



# Cleaning and Disinfection

*This plan provides guidance to developing cleaning and disinfecting site-specific plans for the unique situations that occur at departmental and divisional levels.*

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## Contents

Introduction .....	2
Definitions .....	2
Purpose .....	2
Responsibilities .....	2
Cleaning and Disinfection Plan .....	3
Assessment .....	3
Outline .....	3
Selection of Disinfectants .....	4
Personnel Requirements .....	4
Personal Protective Equipment .....	4
Considerations .....	5
Quality Assurance/Quality Control .....	5
Hazard Communication and Labeling .....	5
Cleaning and Disinfection Procedure .....	5
Cleaning Methods .....	7
Dry Cleaning .....	7
Wet Cleaning .....	7
Disinfection Methods .....	8
Disposal of Disinfectants (Concentrate and Waste) .....	8
Example Procedures .....	9
Cleaning and Disinfecting Common Areas at Work to Control Respiratory Viruses .....	9
Cleaning and Disinfecting Vehicles to Control Respiratory Viruses .....	11
Cleaning and Disinfecting Public Spaces .....	13

## Introduction

Cleaning and Disinfection (C&D) are done to prevent the spread of disease. C&D can involve the use of physical, chemical, or biological processes to remove, inactivate, reduce, or destroy pathogenic microorganisms. Selected C&D methods should account for the physical characteristics of the premises and other factors, such as environmental conditions, which may influence the effectiveness of pathogen elimination.

This plan provides guidance to respond to unique situations and should be used to develop a site-specific plan when one does not already exist. It can also be used as a guide to bring outdated site-specific plans into compliance. All site-specific plans must be approved by the Department Head, Human Resources and County Counsel. All policies will be shared with the Bargaining Units by Human Resources to satisfy any meet and confer obligations.

### Definitions

- Cleaning:** The removal of gross contamination, organic material, and debris from the premises or respective structures, via mechanical means like sweeping (dry cleaning) and/or the use of water and soap or detergent (wet cleaning). The goal is to minimize organic material so disinfection can be effective.
- Disinfection:** Methods used on surfaces to destroy or eliminate a specific species of infectious microorganism through physical (e.g., heat) or chemical (e.g., disinfectant) means. A combination of methods may be required.
- Pathogen:** A bacterium, virus, fungus, parasite, or other microorganism that can cause disease, e.g. germs.
- Pathogen Elimination:** C&D measures conducted with the primary purpose to destroy or eliminate specified pathogenic microorganisms on the premises as safely and cost effectively as possible.

### Purpose

This C&D Plan provides operational guidance on developing site-specific cleaning and disinfecting procedures for County facilities and vehicles. This plan is to remain both flexible and scalable and should be adjusted to comply with the most recent health orders. Should a conflict arise, always follow state and local laws, regulations, procedures, and health orders and notify Human Resources / Risk Management.

### Responsibilities

C&D is an essential component to preventing the spread of disease. Every staff member has a responsibility to keep their area clean and free of germs that may be spread to other staff members. Often the chemicals used in C&D present their own hazards, so this plan also addresses the topics of hazard communication and the proper use of disinfectants as described on the label. No County employee may use a disinfectant in a way other than how the label instructions specify, and no County employee may use a C&D chemical without proper training

on its use, hazards, and proper Personal Protective Equipment (PPE). Any County employee who misuses a hazardous chemical, as those in many disinfectants, will be subject to disciplinary action up to and including termination.

## Cleaning and Disinfection Plan

Before beginning any C&D/pathogen elimination procedures a situational assessment needs to be performed and a plan established so C&D/pathogen elimination response can ensure a well-coordinated approach. Proper planning helps to ensure the elimination or reduction of pathogens, prevents further movement of pathogens, and helps to ensure the safety of staff and the environment. It also minimizes the possibility that a lack of resources impedes the C&D/pathogen elimination process.

All staff members affected should meet, agree on, and understand the plan. An assessment of the area based on any public health orders and local and state laws should be conducted. Any changes should be discussed and agreed on before being implemented. C&D methods and chemicals must be approved by the Agricultural Commissioner. The approved plan should be provided to Facilities Management for review to ensure the safety of custodial staff.

