

# **Enhanced Green Cleaning Guidance To Reduce The Spread Of Communicable Disease**

## **Training Manual**

**June 2010**

**Disclaimer:**

This training is for informational purposes only and is based on information currently available during its development. The information contained in this training course is subject to revision as new information becomes available. OGS makes no guarantees of results and assumes no responsibility or liability whatsoever in connection with the use of this training material.

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## Training Objectives

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This course describes the planning for and implementation of an enhanced green cleaning program in schools or state facilities for use during a communicable disease outbreak. It is important to recognize that addressing environmental issues through an enhanced green cleaning program is only one of several mechanisms for preventing or controlling the spread of disease. In addition, the importance of person-to-person and surface-to-person transmission varies by disease and should be considered when designing an enhanced green cleaning program. This training manual provides a comprehensive approach to mitigating disease transmission in schools and state agencies, and employs a suite of prevention strategies that includes administrative, engineering, and behavioral controls such as proper cough etiquette and hand hygiene.

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# Introduction

**This section provides:**

- ☆ Introduction
- ☆ Training Objectives

## Introduction

When addressing outbreaks of contagious infectious diseases in schools and state agencies, it is appropriate to implement specific policies, protocols or procedures to limit their spread. Specific guidance on limiting the spread of contagious diseases in schools is available on the New York State Department of Health (DOH) website. The New York State Office of General Services (OGS) and DOH designed this Enhanced Green Cleaning Guidance to Reduce the Spread of Communicable Disease training course to address the topic of environmental control of disease within the context of green cleaning programs in schools and state agencies. While facility decisions must be made by individual operating entities, this information will be useful in informing those decisions.

This course is one of a series of green cleaning training courses available on New York's (NY's) Green Cleaning Program website. It is important to recognize that enhanced green cleaning for the environmental control of an infectious disease is only one strategy that can be implemented in conjunction with other prevention measures such as behavioral, administrative and engineering controls. In addition, when establishing a green cleaning program, thought should be given to implementing an enhanced program during disease outbreaks that includes:

- Modification to the levels of acceptable clean for specific rooms or surfaces;
- Modifications to cleaning policies and procedures;
- Supplemental training for custodial staff and building occupants; and
- Changes in green cleaning program community or stakeholder roles and responsibilities.

## Training Objectives

### Terminal Objective

The terminal objective of this training course is to educate participants on enhanced green cleaning controls and procedures that can be planned for and used in the event of a communicable disease outbreak.

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### **Enabling Objectives**

Upon training completion, participants will understand or be able to describe the following:

#### **Green Cleaning Programs**

- Green cleaning products and high performance equipment.
- The role of a green cleaning team in a green cleaning program.
- The purpose and contents of a green cleaning plan.
- Policies that may be implemented in a green cleaning program.
- The importance of a green cleaning training program.
- The concept of “levels of clean”.
- The difference between routine, interim and restorative maintenance.

#### **Communicable Diseases**

- The definitions of communicable disease, outbreak, and pathogen.
- Three modes of transmission of communicable disease.
- Information on pathogen survival on inanimate surfaces.
- Differences between administrative engineering and behavioral controls.
- Examples of controls that help to limit the spread of disease.

#### **Enhanced Green Cleaning**

- How acceptable levels of clean can be modified in times of disease outbreak.
- Why the frequency of cleaning may be changed during a disease outbreak.
- Five locations/areas to focus cleaning efforts during a disease outbreak.
- Two ways of assessing the efficacy of a cleaning program.
- The difference between green cleaning products and disinfectants/sanitizers.
- Considerations for the use of sanitizers or disinfectants.
- Personal Protective Equipment (PPE) use by custodial staff.
- Custodial worker safety precautions.
- Considerations for transitioning to enhanced green cleaning.
- When to return to standard green cleaning.
- The importance of communication with the facility community during a disease outbreak.
- The importance of training custodial staff on enhanced green cleaning practices.
- Considerations for hiring outside cleaning contractors/vendors to assist in enhanced green cleaning programs.

### **Pretest and Posttest**

- Before starting the course, a multiple-choice test (Pretest) is given to determine the participant’s current level of course content knowledge.
- At the end of the course, participants will take another multiple-choice test (Posttest).

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## Introduction

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- The scores of the two tests will be compared to determine the effectiveness of the training material, and identify improvements and changes to better instruct users.

## Training Course Reference Card

If you have not done so already, the Enhanced Green Cleaning Guidance to Reduce the Spread of Communicable Disease Quick Reference Card can be downloaded from the Customizable Documents and Templates section of NY's Green Cleaning Program website. The reference card is a helpful resource to use while progressing through the course as it reinforces key training points.

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### Notes:

- ✓ NY's Green Cleaning Program website is found at:  
<https://greencleaning.ny.gov/Entry.asp>.  
This website provides a wealth of information about green cleaning programs and is referenced throughout this training manual. Below are specific web pages and key categories identified in this training manual:
  - OGS Approved Green Cleaning Products List  
<https://greencleaning.ny.gov/Product/Default.aspx>
  - Green Cleaning Best Practices for information on Green Cleaning Products and Equipment  
<https://greencleaning.ny.gov/Practices.asp> (Select Category "General Cleaning")
  - Green Cleaning Frequently Asked Questions  
<https://greencleaning.ny.gov/faq.aspx> (Select Question Category "Products")
  - Customizable Documents and Templates  
<https://greencleaning.ny.gov/DownloadCenter/Default.aspx>
    - Step 2 – Assessment: Custodial Cleaning Level Audit
    - Step 4 – Implementation: Example Policies
    - Step 4 – Implementation: Building Custodial Inspection Report
    - Training – Introduction to Green Cleaning and Green Cleaning Programs: all documents
    - Training – Basics of Green Cleaning: all documents

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## Review of Section 1

Section 1 presented:

- An overview of course content;
- A description of course objectives;
- Information on the Pretest and Posttest; and
- The course quick reference card.

