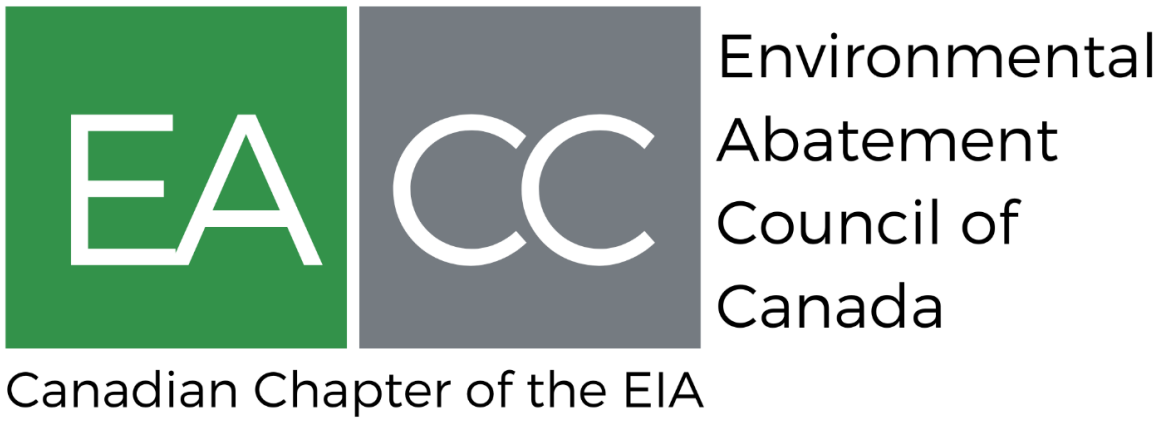
EACC Emerging and Existing Pathogen Cleaning – Best Practices for Environmental Professional Services (version 2.2 2020)



FOREWARD

This guideline has been prepared to assist building professionals, environmental services companies, consultants, contractors, subcontractors, workers and any other agency or individual that may need to manage risks related to emerging or existing pathogens or other similar infectious diseases and who have duties under the applicable federal, provincial and local acts and regulations to safely perform work activities involving detailed cleaning and disinfection of public and private spaces.

The guideline has been designed to establish procedures for the cleaning of property or materials potentially contaminated with microbial and/or viral contaminants and to promote a healthy and safe environment for the public and individuals working in environments potentially contaminated with pathogens.

The guideline promotes safe work practices, the use of personal protective equipment (PPE), approved disinfectants, worker awareness and training for cleaning surfaces potentially impacted by pathogens.

This guideline was prepared based on a thorough review of available guidance materials and scientific evidence (available up to March 2020), current legislation, similar infectious disease guidelines, and other reference materials available at the time of publication. Professional experience, industry best practices, and consultation with subject matter experts also informed this guideline. For complex situations, consultation with a third-party consultant experienced in infectious diseases is recommended.

We believe that this guideline will not only help employers fulfill their responsibilities and due diligence under the applicable federal, provincial and local acts and regulations but will also assist front line workers and the general public to better address the challenges involved with proper risk assessment and detailed cleaning/disinfecting of public and private spaces.

DISCLAIMER

EACC disclaims any liability or risk resulting from the use of the work practices and recommendations discussed in the guideline. It is the user's responsibility to ensure that this guideline applies to the affected workplaces accordingly and to ensure compliance with all other applicable federal, provincial and local acts and regulations. This guideline has no regulatory effect.

Any use which a person makes of these procedures is the sole responsibility of said user. **These procedures may not be applicable to every situation or work environment, and it is up to the discretion of the individual to deem its appropriateness**. The individual user must understand that they are following or using these procedures at their own risk and that each user accepts all responsibility or liability of any consequences resulting from its use.

Additionally, a reminder for all those using these guidelines, each user must also follow the information and instruction provided by the manufacturers or suppliers of the products used during cleaning work procedures.

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SECTION A: GENERAL POINTS AND LIMITATIONS

1. Three levels of work practice are given for detailed cleaning, depending on the risk assessment performed and information available. The thresholds are as follows:

   - Level 1 – Precautionary Cleaning - no impact of site is or has been identified
   - Level 2 – Potential Contamination - suspicion of third-party impact with a confirmed case, individual or space and/or suspected (non-confirmed) impact of any viral infection
   - Level 3 – Confirmed Contamination - impact of a viral infection from an individual known to previously occupy the space in question

2. These assessment levels are intended as a guideline only and are subject to professional judgment. EACC recommends that the assignment of impact levels be based on a risk assessment being performed by a competent person or supervisor who has been provided with all necessary information including the confirmation/clearance documents by health care professionals as well as the total affected area impacted.

3. These procedures do not address the identification or control of the cause(s) of the contamination being addressed by these procedures. The project authority is cautioned to ensure that the underlying cause(s) of the contamination (if any) is investigated and remedied prior to completing the cleaning process to reduce the potential for re-occurrence. These can include stricter Infection Prevention and Control (IPAC) protocols, suspension of normal activities for the use of the space and alternate access arrangements and in the case of an individual – removal from the workplace and quarantine until cleared by a medical professional to return to work.

