



Preparing for Re-Entry & Beyond

A practical guide to commercial surface care in a changing world

"It is critical that your plan includes how to maintain a cleaning and disinfecting strategy after reopening." – Centers for Disease Control and Prevention (CDC), April 28, 2020

The New Normal

As facility managers consider how to properly clean and disinfect their workspaces both before and after reopening, there is an overwhelming amount of information to digest. This guide consolidates guidance from the Centers for Disease Control and Prevention (CDC); the Environmental Protection Agency (EPA); the Institute of Inspection, Cleaning and Restoration Certification (IICRC); and other sources to help facility managers implement practical yet effective solutions for cleaning and disinfecting the various surfaces in their facilities.

Cleaning for Health vs. Cleaning for Appearance

Until now, most facility cleaning budgets were based on establishing a standard by which providers cleaned more for appearance than for health. Instead of focusing on minimizing hidden workplace pathogens, these providers focused on removing visible dirt and debris.

Facility managers interested in cleaning for health and providing a workplace in which their employees can breathe easy should carefully review the cleaning specifications currently embedded in their janitorial or specialty maintenance standard operating procedures.

More importantly, they should spend considerable time qualifying their providers to make sure their staff are trained and accredited in infection prevention methods at both the management and the field level and they have the necessary equipment and knowledge to implement a proper cleaning program.

In today's new normal, there is a heightened sensitivity to cleanliness. Surfaces that are even lightly soiled may be considered "dirty." Keeping a facility clean aids in lessening the perception that a work environment is unsanitary. Improving cleaning standards and frequencies while monitoring outcomes will become a higher priority and contribute to a healthy building. Remember, a clean building is not always healthy, but a healthy building is always clean.

The Difference Between Cleaning, Sanitizing and Disinfecting

While many people use the terms cleaning, sanitizing and disinfecting interchangeably, there are key differences among these three actions.

Cleaning removes visible dirt and nonvisible germs. Cleaning doesn't kill bacteria and viruses; rather, it reduces their number and therefore decreases the risk of spreading infection. This generally involves wiping or scrubbing surfaces with soap and water.

Sanitizing lowers the number of germs to a level that is considered safe. Specifically, sanitizing removes at least 99.9% of bacteria on non-food contact surfaces or 99.999% on food contact surfaces. A risk of disease still exists, but it is at an acceptable risk level. Sanitizing typically does not kill viruses. If an environment has not been improved to a level that can be at least considered sanitary, cleaning has not been accomplished.

Disinfecting kills germs. Disinfecting refers to killing almost 100% of specified germs on surfaces or objects, including viruses. Not all disinfectants kill all germs, and disinfecting does not involve cleaning. It is crucial that facility managers choose a disinfectant approved for use against the germs and viruses they are most concerned about at their facility.

It's extremely important to note that surfaces cannot be disinfected until they are cleaned. Chemical disinfectants only work properly if surfaces have been thoroughly cleaned first to remove all soil and biofilm. Germs can hide underneath dirt and debris, preventing the disinfectant from killing them.

Qualifying Your Service Provider

Like any other provider, infection control service providers should be thoroughly vetted and qualified. At a minimum, the chosen service provider must be able to improve the environmental quality of the facility and reduce health risks to an acceptable level. Facility managers should ask potential providers the following questions:

- How long have you been providing infection control services?
- Do you have a documented health, safety and environmental plan?
- Do you have a business continuity plan?
- What certifications do your managers and field staff hold?

It's important to note that certifications are held by employees, not by the companies. At a minimum, all frontline and management staff should be certified. The following organizations offer certification on infection prevention measures:

- Academy of Cleaning Excellence (ACE)
- ISSA/Global Biorisk Advisory Council (GBAC)