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### Notes:

# Green Cleaning Overview

**This section will address:**

- ☆ NY's Green Cleaning Program
- ☆ Green Cleaning Products and Equipment
- ☆ Consensus Building within the School Community
- ☆ Green Cleaning Plan
- ☆ Green Cleaning Policies
- ☆ Green Cleaning Training
- ☆ Acceptable Levels of Clean
- ☆ Frequency of Cleaning and Maintenance

## Overview of NY's State Green Cleaning Programs

NY's Green Cleaning Program website, developed by the New York State Office of General Services (OGS), promotes a holistic approach to facility maintenance and cleaning. It encourages building



occupant participation in the program's development and implementation. Implementing a green cleaning program in schools and state agencies involves more than switching to green cleaning products. Specifically, a green cleaning program incorporates:

- Use of green cleaning products and high performance cleaning equipment and practices;
- Commitment and participation of the building community (individuals/stakeholders who take ownership of a green cleaning program and are committed to its success);
- Agreed upon green cleaning goals and objectives that are measurable and used to evaluate the effects of green cleaning;
- A green cleaning plan that stresses quality routine maintenance and focused attention on high traffic areas;
- Written step-by-step cleaning procedures that incorporate green cleaning best practices for custodial staff to learn and follow;
- A comprehensive custodial training program;
- Written facility policies relevant to a green cleaning program, including considerations for implementation of an enhanced green cleaning program during communicable disease outbreaks;
- Education of building occupants on green cleaning activities; and
- Communication of program successes and areas of improvement within the building community.

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## Green Cleaning Overview

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These components are consistent with well-recognized programs for facility operations and maintenance including the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) ranking systems and the New York State Education Department's Collaborative High Performance School (NY-CHPS) guidelines. NY-CHPS guidelines can be found on the NYSED Facilities Planning website at: <http://www.emsc.nysed.gov/facplan/news.html>.

## Green Cleaning Products and Equipment

Green cleaning programs rely on the use of environmentally sensitive cleaning products and high performance cleaning equipment. For a list of environmentally sensitive cleaning products and vacuum cleaners mandated for use in New York State schools and agencies, visit the OGS Approved Green Cleaning Products List on NY's [Green Cleaning Program website](#). When used correctly, green cleaning products and high performance equipment clean as effectively as or better than traditional products while minimizing adverse impacts on people's health and the environment.

Advances in the development of microfiber cleaning products and high performance vacuum cleaners with high efficiency particulate air (HEPA) filters allow users to remove and trap more soil than traditional equipment. In addition, microfiber products require less chemical product to clean more effectively than other cleaning cloths and string mops. More information on high performance cleaning equipment can be found in the [Best Practices](#) section of NY's Green Cleaning Program website.



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### Note:

- ✓ Disinfectants and sanitizers are not part of a routine green cleaning program because they are not cleaners but rather chemical solutions designed to kill microorganisms. A routine green cleaning program focuses on the removal of soil and microorganisms from surfaces, not the killing of microorganisms. Effective cleaning helps significantly reduce the number of microorganisms, including potentially harmful pathogens, on surfaces which limit their transfer to people's hands.
  - ✓ Use and storage of all chemicals should be according to manufacturers' instructions and OSHA guidance.
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## Overview of Green Cleaning Program Elements

### Consensus Building within the School Community

The responsibility (ownership) of an effective green cleaning program is shared among the entire school or agency community. Therefore, the direction and success of a green cleaning program does not lie solely with the custodial staff. The exact roles and responsibilities of each group in the community are determined during the development phase of a green cleaning program. However, certain roles and responsibilities may change during a communicable disease outbreak and should be considered and do-

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### Notes:

## Green Cleaning Overview

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cumented during the program development phase. Below are groups that are part of the community involved in a school green cleaning program;

- Administrators/School Board Members/State Executives;
- Unions;
- Buildings and Grounds and Custodial Supervisors;
- Custodial Staff;
- Teachers/Staff/Employees;
- School Nurses;
- Students; and
- Parents.



The school or state **Health and Safety Committee** should include representatives of these groups and may be able to help develop or enhance the green cleaning program.

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Note:

- ✓ The OGS's [Introduction to Green Cleaning and Green Cleaning Programs](#) online training course explains the roles and responsibilities for each of the building community groups (sometimes termed “stakeholders”) listed above.
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The community should create a green cleaning team by appointing a leader and selecting representatives from each community group. This team will be responsible for the development and implementation of a green cleaning program, and act as a unified voice for the entire community. The team will provide timely and accurate communications and a consistent message to the community about planned activities/actions especially in times of an infectious disease outbreak.

### Green Cleaning Plan

A green cleaning plan provides the foundation for cleaning and maintenance activities in a facility. It describes the frequency, required time, and products and equipment necessary for specific cleaning activities and procedures. A green cleaning plan incorporates best practices such as properly installing walk-off mats at entryways, which can reduce the amount of soil entering the building; the use of high performance equipment that minimizes the impact on indoor air quality; and a focus on routine maintenance practices in high traffic areas. A green cleaning plan should also include provisions to address enhanced cleaning needs and requirements in case of a disease outbreak so the facility is prepared to transition to an enhanced green cleaning program, if necessary.

### Green Cleaning Policies

A school or facility can institute several green cleaning policies to strengthen their green cleaning program. The following are examples of policies that should be adopted:

- **Disinfectant Use.** A disinfectant use policy establishes the requirements for limiting routine disinfectant use to certain surfaces found in food service areas, restrooms, locker rooms, nurse offices, and other specified areas. The policy prevents the overuse and waste of disinfectants and

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sanitizers by defining their proper use as required by health, education, labor, and environmental regulations.

- **Custodial Training.** Training should be instituted for chemical use and handling, equipment use, worker safety, disinfectant/sanitizer use, and general cleaning procedures. The training policy should detail the types of training required to perform specific tasks. In addition, the training policy should include refresher and record keeping requirements. Requiring staff training demonstrates a facility's commitment to continued staff development and improved safety measures.
- **Cleaning by Non-Custodial Staff.** The facility should create a policy which forbids the use of non-approved cleaning products in the facility, including those brought from home. To support the policy, staff should have access to an OGS-approved general purpose cleaner and be trained in its use.
- **Entryway Maintenance.** Custodial staff should maintain clean entryways to decrease the amount of soil and debris entering the facility. The [Customizable Documents and Templates section](#) of NY's Green Cleaning Program website has an example policy for the upkeep and maintenance of entryways.
- **Use of Outside Contractors.** The facility should develop policies for temporary custodial staff or outside cleaning services to ensure they will work within the facility's green cleaning program requirements, including a description of changes that may be implemented during enhanced cleaning.