### Assessment

In the assessment phase, information is gathered to assist with the planning of the C&D/pathogen elimination response. It includes the following:

1. Identifying the pathogen(s) to be controlled or eliminated.
2. Conducting a situation assessment.
  - a. identify areas and items requiring specific C&D/pathogen elimination action, e.g. high touch surfaces.
  - b. identify any potentially hazardous situations.
3. Estimating the time frame needed to address the situations.
4. Identifying areas requiring specific decontamination action.

### Outline

A detailed written C&D/pathogen elimination plan should include the following:

- A review, design, and setup of the premises.
- Definition of the area to be cleaned and disinfected.
- Selection of Environmental Protection Agency (EPA) approved C&D products to be used.
- Description of proper C&D methods and processes to include:
  - cleaning,
  - disinfecting, and
  - frequency.
- Personnel requirements and assignments.
- Materials, supplies, and equipment (including PPE).
- Health orders, Local and State laws and regulations and regulatory permits and approvals.
  - Plans for proper disposal of disinfectants and materials.
  - Quality assurance and quality control.

## Selection of Disinfectants

The requirements of the microorganism(s) of concern, disinfection methods, and environmental factors all contribute to the disinfectant selection.

Selection of the disinfectant and disinfection methodology should be based on EPA-registered labels for antimicrobial pesticides (that is, disinfectants). The label will be registered by the EPA either under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 3 (regular label) or under FIFRA Section 18 (emergency use label). The disinfectant must be used according to its registered label at the indicated dilution, use site, application method, contact time, and cautionary statement for handling.

In addition, a registered disinfectant may be used according to the label against pathogens not listed on the label (under a FIFRA Section 2[ee] exemption) provided that this use is not in conflict with State or local law. The non-label-listed pathogens should be equally or more sensitive to inactivation by the disinfectant than the heartiest pathogen listed on the registered label.

Not all pathogens have the same susceptibility to chemical disinfectants. Contact the Agricultural Commissioner for guidance on selecting the appropriate (safest or least hazardous) disinfectants.

## Personnel Requirements

Assessing the premises provides an understanding of the size and complexity of the C&D process. The number and expertise of the personnel required to conduct C&D depends on the quantity and size of the areas and buildings, the sanitary condition of the premises, and time frame the work is to be performed. The personnel components of the C&D plan must include the following:

1. An estimate of the required number of C&D personnel based on the size and scope of the job.
2. Identification of C&D members to fill the required amount needed.
3. Identification of specific briefings required before C&D activities, including safety requirements, site conditions, and specific tasks.
4. A determination of briefing frequency.
5. Training requirements for C&D members.
  - a. All personnel must be trained on basic C&D/pathogen elimination procedures and safety protocols.
  - b. Include training on the safe handling of chemical compounds.
  - c. Discuss means of addressing and mitigating potentially hazardous situations noted during the pre-assessment phase.
6. The specific tasks for which a C&D member is responsible.

## Personal Protective Equipment

Personnel should only don PPE that they have been fully trained, medically cleared to use, and fit tested to wear. Read the registered label, to determine what PPE must be worn while mixing, applying and disposing of disinfectants. Personnel must practice proper personal

decontamination and doffing procedures. Staff should never enter an infected premise or any quarantined area. Contact the Risk Analyst for training or questions about PPE.

Note: PPE is used to protect the wearer from the toxic effects of C&D products. Never use C&D products to clean your hands, clothes, or apply them directly to the skin. Even when PPE has been donned and doffed correctly, always wash hands with water after working with C&D chemicals, especially before eating, drinking or smoking.

## Considerations

The site-specific C&D plan also should address the following:

- A protocol for disinfecting common types of structures, pens, and equipment found in typical commercial operations.
- A method to prevent freezing of liquid disinfectants to be applied during cold conditions.
- Estimation of the planned period of time to complete the C&D process.
- A process to verify and record that the premises, vehicles, and equipment have been successfully cleaned and disinfected.
- Guidance for containment of wastewater and disinfectants to protect susceptible area environments. Provide details on how to dispose of material (organic and inorganic) that minimizes the further spread of microorganisms and that is compliant with Federal, State, and local requirements and policies.

