is unavailable, you can use 1/3 cup of bleach added to 1 gallon of water, or 70% alcohol solutions to disinfect. Do not mix bleach or other cleaning and disinfection products together. Find additional information at [CDC's website on Cleaning and Disinfecting Your Facility](#).

You should also consider what items can be moved or removed completely to reduce frequent handling or contact from multiple people. Soft and porous materials, such as area rugs and seating, may be removed or stored to reduce the challenges with cleaning and disinfecting them. Find additional reopening guidance for cleaning and disinfecting in the [Reopening Decision Tool](#).

It is critical that your plan includes how to maintain a cleaning and disinfecting strategy after reopening. Develop a flexible plan with your staff or family, adjusting the plan as federal, state, tribal, territorial, or local guidance is updated and if your specific circumstances change.

Determine what needs to be cleaned

Some surfaces only need to be cleaned with soap and water. For example, surfaces and objects that are not frequently touched should be cleaned and do not require additional disinfection. Additionally, disinfectants should typically not be applied on items used by children, especially any items that children might put in their mouths. Many disinfectants are toxic when swallowed. In a household setting, cleaning toys and other items used by children with soap and water is usually sufficient. Find more information on cleaning and disinfection toys and other surfaces in the childcare program setting at [CDC's Guidance for Childcare Programs that Remain Open](#).

These questions will help you decide which surfaces and objects will need normal routine cleaning.

Is the area outdoors?

Outdoor areas generally require normal routine cleaning and do not require disinfection. Spraying disinfectant on sidewalks and in parks is not an efficient use of disinfectant supplies and has not been proven to reduce the risk of COVID-19 to the public. You should maintain existing cleaning and hygiene practices for outdoor areas.

The targeted use of disinfectants can be done effectively, efficiently and safely on outdoor hard surfaces and objects frequently touched by multiple people. Certain outdoor areas and facilities, such as bars and restaurants, may have additional requirements. More information can be found on CDC's website on [Food Safety and the Coronavirus Disease 2019 \(COVID-19\)](#).

There is no evidence that the virus that causes COVID-19 can spread directly to humans from water in pools, hot tubs or spas, or water play areas. Proper operation, maintenance, and disinfection (for example, with chlorine or bromine) of pools, hot tubs or spas, and water playgrounds should kill the virus that causes COVID-19. However, there are additional concerns with outdoor areas that may be maintained less frequently, including playgrounds, or other facilities located within local, state, or national parks. For more information, visit CDC's website on [Visiting Parks & Recreational Facilities](#).

Has the area been unoccupied for the last 7 days?

If your workplace, school, or business has been unoccupied for 7 days or more, it will only need your normal routine cleaning to reopen the area. This is because the virus that causes COVID-19 has not been shown to survive on surfaces longer than this time.

There are many public health considerations, not just COVID-19 related, when reopening public buildings and spaces that have been closed for extended periods. For example, take measures to ensure the [safety of your building water system](#). It is not necessary to clean ventilation systems, other than routine maintenance, as part of reducing risk of coronaviruses. For healthcare facilities, additional guidance is provided on [CDC's Guidelines for Environmental Infection Control in Health-Care Facilities](#).

Determine what needs to be disinfected

Following your normal routine cleaning, you can disinfect frequently touched surfaces and objects using a product from [EPA's list of approved products that are effective against COVID-19](#).

These questions will help you choose appropriate disinfectants.

Are you cleaning or disinfecting a hard and non-porous material or item like glass, metal, or plastic?

Consult [EPA's list of approved products for use against COVID-19](#). This list will help you determine the most appropriate disinfectant for the surface or object. You can use diluted household bleach solutions if appropriate for the surface. Pay special attention to the personal protective equipment (PPE) that may be needed to safely apply the disinfectant and the manufacturer's recommendations concerning any additional hazards. Keep all disinfectants out of the reach of children. Please visit CDC's website on [How to Clean and Disinfect](#) for additional details and warnings.

Examples of frequently touched surfaces and objects that will need routine disinfection following reopening are:

- tables,
- doorknobs,
- light switches,
- countertops,
- handles,
- desks,
- phones,
- keyboards,
- toilets,
- faucets and sinks,
- gas pump handles,
- touch screens, and
- ATM machines.

Each business or facility will have different surfaces and objects that are frequently touched by multiple people. Appropriately disinfect these surfaces and objects. For example, transit stations have [specific guidance](#) for application of cleaning and disinfection.

Are you cleaning or disinfecting a soft and porous material or items like carpet, rugs, or seating in areas?