Green cleaning policies will further the success of a green cleaning program by establishing written rules for each component of the program and documenting what practices will change when enhanced cleaning is implemented during a disease outbreak. Having these policies developed in advance will ensure they are well understood and easily implemented when necessary. Green cleaning plans and policies should work in concert with one another.

### Green Cleaning Training

Custodial staff development is an important aspect of a successful green cleaning program. With proper training, the custodial staff will become a reliable resource in implementing and maintaining a green cleaning program under normal and disease outbreak conditions. All facilities should have training programs that meet Occupational Health and Safety Administration (OSHA) training requirements. Training should cover the handling of specific products, use and maintenance of power equipment, elimination of cross-contamination between surfaces and soiled equipment, and cleaning policies and procedures. Training programs should include:

- Established training requirements for custodial staff;
- Refresher training on cleaning practices and procedures at set frequencies (e.g. annually);



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- Educational materials that describe step-by-step instructions for the proper dilution, disposal, and use of cleaning products;
- Documentation of all custodial and non-custodial staff training to show compliance with state and federal regulations and that staff is knowledgeable on the program's policies and procedures; and
- Follow-up inspections to ensure that the staff understands green cleaning procedures and uses the skills acquired in training.

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Note:

- ✓ In addition to this course, OGS offers other [online training courses](#), and [quick reference cards and training manuals](#) to assist facilities in creating a training program.
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### Acceptable Levels of Clean

"Levels of clean" relate to amounts of soil and debris found on various surfaces such as floors, ledges, walls, and room fixtures. To reach a consensus on acceptable levels of clean for a facility, the green cleaning team and its associated community need to first understand the respective levels. For example, the second edition of the APPA publication *Custodial Staffing Guidelines for Educational Facilities* defines five custodial service levels (levels of clean) and provides an approach to estimating custodial resources required to maintain these levels. The five APPA custodial service levels, referred to as "levels of clean" in the NY's Green Cleaning Program's online training courses, are:

- Level 1 – Orderly Spotlessness
- Level 2 – Ordinary Tidiness
- Level 3 – Casual Inattention
- Level 4 – Moderate Dinginess
- Level 5 – Unkempt Neglect



Facilities are encouraged to use APPA's custodial service levels to define their building's expected levels of clean as they are commonly used throughout the cleaning industry.

For most facilities, custodians should strive to maintain levels of clean between two and three. However, the level of clean should also be appropriately matched to the type of room. For example, a nurse's office should have a higher level of clean than a typical classroom.

Defining a building's acceptable level of clean helps:

- Custodians meet and maintain the expected levels of clean for areas and items during normal operations or enhanced cleaning operations;
- Custodial supervisors establish work schedules to achieve the agreed-upon levels and visually inspect work areas; and

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- Custodial supervisors estimate staffing requirements to achieve the levels of clean using APPA's *Custodial Staffing Guidelines for Educational Facilities*. If staffing is insufficient, actions should be taken to keep the school clean such as hiring additional staff, lowering the levels of clean, or enlisting cooperation from building occupants.

While determining a building's day-to-day target levels of clean for areas, the green cleaning team and associated community should define the levels of clean acceptable during a communicable disease outbreak. For example, an everyday target for floors and base moldings may be that they shine with no build-up of soil in corners or along walls. Alternatively, during a communicable disease outbreak, the group may accept two days worth of dust, dirt, or streaks on floors so cleaning efforts can be shifted to high-touch surfaces. Establishing levels of clean for communicable disease outbreaks is further discussed in Section 4.

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### Note:

- ✓ For a more in-depth discussion on levels of clean, take the [OGS Basics of Green Cleaning online training course](#) or download the [course's training manual](#) from the Customizable Templates and Documents section of NY's Green Cleaning Program website.
  - ✓ For a detailed description of each of the five levels above, download the [Custodial Cleaning Level Audit](#) form from the Customizable Templates and Documents section of NY's Green Cleaning Program website
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## Frequency of Cleaning and Maintenance

Frequencies of cleaning tasks are facility specific and vary depending on building condition, use and activity. Cleaning and maintenance frequencies can be broken down into three categories: routine, interim, and restorative. Routine maintenance and cleaning includes the activities performed most frequently (e.g. daily). Proper routine maintenance is critical in keeping the building's appearance and helps lengthen the time between more costly and labor-intensive maintenance tasks like stripping and refinishing floors. Interim maintenance activities are performed less frequently than routine maintenance and keep high traffic floors and carpeting at an acceptable appearance level. Interim maintenance is more labor-intensive than routine maintenance. Restorative maintenance is the most labor-intensive and involves tasks like deep cleaning carpets and stripping and refinishing of hard floors. Listed below are the typical care and maintenance tasks broken down by routine, interim, and restorative maintenance that are integrated into a normal green cleaning program. During a disease outbreak, enhanced green cleaning operations focus on routine maintenance activities to reduce the spread of illness. These activities target the cleaning of specific areas and surfaces that are touched frequently or may otherwise be a source of illness.

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### Note:

- ✓ The frequency of a cleaning task (i.e. how often it is performed) is specific to location. For example, high traffic areas (main entrances, restrooms, and gym floors) require more cleaning than low traffic areas (auditoriums and conference rooms).
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### Maintenance Tasks

#### Routine Maintenance Tasks

- Cleaning high contact surfaces that are touched by many different people, such as light switches, handrails and door knobs/handles.
- Dust- and wet-mopping or auto-scrubbing floors.
- Vacuuming of entryways and high traffic areas and with lesser frequency medium and low traffic areas.
- Removing trash.
- Cleaning restrooms.
- Wiping heat and air conditioner vents.
- Spot cleaning walls.
- Spot cleaning carpets.
- Dusting horizontal surfaces and light fixtures.
- Cleaning spills.