## Quality Assurance/Quality Control

The C&D plan should outline all quality assurance/quality control metrics, including post C&D evaluation and inspections necessary to comply with the plan; for example, ensure that

- all personnel are trained on proper C&D/pathogen elimination procedures;
- all surfaces are cleaned before they are disinfected;
- debris is removed and disposed of appropriately with visual inspection; and
- required disinfectant concentrations and contact times are achieved.

## Hazard Communication and Labeling

All hazardous C&D materials, solutions, and solvents must be labeled with the original label. The label can be obtained by requesting a copy from the manufacturer. A copy of the SDS must be uploaded into the online database, mSDSONline.com. Before use of the hazardous product, training with the Risk Analyst on handling and spill cleanup must be completed.

## Cleaning and Disinfection Procedure

The information provided here is for guidance only. The procedures offered below are to provide an example of the procedures that are conducted in response to different situations; they do not indicate what should be done at every location, or exactly what or which procedures will be implemented. In an outbreak, until specific guidance is provided by the Health Officer, staff should not attempt to enter, clean, or disinfect an affected area. The guidance in this document

should be used to develop the C&D component of the Site-Specific Plan and attached as an appendix to this document.

NEVER MIX ANY SOLUTIONS OR SOLVENTS (CLEANERS, DISINFECTANTS) WITH ANY OTHER LIQUID UNLESS INSTRUCTED TO DO SO BY THE LABEL OR A TRAINED PROFESSIONAL. CLEANERS AND DISINFECTANTS ARE OFTEN DILUTED INTO WATER. ALWAYS ADD THE CLEANER OR DISINFECTANT TO WATER SLOWLY WITH STIRRING. NEVER ADD WATER TO THE DISINFECTANT UNLESS THE LABEL SPECIFICALLY DIRECTS YOU TO.

For general C&D, the following steps must be taken:

1. Wear label required PPE as described in the site-specific health and safety plan during all steps of C&D.
2. Select an appropriate disinfection station for small equipment and personnel. (Do not use a sink if the chemicals are restricted from going down the drain.)
3. Remove sensitive equipment.
4. Disconnect utility supplies to items being cleaned and disinfected if described in the plan.
5. Control ventilation to maintain human comfort and prevent pathogen dispersion. (see Health Order for guidance. Some situations may require increases while others require decreases.)
6. Conduct the dry cleaning; wet cleaning (washing, rinsing, and drying); disinfecting (mixing protocol; wet disinfection; and heat treatment); and downtime protocols as indicated by the site plan.
7. Use a systematic procedure for C&D:
  - a. Always start at the back of the facility and proceed to the front.
  - b. Always start at the top and move down, then across.
8. Ensure proper disposal of generated waste.

Items to consider:

1. Ensure cleaning staff are trained on proper use of cleaning (and disinfecting, if applicable) products.
2. Wear gloves for all tasks in the cleaning process.
3. Gloves should be changed if damaged or they become noticeably dirty.
4. Wash your hands with soap and water for 20 seconds after cleaning. Be sure to wash your hands immediately after removing gloves.
5. If hands are visibly dirty, always wash hands with soap and water.
6. If soap and water are not available and hands are not visibly dirty, use an alcohol-based hand sanitizer that contains at least 60% alcohol, and wash with soap and water as soon as you can.
7. Eye protection should be cleaned often, including before and after use.
8. Special considerations should be made for people with asthma. Some cleaning and disinfection products can trigger asthma.
9. Extra labels for cleaning and disinfection products. Always follow directions on the label.
10. If your disinfectant product label does not specify that it can be used for both cleaning and disinfection, clean visibly dirty surfaces with soap or detergent before disinfection.
11. Keep out of reach of children.
12. Ventilation precautions and/or adjustments.
13. Do not wipe or bathe people or pets with any surface cleaning and disinfection products.
14. Do not mix products or chemicals.

15. Label all diluted cleaning or disinfectant solutions.
16. Use only the amount stated on the label.

## Cleaning Methods

Cleaning is one of the most important steps in the C&D process. The cleaning process can be executed as dry cleaning and/or wet cleaning. When done appropriately, cleaning alone can remove over 90 percent of microorganisms. When done correctly, cleaning can help minimize exposure to the more toxic disinfection chemicals.