Soft and porous materials are generally not as easy to disinfect as hard and non-porous surfaces. [EPA has listed a limited number of products approved for disinfection for use on soft and porous materials](#). Soft and porous materials that are not frequently touched should only be cleaned or laundered, following the directions on the item's label, using the warmest appropriate water setting. Find more information on [CDC's website on Cleaning and Disinfecting Your Facility](#) for developing strategies for dealing with soft and porous materials.

Consider the resources and equipment needed

Keep in mind the availability of cleaning and disinfection products and appropriate PPE. Always wear gloves appropriate for the chemicals being used for routine cleaning and disinfecting. Follow the directions on the disinfectant label for additional PPE needs. In specific instances, personnel with specialized training and equipment may be required to apply certain disinfectants such as fumigants or fogs. For more information on appropriate PPE for cleaning and disinfection, see [CDC's website on Cleaning and Disinfection for Community Facilities](#).

IMPLEMENT YOUR PLAN

Once you have a plan, it's time to take action. Read all manufacturer's instructions for the cleaning and disinfection products you will use. Put on your gloves and other required personal protective equipment (PPE) to begin the process of cleaning and disinfecting.

Clean visibly dirty surfaces with soap and water

Clean surfaces and objects using soap and water prior to disinfection. Always wear gloves appropriate for the chemicals being used for routine cleaning and disinfecting. Follow the directions on the disinfectant label for additional PPE needs. When you finish cleaning, remember to wash hands thoroughly with soap and water.

Clean or launder soft and porous materials like seating in an office or coffee shop, area rugs, and carpets. Launder items according to the manufacturer's instructions, using the warmest temperature setting possible and dry items completely.

Use the appropriate cleaning or disinfectant product

[EPA approved disinfectants](#), when applied according to the manufacturer's label, are effective for use against COVID-19. Follow the instructions on the label for all cleaning and disinfection products for concentration, dilution, application method, contact time and any other special considerations when applying.

Always follow the directions on the label

Follow the instructions on the label to ensure safe and effective use of the product. Many product labels recommend keeping the surface wet for a specific amount of time. The label will also list precautions such as wearing gloves and making sure you have good ventilation during use of the product. Keep all disinfectants out of the reach of children.

MAINTAIN AND REVISE YOUR PLAN

Take steps to reduce your risk of exposure to the virus that causes COVID-19 during daily activities. [CDC provides tips](#) to reduce your exposure and risk of acquiring COVID-19. Reducing exposure to yourself and others is a shared responsibility. Continue to update your plan based on updated guidance and your current circumstances.

Continue routine cleaning and disinfecting

Routine cleaning and disinfecting are an important part of reducing the risk of exposure to COVID-19. Normal routine cleaning with soap and water alone can reduce risk of exposure and is a necessary step before you disinfect dirty surfaces.

Surfaces frequently touched by multiple people, such as door handles, desks, phones, light switches, and faucets, should be cleaned and disinfected at least daily. More frequent cleaning and disinfection may be required based on level of use. For example, certain surfaces and objects in public spaces, such as shopping carts and point of sale keypads, should be cleaned and disinfected before each use.

Consider choosing a different disinfectant if your first choice is in short supply. Make sure there is enough supply of gloves and appropriate personal protective equipment (PPE) based on the label, the amount of product you will need to apply, and the size of the surface you are treating.

Maintain safe behavioral practices

We have all had to make significant behavioral changes to reduce the spread of COVID-19. To reopen America, we will need to continue these practices:

- social distancing (specifically, staying 6 feet away from others when you must go into a shared space)
- frequently washing hands or use alcohol-based (at least 60% alcohol) hand sanitizer when soap and water are not available
- wearing cloth face coverings
- avoiding touching eyes, nose, and mouth
- staying home when sick
- cleaning and disinfecting frequently touched objects and surfaces

It's important to continue to follow federal, state, tribal, territorial, and local guidance for reopening America. Check this resource for [updates on COVID-19](#). This will help you change your plan when situations are updated.

Consider practices that reduce the potential for exposure

It is also essential to change the ways we use public spaces to work, live, and play. We should continue thinking about our safety and the safety of others.

To reduce your exposure to or the risk of spreading COVID-19 after reopening your business or facility, consider whether you need to touch certain surfaces or materials. Consider wiping public surfaces before and after you touch them. These types of behavioral adjustments can help reduce the spread of COVID-19. There are other resources for more information on [COVID-19](#) and how to [Prevent Getting Sick](#).