#### Interim Maintenance Tasks

- Burnishing floors and refinishing processes.
- Performing bonnet carpet cleaning or carpet extraction in high traffic areas.

#### Restorative Maintenance Tasks

- Performing deep carpet cleaning.
- Stripping and refinishing floors.

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# Communicable Diseases

## This section will address:

- ☆ Definitions
- ☆ Modes of Transmission of Communicable Diseases
- ☆ Pathogen Survival on Surfaces
- ☆ Controls to Limit Exposure to Communicable Disease

## Overview

This section provides general information on communicable diseases and common practices for limiting their spread. Common practices are behavioral, administrative and engineering controls. Individual behaviors, such as hand and respiratory hygiene (washing hands and covering coughs and sneezes) and self-isolation (staying away from others when ill) are effective measures in limiting the spread of communicable disease. Facility cleaning is an example of an administrative environmental control that can contribute to limiting the spread of communicable disease. Engineering controls are physical elements of the building, such as sneeze guards in food serving areas and no-touch (automatic) doors that reduce the spread of communicable diseases.

## Definitions

- *Communicable disease* is an illness or infection that can spread from person to person, or between animals and people.
- *Mode of transmission* is how an infectious agent is transferred from one person or animal to another. Modes of transmission vary by the type of disease and can be categorized as follows:
  - Droplet;
  - Airborne; or
  - Contact (with a person or object).
- *Outbreak* is an infection of a small, localized group of people with a particular disease.
- *Pathogen* is a microorganism (e.g., virus, bacteria, fungus) that can cause disease.



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# Communicable Disease Overview

A basic understanding of how communicable diseases can spread from person to person may help facility staff identify appropriate measures that can help prevent and control outbreaks. These measures should be incorporated into the facility's green cleaning program policies.

## Modes of Transmission

All building occupants should understand how diseases are transmitted (spread) so that efforts can be made to interrupt the process. For a disease to be transmitted from an infected person to another person, the pathogen must have a pathway that connects the two people. These pathways are called modes of transmission. Communicable diseases can be transmitted through the air or through touching contaminated items (surfaces or another person). The three most common modes of transmission (droplet, airborne, and contact) are summarized below. Some diseases can be transmitted by more than one of these routes.

**Droplet transmission** occurs when an infected person coughs, sneezes, or talks and releases small drops containing infectious particles that land on another person. Droplet transmission occurs over short distances (generally less than three-to-six feet).



**Airborne transmission** occurs when droplets from coughing or sneezing quickly dry out and the very fine particles remain airborne and infectious. Pathogens that are spread by airborne transmission can be carried over long distances (greater than six feet) by air currents and may be inhaled by people who have not had face-to-face contact with (or even been in the same room with) the infectious individual.

**Contact transmission** can be direct or indirect.

- **Direct contact transmission** occurs when pathogens are transferred from an infected person to another person through direct skin-to-skin contact such as hand shaking or other intimate contact like kissing.
- **Indirect contact transmission** occurs when an infected person contaminates an object with pathogens, for example by touching or sneezing on the object, and another person then touches the same object resulting in the transfer of pathogens from the contaminated surface onto hands. Objects that are handled or touched repeatedly by many people are more likely to be involved in indirect contact transmission. Door handles, photocopy machines, shared toys, keyboards, telephones and strength training equipment are prime examples of items handled by many people. Shared personal care items such as towels (including sports sweat towels), razors and bar soap can also contribute to indirect contact transmission.

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Note:

- ✓ Proper personal hygiene practices, especially hand washing, are key to limiting indirect contact transmission.
  - ✓ Resources for additional information on disease transmission can be found in the reference section of this manual.
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### Pathogen Survival on Surfaces

Pathogens require certain conditions to survive on inanimate surfaces. Some factors that affect pathogen survival include:

- Humidity (dampness);
- pH;
- Sunlight;
- Temperature;
- Type of surface (porous or nonporous);
- Presence of soil/organic material; and
- Type of pathogen (different pathogens have different tolerances to environmental conditions).

An effective cleaning program removes pathogens from surfaces, thus limiting the potential for disease transmission. However, frequently touched surfaces are likely to be re-contaminated and must be cleaned often.

### Controls to Limit Exposure to Communicable Diseases

Limiting the spread of disease in schools requires a multi-layered approach involving a combination of administrative controls, engineering controls, community behavioral controls, and enhanced green cleaning. The characteristics and transmission modes of the communicable disease dictate the selection of

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## Communicable Diseases

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appropriate measures and controls. DOH and local health departments are valuable resources for guidance and suggestions on effective control measures for specific microorganisms or diseases.

Regardless of the controls selected for a facility, building community involvement in implementing and enforcing them is critical to their success during a communicable disease outbreak.

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Note:

- ✓ Visit the DOH website for further information on controls to limit exposure to communicable disease: <http://www.health.state.ny.us/>.
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### Behavioral Controls

Behavioral controls focus on personal habits to minimize exposure to microorganisms and are very effective in preventing the spread of communicable disease. Behaviors that limit the spread of disease, such as personal hygiene, should be encouraged at all times—not just during outbreaks. The successful implementation of behavioral controls requires active participation from individuals within the building community.

Examples of behavioral controls include the following:

- Regular hand washing:
  - Before eating;
  - After sneezing, coughing, or nose blowing;
  - After using the restroom;
  - Before handling food; and
  - After touching or cleaning surfaces that may be contaminated.
- Habitual respiratory hygiene:
  - Covering coughs and sneezes with tissues or the corner of elbow; and
  - Disposing of soiled tissues immediately after use.
- Habitual personal practices:
  - Not touching eyes, nose, or mouth;
  - Limiting direct contact with other people;
  - Practicing social distancing, such as avoiding crowds or other 'close' contact situations;

Note: During outbreaks of certain communicable diseases such as those spread by droplet transmission, maintaining a distance between individuals of six feet or more, whenever possible, may help to limit the spread of disease.