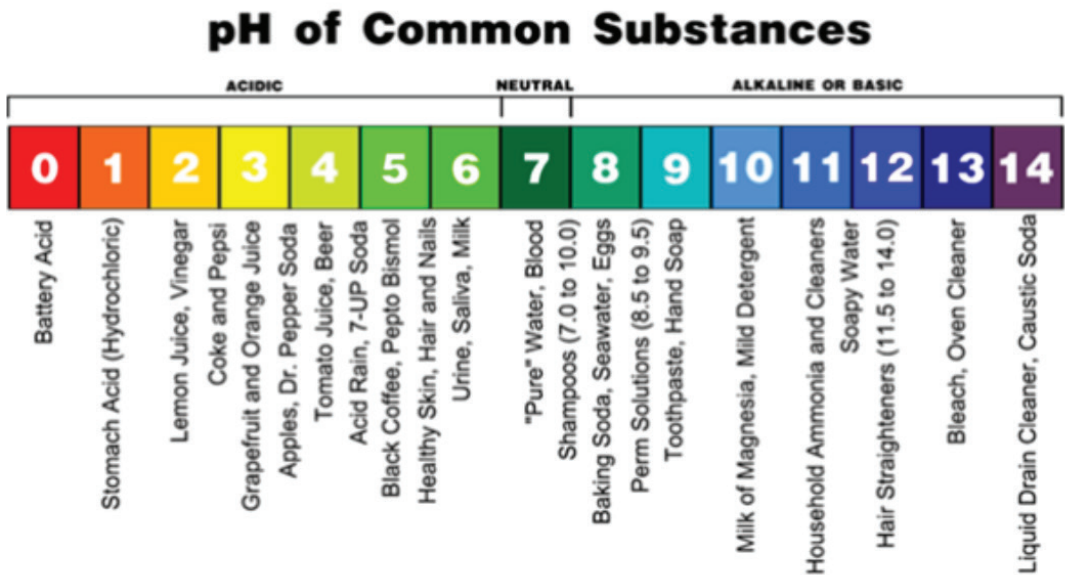
Choosing the Right Disinfectant

The EPA’s List N: Disinfectants for Use Against SARS-CoV-2 is a compilation of disinfectants approved for use against SARS-CoV-2, the virus that causes COVID-19. This is the primary list facility managers should refer to when selecting the right product to use in their facility.

The list does not provide much insight into how harmful some of these disinfectants may be to use in a commercial facility, especially one that is occupied. Facility managers should consider the pH level and HMIS rating of the products they select.

The pH (potential of hydrogen) scale indicates the level of acidity or alkalinity of a water-based solution. The pH scale ranges from 0 to 14, with distilled water representing absolute neutral with a pH of 7. Products with levels at both ends of the chart are extremely powerful and can cause damage to some floor-covering surfaces.

A pH less than 7 is acidic, and a pH greater than 7 is alkaline. Each whole point of movement indicates a tenfold change in pH. That means a pH of 9 is 100 times more alkaline than a pH of 7, and a pH of 2 is 1,000 times more acidic than a pH of 5.



Source: <https://www.epa.gov/sites/production/files/2015-10/documents/1622624.pdf>

The Hazardous Materials Identification System (HMIS) was developed by the American Coatings Association (ACA) to help employers comply with the Occupational Safety and Health Administration’s (OSHA’s) Hazard Communication Standard. HMIS communicates chemical hazard information through the use of colors, numbers and letters. The ratings range from 0 (minimal hazard) to 4 (severe hazard).

HEALTH	<input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
REACTIVITY	<input type="checkbox"/>
PERSONAL PROTECTION	<input type="checkbox"/>

- 4. Severe Hazard**
- 3. Serious Hazard**
- 2. Moderate Hazard**
- 1. Slight Hazard**
- 0. Minimal Hazard**

Source: https://www.chemsafetypro.com/Topics/USA/Hazardous_Materials_Identification_System_HMIS.html

Facility managers should consider disinfectants that meet the following criteria as they are less likely to cause workplace-related concerns for building occupants:

- HMIS rating = 0.0.0.0
- pH = As near-neutral as possible
- Food-safe, no-wipe certified
- Approved by the Carpet and Rug Institute (CRI)
- Included on the EPA's List N

The disinfectant manufacturer should be able to provide documentation on the safety of the product as it relates to its effect on fabrics and other surface types.

Selecting the Right Application Method

Electrostatic (Not “Electric”) Sprayer

The most efficient way to apply a disinfectant is through the use of an electrostatic (ES) sprayer. This method evenly coats surfaces, including hard-to-reach areas. The ES sprayer applies a positive charge to the spray, which then seeks out the negative charge of the surface it is being applied to, causing the spray to “wrap” around the surface. ES spraying has been used for many years in the agricultural and painting industries due to its ability to cover items evenly and thoroughly.

ES sprayers also have a larger droplet size than foggers, which prevents the spray from becoming aerosolized and potentially causing respiratory distress in building occupants. The product being sprayed is more important than the method used to apply it, but ES spraying will lessen the chances of negative health outcomes.