Another way to reduce the risk of exposure is to make long-term changes to practices and procedures. These could include reducing the use of porous materials used for seating, leaving some doors open to reduce touching by multiple people, opening windows to improve ventilation, or removing objects in your common areas, like coffee creamer containers. There are many other steps that businesses and institutions can put into place to help reduce the spread of COVID-19 and protect their staff and the public. More information can be found at [CDC's Implementation of Mitigation Strategies for Communities with Local COVID-19 Transmission](#).

CONCLUSION

Reopening America requires all of us to move forward together using recommended best practices and maintaining safe daily habits in order to reduce our risk of exposure to COVID-19. Remember: We're all in this together!

Additional resources with more specific recommendations.

HEALTHCARE SETTINGS	Long-term Care Facilities, Nursing Homes	Infection Control in Healthcare Settings
		Using Personal Protective Equipment
		Hand Hygiene
		Interim Guidance for Infection Prevention
		Preparedness Checklist
		Things Facilities Should Do Now to Prepare for COVID-19
		When there are Cases in the Facility
	Dialysis Facilities	Infection Control in Healthcare Settings
		Using Personal Protective Equipment
		Hand Hygiene
		Interim guidance for Outpatient Hemodialysis Facilities
		Patient Screening
	Blood and Plasma Facilities	Infection control in Healthcare Settings
		Infection Control and Environmental Management
		Using Personal Protective Equipment
		Hand Hygiene
		Interim Guidance for Blood and Plasma Collection Facilities
	Alternate Care Sites	Infection Prevention and Control
	Dental Settings	Infection Control in Healthcare Settings
		Using Personal Protective Equipment
		Hand Hygiene
		Interim Guidance for Dental Settings
	Pharmacies	Infection Control in Healthcare Settings
		Using Personal Protective Equipment
		Hand Hygiene
		Interim Guidance for Pharmacies
		Risk-Reduction During Close-Contact Services
	Outpatient and ambulatory care facilities	Infection Control in Healthcare Settings
		Using Personal Protective Equipment
		Hand Hygiene
		Interim Guidance for Outpatient & Ambulatory Care Settings
	Postmortem Care	Using Personal Protective Equipment
		Hand Hygiene
		Collection and Submission of Postmortem Samples
		Cleaning and Waste Disposal
		Transportation of Human Remains

COMMUNITY LOCATIONS	Critical Infrastructure Employees	Interim Guidance for Critical Infrastructure Employees
		Cleaning and Disinfecting your Facility
	Schools and childcare programs	K-12 and Childcare Interim Guidance
		Cleaning and Disinfecting your Facility
		FAQ for Administrators
		Parent and Teacher Checklist
	Colleges and universities	Interim Guidance for Colleges & Universities
		Cleaning and Disinfecting your Facility
		Guidance for Student Foreign Travel
		FAQ for Administrators
	Gatherings and community events	Interim Guidance for Mass Gatherings and Events
		Election Polling Location Guidance
		Events FAQ
	Community- and faith-based organizations	Interim Guidance for Organizations
		Cleaning and Disinfecting your Facility
	Businesses	Interim Guidance for Businesses
	Parks & Rec Facilities	Guidance for Administrators of Parks
	Law Enforcement	What Law Enforcement Personnel Need to Know about COVID-19
	Homeless Service Providers	Interim Guidance for Homeless Service Providers
	Retirement Homes	Interim Guidance for Retirement Communities
		FAQ for Administrators
	Correction & Detention Facilities	Interim Guidance for Correction & Detention Facilities
		FAQ for Administrators
HOME SETTING	Preventing Getting Sick	How to Protect Yourself and Others
		How to Safely Sterilize/Clean a Cloth Face Covering
		Cleaning and Disinfecting your Home
		Tribal - How to Prevent the Spread of Coronavirus (COVID-19) in Your Home
		Tribal - How to Care for Yourself at Home During Covid-19
	Running Errands	Shopping for Food and Other Essential Items
		Accepting Deliveries and Takeout
		Banking
		Getting Gasoline
		Going to the Doctor and Pharmacy
	If you are sick	Steps to Help Prevent the Spread of COVID19 if You are Sick

TRANSPORTATION	Ships	Interim Guidance for Ships on Managing Suspected COVID-19
	Airlines	Cleaning Aircraft Carriers
		Airline Agents Interim Guidance
	Buses	Bus Transit Operator
	Rail	Rail Transit Operators
		Transit Station Workers
	EMS Transport Vehicles	Interim Guidance for EMS
	Taxis and Rideshares	Keeping Commercial Establishments Safe
RESTAURANTS & BARS		Best Practices from FDA

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