  - Not sharing personal-care items such as towels, razors, and bar soap;



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- Cleaning and disinfecting shared items like protective glasses/goggles, musical instrument mouth pieces, and certain workout and athletic equipment such as weights;
- Keeping cuts and wounds clean and covered with a bandage until healed; and
- Avoiding contact with other people's cuts, wounds and used bandages.
- When ill, people should:
  - Limit their contact with others; and
  - Avoid public places.

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### Note:

- ✓ Sweat towels used during athletic events or activities should not be shared among teammates. Athletes should also refrain from playing sports when they are ill or have open wounds.
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## Administrative Controls

Administrative controls use pre-established or event-specific policies to reduce exposure. Examples of administrative controls include:

- Implementing enhanced green cleaning and green cleaning policies mentioned earlier;
- Staggering lunch break schedules to minimize crowding;
- Monitoring student health and sending ill persons home;
- Suspending classes or meetings;
- Temporarily suspending sporting events and other gatherings;
- Providing sick leave policies for staff and students; and
- Promoting wellness and nutrition.

## Engineering Controls

Engineering controls are physical changes to the environment that reduce exposure to pathogens by interrupting transmission pathways. Examples of engineering controls include:

- Automatic doors,
- Sneeze guards over food in the lunch line,
- No touch faucets in restrooms,
- Electric hand dryers,
- Motion sensing light switches, and
- Partitions.



Engineering controls are the preferred way to prevent illness because they make permanent changes for reducing exposure and do not rely on personal behavior changes (OSHA, 2007). However, engineering controls alone are not entirely effective and should still be implemented with other control measures. Because some engineering controls are expensive to implement, facilities should consider their feasibility and assess their alternate long-term benefits. For example, adopting some engineering controls can also help reduce energy consumption, solid waste and water usage. In addition, they can also be applied to

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### Notes:

## ***Communicable Diseases***

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meet certain guidelines, as outlined in the [NY-CHPS High Performance School Guidelines](#), prepared by the New York State Education Department (NYSED) and New York State Energy Research and Development Authority (NYSERDA) in cooperation with The Collaborative for High Performance Schools, Inc (CHPS, Inc.).

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Notes:

# Considerations for Modifying Green Cleaning Programs during an Outbreak

**This section will address:**

- ☆ General Cleaning Program Modifications
- ☆ Use of Green Cleaning Products
- ☆ Cleaning Locations
- ☆ Cleaning Frequency
- ☆ Use of Sanitizers and Disinfectants
- ☆ Application of Sanitizers and Disinfectants
- ☆ Environmental Considerations
- ☆ Personal Protective Equipment (PPE) and General Worker Safety
- ☆ Considerations for Implementing Enhanced Green Cleaning
- ☆ Returning to Standard Green Cleaning
- ☆ Communication
- ☆ Custodial Staff Training
- ☆ Contract (Temporary) Cleaning Services

## General Cleaning Modifications

During a communicable disease outbreak, it may be necessary for schools and state agencies to enhance their standard green cleaning program to limit the spread of disease-causing microorganisms. Routine cleaning practices and methods are generally effective in removing disease-causing microorganisms from the environment. However, in certain circumstances, the acceptable levels of clean may need to be changed in order to allow time for custodial staff to perform additional focused cleaning of frequently touched areas. As previously mentioned, adjustments to the levels of clean in times of an outbreak should be identified by the green cleaning team during the planning/development stages of the green cleaning program. For example, the green cleaning team may decide to allow low-touch surfaces such as ledges and walls to be at lower levels of clean so that custodians can focus on high-touch surfaces, such as door handles and light switches. Similarly, after a facility has thoroughly assessed the impact of using disinfectants and sanitizers, and with possible consultation with DOH or their local health department, disinfectants and sanitizers may become part of the enhanced cleaning program.

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### Use of Green Cleaning Products

Green cleaning products are preferred for use because they are as effective as traditional products and limit the environmental impact and human health risks of cleaning products. In New York State, all primary and secondary schools, state agencies, and state authorities are required to use green cleaning products. For additional information on the laws regarding the use of green cleaning products, see the [Policies, Guidelines and Report](#) section of NY's Green Cleaning Program website.



Green cleaning solutions and microfiber products are an effective tool for reducing microorganism levels on surfaces without the need for disinfectants or sanitizers. For example, studies in health care settings demonstrate that disinfecting floors provides no added benefit over using microfiber mops with standard cleaning solution (Rutala et al., 2007).

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#### Note:

- ✓ Additional information on green cleaning equipment can be found in the [Best Practices](#) section of NY's Green Cleaning Program website.
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### Cleaning Locations

Custodial staff should maintain routine cleaning practices to the extent possible during a disease outbreak. However, specific locations or areas may require additional cleaning efforts to reduce the spread of the disease. Soiled and frequently touched surfaces can be reservoirs for pathogens, resulting in a continued transmission to people. Therefore, for pathogenic microorganisms that can transmit disease through indirect contact (transmission through contaminated surfaces), extra attention should be paid to surfaces that are touched most often by different individuals. In addition, extra attention should be given to non-porous surfaces where microorganisms can survive longer. Examples of frequently handled non-porous items for focused increased cleaning efforts during disease outbreaks include:

- Door handles and push plates;
- Handrails;
- Kitchen and bathroom faucets;
- Light switches;
- Handles on equipment (e.g., athletic equipment);
- Buttons on vending machines and elevators;
- Shared telephones;



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#### Notes:



## Considerations for Modifying Green Cleaning Programs during an Outbreak

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- Shared desktops; and
- Shared computer keyboards and mice.

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### Note:

- ✓ Computer keyboards are difficult to clean due to the spaces between keys and the sensitivity of its hardware to liquids. When shared, they may contribute to indirect transmission. Locations with community use computers should provide posted signs regarding proper hand hygiene before and after using the computers to minimize disease transmission. Also, consider using keyboard covers to protect the hardware against spills and facilitate cleaning.
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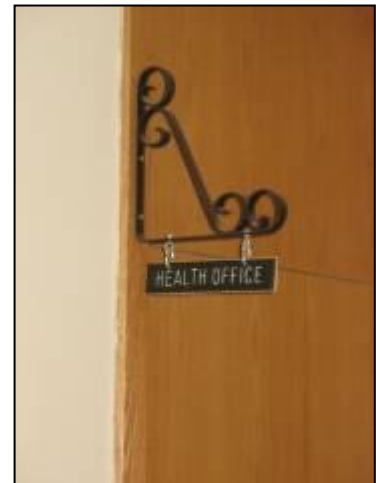
Locations within a school that may require increased cleaning during an outbreak are timeout rooms, health rooms and athletic workout rooms.