ES sprayers are currently in high demand and difficult to get. Domestically manufactured ES sprayers tend to be of higher quality and service than those manufactured abroad.

UVL Fogger

Ultra-low volume (ULV) fogging, or cold fogging, transforms liquid into droplets that are dispersed into the atmosphere like a fog or mist. ULV foggers are used for applying pesticides, herbicides, fungicides, sterilizers and disinfectants, among other chemicals.

Foggers require a higher grade of personal protective equipment (PPE) due to their ability to aerosolize disinfectants. They also do not have the ability to “wrap” around surfaces because there is no positive charge. In the absence of an ES sprayer, a fogger is sufficient, but care must be taken.

Wiping

The most prevalent application method is simply wiping a surface with a towel. However, there are a number of concerns involved with this method. Towels are usually not changed frequently enough, nor are they saturated enough to allow for dwell times. In addition, as the towel is used it accumulates soil and biofilm, which negate the effects of the disinfectant, usually resulting in moving germs around rather than removing them. If applying a disinfectant through wiping, keep the following tips in mind:

1. Use disposable microfiber towels and change them often.
2. Have the applicator wear nitrile gloves.
3. Separate the cleaning steps from the disinfecting steps.

Three Steps to a Healthier Building

There are three basic steps to effectively reducing the threat of microorganisms in a facility:

- **Remove loose soil.** This includes visible dirt and debris.
- **Deep clean.** This eliminates dirt, debris and bacteria that have bonded onto the surface.
- **Disinfect/sanitize.** This reduces the number of germs on a surface.

Surfaces must be cleaned before they can be sanitized or disinfected.

For buildings that have been unoccupied for more than seven days, the CDC recommends resuming normal cleaning practices because the virus that causes COVID-19 has not been shown to survive on surfaces longer than one week. However, the CDC also recommends developing a thorough, ongoing cleaning and disinfecting plan before reopening.

In addition to undergoing enhanced cleaning, touchpoints and work surfaces may need to be disinfected upon re-entry and on a regular basis. The recommended method for disinfecting is electrostatic spraying due to its increased efficacy and coverage. In addition, the droplet size of an electrostatic sprayer is not large enough to become aerosolized, unlike a fogger-generated droplet, making electrostatic spraying a safer method. This guide focuses primarily on cleaning and sanitizing/disinfecting floors, but the same product and vendor considerations apply to work surfaces.

The first area that should be disinfected in an office building is the janitorial closet, followed by public break and meeting areas and finally workstations and private offices.

Note: Make sure any cleaning equipment is disinfected before it is brought into the building and again after it leaves the building. This helps prevent the spread of pathogens from worksite to worksite.

Cleaning and Disinfecting Tips by Floor Type

All floor coverings follow a similar process flow for effective cleaning; however, the specifics of each process will vary based on the floor type, soil type, soil load and resources available. Some of these steps may be combined based on floor type, floor condition and equipment.

Disinfectants are not suitable for all surfaces. Using the wrong product can damage or discolor a surface. It's important to follow the label carefully. Generally speaking, non-porous surfaces can be disinfected, but porous surfaces can only be sanitized. Semi-porous surfaces should be sealed to minimize migration of microorganisms.

Porous Surfaces	Semi-Porous Surfaces	Non-Porous Surfaces
Carpet VCT/rubber Textiles (upholstery) Workstations (walls, surfaces) Wood, laminate offices Seating (arms, backs, etc.) Clothing (uniforms) Bedding & pillows Upholstered furniture Fabrics & leather Wall insulation Ceiling tile	Concrete Ceramic tile Wood Woods Drywalls Panels/accordion walls Hardwood floors Linoleum Laminate Plastics	LVT Some tiles (polished) Some sealed countertops Glass Metals Stone varieties

Carpet

Carpet is porous, making it less hospitable to viruses than non-porous surfaces. Carpet cannot be disinfected; it can only be sanitized. When cleaning and sanitizing carpet, it is important that the HVAC in the building is running. Use only products that have a near-neutral pH, that are recommended by CRI, and that are on the EPA's List N.

Step 1: Remove Loose Soil

- Remove any gross film (gum, tar, paint, etc.) with appropriate chemistry.
Use freezing products rather than solvent-based products.
- Vacuum to remove loose soil.
Use a dual motor upright vacuum with a high-efficiency particulate air (HEPA) filtration system. Change filters according to the manufacturer's recommendations to avoid transferring pathogens from site to site.