### Dry Cleaning

Dry cleaning involves the removal of any gross contamination and organic material (for example, food, dirt, grime, scum, and grease) from common areas or shared equipment. Consideration must be taken in selecting the best time and performing this particular systematic way of cleaning to not aerosolize viruses. HEPA vacuums, wipes, brooms, dusters, scrubbers, buffers, absorbents, etc. should be used to sweep, scrape, dry, and remove organic material and debris from surfaces. Removing some equipment to an area to dry may be desirable since drying can deactivate many microorganisms. Permanent relocation of some equipment may need to be considered if the ventilation and humidity in an area is difficult to control.

### Wet Cleaning

Wet cleaning involves the use of water and soap or detergent.

#### Washing

Following the removal of gross contamination (dry cleaning), areas or items should be washed with detergent. The washing process helps to further reduce the number of microorganisms and to remove any oil, grease, or exudates that may inhibit the action of disinfection. Washing prior to disinfection is one of the most commonly overlooked steps in the C&D process.

The following steps for washing are recommended:

1. Obtain alternate power supplies if all electrical power will be shut off for washing.
2. If necessary, use brushes to scrub all contaminated surfaces with water and detergent in accordance with the site-specific plan, ensuring that cleaned areas are free of dirt and debris. Warm water can aid in removing organic debris. Caked-on materials may require prolonged soaking time.
3. Use warm to hot water).
4. Dispose of all C&D solutions in accordance with the site-specific disposal plan.

#### Rinsing and Drying

After washing, all surfaces should be thoroughly rinsed, as residues from cleaners and detergent can inactivate certain chemical disinfectants.

The following steps for rinsing and drying are recommended:

1. Use clean, cold water that is under low pressure to rinse all contaminated surfaces to remove any remaining dirt, debris, and residue. This is necessary to remove any



- soap or detergent residue, which if present may inactivate several chemical disinfectants.
2. Visually inspect the surface for cleanliness; there should be no “beading”. Instead, the water should spread evenly over the surface. All surfaces should be free of all foreign matter.
  3. Dispose of the rinse water in accordance with the site-specific plan.
  4. Allow sufficient drying time so no free liquids remain on the washed surfaces.

## Disinfection Methods

Always use the label required PPE during disinfection.

Apply disinfectant in a pre-cleaned facility from top to bottom and from back to front. The time a disinfectant is in contact with the surface is important and varies with the type of disinfectant. Carefully follow the specific instructions on the disinfectant label. Reapplication of disinfectant may be necessary to achieve the product label-indicated contact time.

The following steps are recommended for general disinfection:

1. Apply the disinfectant to the contaminated surfaces in accordance with the product label and the site-specific plan.
2. Ensure that the disinfectant has had adequate contact time as specified on the disinfectant label. Note that the recommended contact time will vary by the type of surface being treated, and reapplication of disinfectant may be necessary to achieve the product label-indicated contact time.
3. Ensure that any unused disinfectant concentrate and solution are either stored in accordance with the label instructions and the site-specific health and safety plan or properly disposed as per the registered label.

## Disposal of Disinfectants (Concentrate and Waste)

Follow the instructions on the label for proper disposal. If further assistance is needed, contact the Solid Waste Department for guidance.

## Example Procedures

### Cleaning and Disinfecting Common Areas at Work to Control Respiratory Viruses

Surfaces where respiratory droplets can land and high touch surfaces should be cleaned during times when respiratory viruses are circulating through the population. These surfaces include counter tops, doors and appliance handles, keyboards and mice, buttons (elevators, phones), faucets, toilets, light switches, etc. Cleaning once a day is usually enough. Some considerations to determine if more frequent cleaning with the addition of disinfection are:

- Transmissibility of the virus and susceptibility of the population.
- Infrequent hygiene practiced by the population, such as young children. (disinfectants are typically not used for areas frequented by young children.)
- The space is occupied by certain populations, such as people at increased risk for severe illness from the virus.
- The area is high traffic.
- If a sick person has recently visited the space. (Under this circumstance you should thoroughly clean and disinfect the space after waiting as long as possible to do so.)
  - o Increase air circulation.
  - o Wear a mask in addition to gloves and eye protection.
  - o Check with the Public Health Department to determine how much time must pass for disinfection to become unnecessary.