### Timeout Rooms

- Timeout rooms should be inspected immediately after each use, and cleaned and disinfected as needed.
- Particular attention should be given to cleaning high touch surfaces, and cleaning and disinfecting surfaces with visible body fluids or secretions (refer to the OSHA blood-borne pathogen standard 29 CFR 1910.1030).
- If the room was used by an individual with a confirmed infection like Methicillin-resistant Staphylococcus aureus (MRSA), cleaning surfaces such as walls, carpets, and floors may be warranted.

### Health Rooms

- Clean and disinfect health room cots regularly (at least daily), and use pillow protectors.
- Cover treatment tables.
- Discard or launder coverings after each use.



### Athletic Rooms

- Establish a regular cleaning schedule for shared environmental surfaces such as wrestling mats or strength-training equipment.
- Sanitize all skin-contact points of weight equipment at least once a day.
- Sanitize mats and other high-use equipment before each practice and several times a day throughout a tournament.
- Encourage athletes to sanitize all shared surfaces that come in contact with bare skin (e.g., mats, massage tables, training tables, and therapy machines) between each use.



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### Notes:

## **Considerations for Modifying Green Cleaning Programs during an Outbreak**

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- Repair or discard equipment with damaged surfaces that cannot be adequately cleaned (e.g., equipment with exposed foam).

### **Cleaning Frequency**

During a communicable disease outbreak, modifying the frequency of cleaning tasks may be required to reduce further spread of the disease. For diseases transmitted by indirect contact, changes in the frequency of cleaning tasks should be based upon:

- How frequently surfaces are touched (high-touch areas are most important because pathogens can be transmitted via these surfaces);
- The amount of soil on surfaces; and
- The capacity of the surface (non-porous versus porous) to hold and transmit microorganisms.

Surfaces or items that are frequently touched by many people throughout the day can accumulate soil and harbor microorganisms. Based on this understanding, high-contact surfaces are prime targets for increasing the frequency of cleaning. By targeting cleaning efforts on specific areas at set times during the day, custodians can help reduce the transmission of disease. When establishing cleaning frequencies for individual areas, custodial staff should determine when certain areas are most heavily used and plan to spot clean accordingly. For example, bathroom doors are touched frequently and should be cleaned often throughout the day. Monitoring is also important; custodial staff should inspect and clean targeted surfaces when they become visibly soiled. However, surfaces contacted by individuals infected with certain pathogens like MRSA may require immediate cleaning. In some instances, surfaces such as on athletic equipment may require cleaning after each use.

### **Modified Levels of Clean**

In developing an enhanced green cleaning program, it is essential that acceptable levels of clean be addressed and modified since increased custodial efforts in specific areas must be offset by reduced efforts on other areas (unless additional resources are available).

The green cleaning team may consider reducing the acceptable level of clean for areas or surfaces that are less likely to spread disease such as floors, walls, porous furniture, and windows. In addition, interim and restorative cleaning efforts, particularly those focused on cosmetic items like scuffs on corridor floors, could be suspended to allow custodial efforts to go towards



routine maintenance. Encourage the school community to contribute to maintaining the cleanliness of the facility by minimizing spills, picking up after themselves and ensuring that others do the same. This will give custodial staff time for more important cleaning tasks. In addition, ask community members to report locations with unsanitary conditions so that proper actions can be taken. Community members should be

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reminded to follow facility policies and not use their own cleaning products brought in from home. The facility may provide OGS-approved general purpose cleaners to staff who have been instructed in its proper use.

## **Use of Sanitizers and Disinfectants**

### **Definitions**

- Sterilization is a process that kills or destroys all forms of microbial life (including plants, bacteria, viruses, fungi, spores) on inanimate objects.
- Disinfection is a process that eliminates many or all pathogenic microorganisms (except some pathogenic bacterial spores) on inanimate objects.
- Sanitizers are substances that reduce the number of microorganisms to a safe level. The primary difference between a sanitizer and a disinfectant is that at a specified use dilution, the disinfectant must have a higher kill capability compared to that of a sanitizer.
- Cleaning is the removal of soil (organic or inorganic material) and microorganisms from surfaces. It is typically accomplished using a detergent solution that helps loosen the soil and a microfiber cloth or suction equipment to remove the soil.

In general, the use of disinfectants and sanitizers should be limited to specific locations and circumstances. For example, regularly disinfecting and sanitizing surfaces is required in some areas (i.e., food preparation areas and swimming pools) and may also be helpful in bathrooms, health rooms and possibly athletic rooms. However, the regular use of disinfectants and sanitizers in other areas is unnecessary.

Although not always required, disinfectants and sanitizers may be used in an enhanced green cleaning program during disease outbreaks to help limit the spread of illness. To determine the appropriateness for their use, consider the following:

### **Health Risks of Disinfecting Agent**

- Disinfectants and sanitizers are designed to kill or inactivate living organisms. Therefore, disinfectants can be harmful to people's health. When using disinfectants, custodians should always follow the proper safety precautions on the product labels.
- Building occupants are exposed to disinfectants and sanitizers by accidental inhalation or ingestion. Ingesting disinfectants occurs when a person touches a surface with residual disinfectant on it and then handles food or touches their mouth.
- Individuals with respiratory illnesses, such as asthma, are especially sensitive to breathing in chemicals. Consider these populations when initiating a disinfection program.
- Additional personal protective equipment for custodians or other manufacturer precautions may be necessary when using disinfectants.