Step 2: Deep Clean

- Pre-spray and allow the product to dwell to loosen soil according to the instructions on the label.
 - Use pre-sprays that have Green Seal or equivalent certification.
 - Use the appropriate pH pre-spray for the type of soiling present.
- Agitate using a vertical counter-rotating, dual or triple brush machine while damp to further release soil and suspend.
- Do not use encapsulants, foam cleaners, or dry carpet cleaners. Encapsulants and foam cleaning are not recognized as deep cleaning systems by CRI. While dry cleaning is recognized as a deep cleaning method, it leaves behind dry particulates in the carpet that can become airborne if not vacuumed properly. The goal of deep cleaning is to remove particulates that may become airborne.

Step 3: Sanitize

While carpet is still damp from the pre-spray, rinse it with hot water extraction using an appropriately diluted disinfectant that is on the EPA's List N and recommended by the Carpet and Rug Institute.

- Read and follow the manufacturer's instructions.
- Extract carpet until water runs clear.
- Allow to dwell according to the manufacturer's instructions.
- Allow to dry without supplemental blowers, which may prematurely dry the carpet before the appropriate dwell time is reached.

Vinyl Composition Tile (VCT)/Rubber

Like carpet, VCT is a porous surface. Choose a disinfectant carefully. Use only products that have a near-neutral pH and that are consistent with the manufacturer's recommendations.

Step 1: Remove Loose Soil

- Remove gross filth by hand using appropriate tools (such as a nylon putty knife), cloth and chemistry.
- Use a dust mop such as the 3M Easy Trap Sweep to remove loose soil.

Step 2: Deep Clean

- Pre-spray and allow the product to dwell to loosen soil according to the instructions on the label.
 - Use properly diluted detergent.
- Agitate to further release soil and suspend through the use of a CRB machine suitable for wet environments or a low-speed buffer suited with appropriate pad (typically red scrub pad for VCT and smooth rubber and 21-gauge nylon brush for crumb rubber).
- Extract slurry with a wet vacuum or mop.

Step 3: Disinfect/Sanitize

- Rinse with a no-rinse food-safe disinfectant using a flat mop.
 - May need to use a brush and wet vacuum technique for crumb rubber.
- Allow to dry without added air flow to maximize sanitization and deodorization.

Steps may be combined by using an auto scrubber or other multifunction machine.

Luxury Vinyl Tile (LVT)

LVT is a non-porous surface. Choose a disinfectant carefully. Use only products that have a near-neutral pH and that are consistent with the manufacturer's recommendations.

Step 1: Remove Loose Soil

- Remove gross filth by hand using appropriate tools (such as a nylon putty knife), cloth and chemistry.
- Use a dust mop such as the 3M Easy Trap Sweep to remove loose soil.

Step 2: Deep Clean

- Pre-spray and allow the product to dwell to loosen soil according to the instructions on the label.
 - Use properly diluted detergent.
- Agitate to further release soil and suspend through the use of a CRB machine suitable for wet environments or a low-speed buffer suited with appropriate pad (typically red scrub pad for LVT or 21-gauge nylon brush for crumb rubber).
- Extract slurry with a wet vacuum or mop.

Step 3: Disinfect/Sanitize

- Rinse with a no-rinse disinfectant using a flat mop.
- Allow to dry without added air flow to maximize sanitization and deodorization.
- Steps may be combined by using an auto scrubber or other multifunction machine.

Concrete

Concrete floors that have been polished and sealed are easier to clean and disinfect because they are classified as hard, non-porous surfaces. Choose a disinfectant carefully. Use only products that have a near-neutral pH and that are consistent with the coating manufacturer's recommendations.

Step 1: Remove Loose Soil

- Remove gross filth by hand using appropriate tools (such as a nylon putty knife), cloth and chemistry.
- Use a dust mop such as the 3M Easy Trap Sweep to remove loose soil.

Step 2: Deep Clean

- Pre-spray and allow the product to dwell to loosen soil according to the instructions on the label.
- Use properly diluted detergent.
- Agitate to further release soil and suspend through the use of a CRB machine suitable for wet environments or a low-speed buffer suited with appropriate pad (typically red scrub pad).
- Extract slurry with a wet vacuum or mop.

Step 3: Disinfect/Sanitize

- Rinse with a no-rinse food-safe disinfectant using a flat mop.
- Allow to dry without added air flow to maximize sanitization and deodorization.
- Steps may be combined by using an auto scrubber or other multifunction equipment.