#### Planning

1. High touch hard to clean surfaces, such as porous/fabric, should be removed or replaced if possible.
2. A disinfection station should be established where cleaning and disinfection materials will be kept. This station should have a schedule, procedures, health and safety information, and disposal information.
3. Staff shall be trained.

#### General Procedures

1. Don label required PPE.
2. Remove any sensitive items that could be damaged by the cleaning and disinfecting process.

#### Cleaning Procedures

1. Perform a dry cleaning by removing any materials, such as paper towels, that have been left out.
2. If this is a first-time cleaning, all surfaces should be thoroughly cleaned. If this is a routine maintenance cleaning, then spot clean any areas that have become dirty.

#### Washing Procedures

1. Use detergent and warm water (90°F–130°F) to wash surfaces that have become dirty and removed items.
2. Pre-soak items with debris that are difficult to remove with simple washing in detergent and warm water.
3. Rinse in cold water and allow to dry for 5–10 minutes.

Disinfection (as necessary)

1. Select the appropriate disinfectant (see the U.S. EPA-approved list).
2. Apply the disinfectant to all surfaces.
3. Allow ample wet disinfectant contact time according to label directions and allow to dry thoroughly.

Documentation

Documentation is critical for tracking C&D procedures. Log sheets should be used and stored in a logbook to record dates of C&D completion and all disinfectant information (Product Name and EPA Reg number, rate, quantity, preparation date, etc.).

All entries on log sheets should be written in ink, signed, and dated. One single line should be drawn through any errors made on a log sheet and then initialed and dated by the originator. Log sheets should not be removed from a logbook.

## Cleaning and Disinfecting Vehicles to Control Respiratory Viruses

Surfaces where respiratory droplets can land and high touch surfaces should be cleaned during times when respiratory viruses are circulating through the population. In vehicles these surfaces include door handles, shifters, parking brakes, steering wheel, etc. Cleaning once a day is usually enough. Some considerations to determine if more frequent cleaning with the addition of disinfection are:

- Transmissibility of the virus and susceptibility of the population.
- Infrequent hygiene practiced by the population, such as young children. (disinfectants are typically not used for areas frequented by young children.)
- The vehicle is occupied by certain populations, such as people at increased risk for severe illness from the virus.
- Is the vehicle used to transport multiple people?
- If a sick person was transported in the vehicle. (Under this circumstance you should thoroughly clean and disinfect the space after waiting as long as possible to do so.)
  - o Increase air circulation.
  - o Wear a mask in addition to gloves and eye protection.
  - o Check with the Public Health Department to determine how much time must pass for disinfection to become unnecessary.
- Most pathogens lose their viability faster when exposed to the sun and open air. When conditions are right, vehicles should be left open for as long as possible before and after cleaning. In this case, disinfection may not be necessary.

### Planning

1. High touch hard to clean surfaces, such as porous/fabric, should be removed, replaced if possible, and/or exposed to sun light and the open air.
2. Determine where will the C&D be performed during extreme temperature or weather.
3. A disinfection station should be established where cleaning and disinfection materials will be kept. This station should have a schedule, procedures, PPE, health and safety information, and disposal information.
4. Fresh air should be blown into the vehicle to remove any aerosolized cleaner, disinfectant, or pathogen.
5. Staff should be trained

### General Procedures

1. Don label required PPE.
2. Ensure proper ventilation within the vehicle.
3. Remove any sensitive items that could be damaged by the cleaning and disinfecting process.

### Cleaning Procedures

1. Perform a dry cleaning by removing any materials, such as work rags and lunch bags, that have been left out.
2. If this is a first-time cleaning, all surfaces should be thoroughly cleaned. If this is a routine maintenance cleaning, then spot clean any areas that have become dirty.

### Washing Procedures

1. Remove items and use detergent and warm water to wash surfaces that have become dirty. (If the temperature is below freezing, antifreeze can be added to the cleaning solution. This may change the disposal method.)
2. Pre-soak items with debris that are difficult to remove with simple washing in detergent and warm water.
3. Rinse in cold water and allow to dry for 5–10 minutes.