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### Use Considerations

- Using detergent or soap and water will effectively reduce the amount of microorganisms on surfaces. In most cases, simply washing the surfaces is adequate—disinfection may not be required. For example, recent studies show that water alone is 99.7 percent effective at removing bacteria from telephone mouthpieces (Annand et al. 2009) and 99.05 percent effective at removing microorganisms from computer keyboards (Rutala et al. 2006).
- Recontamination of cleaned or disinfected surfaces can occur after just one touch by hands, shoes or other objects and substances. Airborne microorganisms can also contribute to the recontamination of surfaces.
- Disinfectants and sanitizers take time to be effective. Always follow the manufacturer's instructions for proper product dilution and surface contact time. Contact time is the time required for a disinfectant or sanitizer to remain on the surface to properly disinfect or sanitize the area.
- Using proper cleaning methods is an important way to reduce the amount of soil and microorganisms on surfaces. Dirty cleaning solutions and equipment such as mops and rags can spread dirt and microorganisms to surfaces, thereby reducing their effectiveness.
- Soil will inactivate most disinfectants or sanitizers. Thus, applying disinfectant or sanitizer to dirty surfaces is not as effective.
- Using a disinfectant to remove soil from anything but a hard, lightly-soiled, and non-porous surface will result in a residual level of soil that may still harbor microorganisms.

### Disease Characteristics

- Some microorganisms have defenses against certain types of disinfectants, rendering the solution ineffective. Disinfectant product labels provide information on the specific microorganisms that the product is effective against. The label also describes the proper product dilution to use and the contact time (i.e. time the surface should remain wet with the product).
- Contaminated surfaces contribute to disease spread through indirect transmission only. Disinfecting surfaces is not effective against diseases spread only through direct contact, droplets, or airborne particles.
- If the pathogen is transmitted through the air, social distancing and behavioral controls (covering coughs and sneezes, hand washing, etc.) are more effective than disinfectants. In addition, air sanitizer products do not disinfect airborne pathogens or reduce disease transmission and are not recommended.

### Application of Sanitizers and Disinfectants

- **Clean before sanitizing.** Before applying sanitizer or disinfectant to a surface, the surface must be thoroughly cleaned. A sanitizing agent is not fully effective on a soiled surface—even a layer of dust can inhibit disinfection (Jacobs 1998).
- **Use registered products.** The OGS Approved Green Cleaning Products List does not contain disinfectants or sanitizers as they are not considered green cleaning products. Use only sanitiz-

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## Considerations for Modifying Green Cleaning Programs during an Outbreak

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ers or disinfectants registered with the U.S. Environmental Protection Agency and the New York State Department of Environmental Conservation (DEC) and that are effective against pathogens.

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### Note:

- ✓ The DEC website lists all registered pesticide products (including disinfectant products) at: [http://www.dec.ny.gov/docs/materials\\_minerals\\_pdf/pestprod.pdf](http://www.dec.ny.gov/docs/materials_minerals_pdf/pestprod.pdf).  
The DOH provides lists of products registered as effective against influenza and MRSA at: [http://www.health.state.ny.us/diseases/communicable/staphylococcus\\_aureus/methicillin\\_resistant/control/](http://www.health.state.ny.us/diseases/communicable/staphylococcus_aureus/methicillin_resistant/control/).  
Copies of New York State pesticide product labels can be obtained at: <http://magritte.psur.cornell.edu/pims/current/>.
  - ✓ When registered products are unavailable, use hypochlorite (chlorine) bleach for disinfecting high-touch surfaces. This solution is made by adding one tablespoon of household bleach to a quart of water, or one teaspoon of bleach for a pint of water. Dispose of the solution when it is visibly dirty. Make bleach solutions in small batches to avoid excess waste.
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- **Target use on high-touch surfaces.** Even during disease outbreaks, sanitizers and disinfectants are not intended for use on all surfaces. They are not effective on some types of surfaces and can cause physical damage. Sanitizers and disinfectants are specialized products intended to destroy disease-carrying organisms where they may be a threat of indirect contact transmission. Target their use on frequently touched surfaces such as door handles, handrails, and shared telephones. Check the product's label to make sure it is approved for use on the intended surface.
  - **Recontamination concerns:** Disinfected surfaces quickly become re-contaminated—therefore, establish protocols for the frequent disinfection of high-touch surfaces.
  - **Where not to use sanitizers and disinfectants:** Sanitizers and disinfectants should not be used on floors, windows, light fixtures, or other seldom-handled surfaces. Treating low-contact surfaces with sanitizers and disinfectants is unlikely to reduce disease spread.
  - **Follow manufacturers' instructions:** Label instructions for all products, especially sanitizers and disinfectants, must be closely followed. As stated above, surfaces must be cleaned before sanitizers or disinfectants are applied. Surfaces treated with disinfectants must remain wet with disinfectant for a specific period of time (contact time) for the product to work. Contact time is product specific. Do not mix disinfectants and non-sanitizing (traditional) cleaning agents unless the labels indicate it is safe to do so. Combining certain products can result in serious injury or death.
- **Air sanitizers:** Air sanitizer products do not disinfect harmful airborne microorganisms or reduce disease transmission. New York's Green Cleaning Program does not recommend air sanitizers.

## Environmental Considerations

Always store, use, and dispose of chemicals properly. Storage and use of bulk chemicals must be given particular attention. For example, many sanitizers and disinfectants are flammable and require special

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### Notes:

## Considerations for Modifying Green Cleaning Programs during an Outbreak

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storage conditions. Also, the mixing of certain chemicals (i.e., bleach and ammonia-based products) will generate toxic fumes. Manufacturers' instructions contain specific precautions and information on the proper storage, mixing, and disposal of chemicals. Follow the instructions.

DEC regulations do not address the disposal of concentrated cleaning products or diluted cleaning solutions. Cleaning products on the OGS Approved Green Cleaning Products List are environmentally sensitive products and may not require special disposal. However, custodians should consult the product's Material Safety Data Sheet (MSDS) to determine proper disposal methods. For questions regarding chemical waste disposal, contact the DEC Small Quantity Generator Hotline at 1-800-462-6553.



## Personal Protective Equipment and General Worker Safety

Manufacturers' directions for using Personal Protective Equipment (PPE) must be followed at all times. Chemical protective gloves (such as nitrile or vinyl) and protective eyewear are considered standard personal protective equipment for cleaning activities. This is because prolonged contact with most cleaning solutions can irritate the skin and damage eyes. Respiratory protection is also required when recommended by the chemical or equipment manufacturer.