Ceramic Tile

Ceramic tile is a hard, non-porous surface. However, the grout can vary in its porosity. Epoxy, epoxy-fortified or sealed cementitious grout are easier to clean and disinfect as they resist moisture and contamination. Unsealed cementitious grout is porous and should be cleaned and sealed using water-based urethane products, which makes the grout non-porous and easier to disinfect. Schutz NA is a manufacturer of Renew, a grout sealant that accomplishes this goal.

Although ceramic floors are not as sensitive to high alkaline pH level cleaners, pay close attention to the disinfectants being used for the welfare of the technician. Use only products that have a near-neutral pH and that are consistent with the tile manufacturer's recommendations. Acid-based cleaners (< 6.5 pH) can damage cementitious grout and should only be used by trained professionals.

Step 1: Remove Loose Soil

- Remove gross filth by hand using appropriate tools (such as a nylon putty knife), cloth and chemistry.
- Use a dust mop such as the 3M Easy Trap Sweep to remove loose soil.

Step 2: Deep Clean

- Pre-spray and allow the product to dwell for 10 minutes to loosen soil.
- Use properly diluted detergent.
- Agitate to further release soil and suspend through the use of a CRB machine suitable for wet environments or a low-speed buffer suited with appropriate brush (typically a 21-gauge nylon brush; textured surfaces may require a multilevel nylon brush and heavily soiled grout may require the use of more aggressive multilevel brush).
- Extract slurry with a wet vacuum or mop.

Step 3: Disinfect/Sanitize

- Rinse with a no-rinse disinfectant using a flat mop.
- Let dwell for a minimum of 10 minutes.
- Allow to dry without added air flow to maximize sanitization and deodorization.
- Steps may be combined by using an auto scrubber or other multifunction equipment.

Wood

Wood floors are manufactured in a wide range of finishes that require specific processes for each type. For that reason it is very important to know and follow the manufacturer's cleaning and maintenance recommendations. Many wood floor manufacturers specify waterless cleaners, and using a chemistry that is not on the manufacturer's maintenance guide will void performance warranties. For most wood floors, simply maintaining them with a manufacturer's recommended neutral cleaner and disposable microfiber mops will help reduce the spread of microorganisms.

Step 1: Remove Loose Soil

- Remove gross filth by hand using appropriate tools (such as a nylon putty knife), cloth and chemistry.
- Use a dust mop such as the 3M Easy Trap Sweep to remove loose soil.

Step 2: Deep Clean

- Follow the manufacturer's instructions.

Step 3: Disinfect/Sanitize

- Follow the manufacturer's instructions.

Textiles (Upholstery)

Textiles cannot be disinfected, but they can be sanitized. Choose a disinfectant carefully. Use only products that have a near-neutral pH and that are consistent with the coating manufacturer's recommendations. Soiled textiles can contribute to poor indoor air quality and also minimize the employees confidence in the overall cleanliness of a facility.

Step 1: Remove Loose Soil

- Remove gross filth by hand using appropriate tools (such as a nylon putty knife), cloth and chemistry.
- Use a dust mop such as the 3M Easy Trap Sweep to remove loose soil.

Step 2: Deep Clean

- Follow the manufacturer's instructions, which usually entail using a low-moisture water extraction system.

Step 3: Sanitize

- Sanitize with a product certified for use on soft/porous surfaces.

Resources

Shaw Technical Support Deep Cleaning Information

<https://pdmsview.shawinc.com/viewer/doc/7900>

Centers for Disease Control and Prevention (CDC)

<https://www.cdc.gov/coronavirus/2019-ncov/community/reopen-guidance.html>

<https://www.cdc.gov/coronavirus/2019-ncov/prepare/cleaning-disinfection.htm>

https://www.cdc.gov/coronavirus/2019-ncov/community/pdf/Reopening_America_Guidance.pdf

<https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html>

<https://www.cdc.gov/coronavirus/2019-ncov/communication/guidance-list.html>

Environmental Protection Agency (EPA)

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

American Chemistry Council (ACC)

<https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf>

National Pesticide Information Center (NPIC)

<http://npic.orst.edu/ingred/ptype/amicrob/covid19.html>

Carpet and Rug Institute (CRI)

<https://carpet-rug.org/keep-your-workplace-and-home-free-of-asthma-triggers/>

Cleaning Industry Research Institute (CIRI)

https://www.ciriscience.org/b_8-Protecting-the-Built-Environment-Cleaning-for-Health