### Disinfection (as necessary)

1. Select the appropriate disinfectant (see the U.S. EPA-approved list).
2. Apply the disinfectant to all surfaces.
3. Allow ample wet disinfectant contact time according to label directions and allow to dry thoroughly.

### Documentation

Documentation is critical for tracking C&D procedures. Log sheets should be used and stored in a logbook to record dates of C&D completion and all disinfectant information (Product Name and EPA Reg number, rate, quantity, preparation date, etc.).

All entries on log sheets should be written in ink, signed, and dated. One single line should be drawn through any errors made on a log sheet and then initialed and dated by the originator. Log sheets should not be removed from a logbook.

## Cleaning and Disinfecting Public Spaces

Setting and maintaining a schedule and defining trigger events for cleaning and disinfecting public spaces is very important. Even during times when risk of infection is low, public spaces can be the source of an outbreak if they are not maintained. Because disinfectants need a clean surface to work and public spaces can quickly become dirty, it is very important that cleaning staff are trained to keep these areas clean. Hand sanitizer and products that both clean and disinfect (wipes) should be made available for public use. If children are present, make sure that the products used are safe for children. Some considerations:

- Some products could aggravate asthma or other conditions and may not be appropriate for public spaces.
- Infrequent hygiene practiced by the population, such as young children. (disinfectants are typically not used for areas frequented by young children.)
- If a sick person has visited the space. (Under this circumstance you should thoroughly clean and disinfect the space after waiting as long as possible to do so.)
  - o Increase air circulation.
  - o Wear a mask in addition to gloves and eye protection.
  - o Check with the Public Health Department to determine how much time must pass for disinfection to become unnecessary.
- Consider who frequents the space and if they are they at greater risk of severe illness.
- Determine how many people visit the area per unit time. Sometimes may be busier than others.
- Ensure there is adequate ventilation to use the desired C&D products.
- Determine if the area be redesigned to better facilitate C&D.

### Planning

1. High touch hard to clean surfaces, such as porous/fabric, should be removed or replaced if possible.
2. A disinfection station should be established where cleaning and disinfection materials will be kept. This station should have a schedule, procedures, health and safety information, and disposal information.
3. Restrooms and kitchens should be at a negative pressure from the rest of the building. Ensure ventilation is working properly and plenty of fresh air is entering these areas.
4. Staff shall be trained.
5. The following materials should be preassembled in a spill cleanup kit:
  - a. garbage bags and masking tape;
  - b. disposable gloves;
  - c. eye protection;
  - d. mop;
  - e. paper towel and/or absorbent material;
  - f. detergent solution;
  - g. water;
  - h. sanitizing agent, such as bleach tablets (Presept, 0.5 g sodium dichloroisocyanurate tablets) or 5% domestic liquid bleach;
  - i. signs, barrier tape (optional)

### General Procedures

1. Don label required PPE.
2. Ensure proper ventilation.
3. Remove any sensitive items that could be damaged by the cleaning and disinfecting process.
4. If C&D is preformed while the public is present, such as a spill cleanup, make sure that the area is properly marked and access is restricted if necessary.

### Cleaning Procedures

1. Perform a dry cleaning by removing any materials, such as trash, that have been left behind.
2. If this is a first-time cleaning, all surfaces should be thoroughly cleaned. If this is a routine maintenance cleaning, then spot clean any areas that have become dirty.

### Washing Procedures

1. Use detergent and warm water to wash surfaces that have become dirty and removed items.
2. Pre-soak items with debris that are difficult to remove with simple washing in detergent and warm water.
3. Rinse in cold water and allow to dry for 5–10 minutes.

### Disinfection (as necessary)

1. Select the appropriate disinfectant (see the U.S. EPA-approved list).
2. Apply the disinfectant to all surfaces.
3. Allow ample wet disinfectant contact time according to label directions and allow to dry thoroughly.

### Documentation

Documentation is critical for tracking C&D procedures. Log sheets should be used and stored in a logbook to record dates of C&D completion and all disinfectant information (Product Name and EPA Reg number, rate, quantity, preparation date, etc.).

All entries on log sheets should be written in ink, signed, and dated. One single line should be drawn through any errors made on a log sheet and then initialed and dated by the originator. Log sheets should not be removed from a logbook.