School or agency management should consult with their organization's health and safety officials for information on the proper use of PPE. Individuals should seek advice from DOH or their local health department regarding the use of PPE to protect against pathogens during cleaning and non-cleaning activities. Enhanced cleaning activities may necessitate the use of additional PPE, or more careful attention to the use of PPE.

General custodial safety awareness and practices include:

- Being aware of chemicals used in the work place;
- Checking that all containers are properly labeled and tightly secured;
- Never mixing products together unless following manufacturer instructions;
- Understanding Material Safety Data Sheets (MSDS);
- Reading the MSDS of every product;
- Reading and understanding the facility's written Hazard Communication Plan;
- Always wearing the appropriate PPE for product handling;

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## ***Considerations for Modifying Green Cleaning Programs during an Outbreak***

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- Using an automated chemical dispenser/dilution system whenever possible to create accurate dilutions and reduce chemical contact and waste;
- Following the instructions for making dilutions or mixing products;
- Never operating equipment without proper training;
- Following the manufacturer's recommendations for the operation of equipment and use of chemicals;
- Maintaining equipment in good working order; and
- Always washing hands with soap and water after removing protective gloves and at the end of each shift.

## **Considerations for Implementing Enhanced Green Cleaning**

In planning for enhanced green cleaning, facilities should identify what conditions would require enhanced cleaning procedures. Factors include:

- Significant illness within the community due to communicable disease;
- How easily the disease spreads by indirect contact (contact with contaminated surfaces);
- Rate of illness in building occupants;  
Note: Certain building populations (e.g., kindergarten and elementary children) may have higher rates of illness than others. This type of condition may warrant enhanced green cleaning in the areas used by these populations;
- Rate of absenteeism;
- The number of people that the school nurse can accommodate at one time;
- Capabilities of janitorial staff to accomplish enhanced tasks;
- Availability of products necessary for enhanced cleaning;
- What administrative and engineering control measures can be implemented in addition to enhanced green cleaning; and
- Recommendations from public health departments.

Each school district should have a process for deciding when to initiate enhanced green cleaning. Consult with DOH or local health department for guidance on this decision.

Assessment of an enhanced green cleaning program should be strongly considered when it is initiated. Assessment includes a visual examination of surfaces to determine whether they are clean and documentation that the enhanced program procedures (such as more frequent cleaning or disinfection of high-touch surfaces) were performed. A trusted building community leader should perform and document the assessment and communicate the results to the community.

## **Returning to Standard Green Cleaning**

During the planning stage of developing an enhanced green cleaning program, facilities should identify how to determine when standard green cleaning activities will be resumed. Returning to normal cleaning activities should be dictated by the same considerations used to determine when enhanced cleaning

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should be initiated. Before returning to standard facility green cleaning, a trusted community spokesperson should inform the building community that enhanced cleaning was completed or is no longer required.

### **Communication**

The green cleaning team should communicate consistent and accurate information to the entire community. During an outbreak, accurate and timely information helps to reduce the impact of the outbreak and control rumors that may cause unnecessary worry. Key information to communicate is:

- Facts on the disease and its mode of transmission (available on the DOH, local health or US Centers for Disease Control and Prevention websites);
- Behavioral controls to inhibit the spread of disease;
- Enhanced cleaning activities or other implemented controls; and
- Evidence on the effectiveness of cleaning methods and products.



The NYSED, DOH, or local health departments can offer guidance on developing an effective communication strategy or provide outreach materials to help communicate information.

### **Custodial Staff Training**

All custodial staff must be trained. Training should cover green cleaning techniques and include:

- Guidelines for proper enhanced cleaning procedures during a communicable disease outbreak,
- Ways to reduce cross contamination, and
- Worker safety precautions.

Before initiating enhanced green cleaning, all custodial staff should undergo refresher training to ensure an understanding of the program and procedures.

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## **Contract (Temporary) Cleaning Services**

If temporary and contract cleaning services or employees are used, they should be familiar with and agree to implement the facility's green cleaning and enhanced green cleaning programs, including: appropriate training on proper use of cleaning products and equipment; using OGS-approved products and equipment; and using enhanced cleaning products and procedures. To help ensure consistency and appropriate implementation of an established green cleaning program, a facility should agree on the management of temporary and contract services or employees.



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# Training Course Review

## **This Section will Address:**

- ☆ Course review

The following topics were covered in this course:

- Overview of green cleaning programs;
- Overview of green cleaning program elements;
- Communicable diseases;
- Routes of transmission of communicable diseases: contact, droplet, airborne;
- Controls to limit exposure to communicable diseases during an outbreak: engineering, administrative, and behavioral;
- Green cleaning enhancements during a disease outbreak: cleaning products, locations and frequency;
- Use of sanitizers and disinfectants: use considerations, applications, environmental considerations, worker safety and use of PPE;
- Considerations for implementing enhanced green cleaning;
- General cleaning program modifications;
- Return to standard green cleaning measures;
- Communications to the community;
- Custodial training considerations; and
- Planning for contract and temporary cleaning services and employees.

Further information on effective disease prevention programs for schools and state agencies can be found on the DOH website. Communities are encouraged to visit the website frequently during times of heightened communicable disease concern for current information.

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# Posttest and Course Evaluation

**This Section will Address:**

- ☆ Course Evaluation
- ☆ Certificate of Course Completion

Please do not disregard the course evaluation, your feedback is important. The course evaluation is vital for fine-tuning future versions of this course—please complete it.

All participants who completed the online course, including the evaluation, will receive an electronic Certificate of Course Completion through NY's Green Cleaning Program website.

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Enviro Solutions: [www.enviro-solution.com](http://www.enviro-solution.com)

- Carpet Cleaning Slideshow
- Green Cleaning in Health Care Slideshow
- Green Floor Care
- Implementing Green—It's More Than a Few Safer Cleaning Chemicals Slideshow

Resource Center: [www.enviro-solution.com/resourcecenter/technicalreports.html](http://www.enviro-solution.com/resourcecenter/technicalreports.html)

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