4. These procedures do not address the potential for infections that may be acquired by Susceptible Occupants in hospitals or other healthcare settings if impacted areas/materials are disturbed without appropriate precautions. Refer to *Construction-related Nosocomial Infections in Patients in Health Care Facilities – Decreasing the Risk of Aspergillus, Legionella and Other Infections*, July 2001, Canada Communicable Disease Report, Health Canada and *CSA Standard Z317.13-17, Infection Control During Construction, Renovation, and Maintenance of Health Care Facilities*.

5. These procedures do not address the potential presence of designated substances (asbestos, lead, etc.) or other hazardous materials in a work area. The project authority is cautioned that designated substances or other hazardous materials are regulated in various provincial occupational health safety legislation. For example, the *Ontario Regulation 278/05, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations* (O. Reg. 278/05) outlines specific procedures for the handling and disturbance of asbestos-containing materials (ACM). Typical ACMs that may be disturbed as part of a detailed cleaning project include, ceiling tiles, pipe and duct insulation and vinyl flooring. For mould remediation specific projects please refer to the *EACC Mould Abatement Guidelines Edition (3) 2015.*

6. These procedures are not intended to specifically address any one biohazard or infectious disease that are potentially present in a project work area. The reader is referred to the guidance of Health Canada, the Public Health Agency of Canada or Infection Prevention and Control organizations. Additional precautions might apply.

7. These guidelines are not meant to apply to any one specific pathogen but rather to be used a general protocol for detailed cleaning, and application of disinfectant to general surfaces where the desired outcome is to provide an enhanced level of disinfection that may not otherwise be achieved by basic or standard cleaning procedures. This may reduce the potential for contact exposure. While the intention is to guide industry professionals in providing a thorough cleaning process, it is important to understand that no guarantee of complete disinfection or decontamination can or should be made by following these protocols.

SECTION B: DETERMINING THE SCOPE OF WORK

Site Assessment

8. A risk assessment and/or site assessment should be conducted to evaluate the site and determine the extent and severity of the contamination. The information gathered through this assessment is to be used to develop the cleaning scope of work and the level of precaution to use during cleaning. Information to consider during this assessment includes, but is not limited to:

    - Pathogen of concern (particle size, severity/type of illness associated with infectious agent, primary exposure hazard/route of exposure, viability, transmission mode, etc.)
    - Number of suspected or confirmed cases. For example:
        - If no confirmed or assumed cases of the pathogen, only Level 1 – Precautionary Cleaning may be appropriate
        - If potential or confirmed cases of the pathogen are present, then a more thorough Level 2 or 3 cleaning may be more appropriate
    - Length of time the area has remained unoccupied
    - Size / square footage of the potentially contaminated area
    - Use and type of facility
    - Current occupancy type
    - Neighbouring or adjoining facilities and shared HVAC systems
    - Types of surfaces within the work area (i.e. porous vs. non-porous)

9. It may not be feasible to wet-wipe a surface (e.g. along surfaces of sensitive electronics, where other contaminants on surfaces may react with the cleaning chemical, etc.). The project authority, competent person, or third-party consultant may consider misting or fogging applications, since HEPA-filtered vacuums may not be an effective alternative due to particle size of infectious agents. Refer to the manufacturer's instruction to confirm if HEPA-filtered vacuum unit is appropriate. Refer to Section C, General Cleaning Precautions for further information on cleaning protocols.

SECTION C: GENERAL PRECAUTIONS FOR ALL LEVELS OF CLEANING

Protection of Occupants

10. The project authority should consider whether occupants should be removed from areas adjacent to the work area. The removal of occupants from spaces adjacent to the work area may not be necessary in all cases but should be considered in the presence of susceptible occupants including but not limited to infants less than 12 months old, persons having undergone recent surgery, the elderly, immune suppressed people, or people with chronic inflammatory lung diseases.

Worker Medical Pre-Screening and Training

11. Environmental services workers who may encounter a risk of infectious disease from conducting any cleaning/disinfection activities should consult with an experienced physician regarding vaccinations to reduce the risk of infectious disease through available immunizations, particularly Hepatitis A and B, tetanus and polio and influenza.

12. Workers must be fit to work (fit for duty). Workers with a history of significant allergic disease (asthma, hay fever, hives, etc.) or with a potential immuno-compromised status (persons with an immune system disease, taking immune system suppression medication, etc.) should consult with an experienced physician to determine whether disinfection activities, and the associated potential for exposure to pathogenic materials, would present an unacceptable health risk.

13. Environmental services workers shall be trained in the hazards of infection control, the hazard/pathogen being addressed, and in the procedures to be followed. Training, at a minimum, shall include classroom and site instruction. Minimum training topics shall include: personal protective equipment such as respirators and gloves; proper site-safety practices including site isolation, removal techniques, proper cleaning and disinfection procedures. General health and safety training should also be provided to workers, as required by the Occupational Health & Safety Act and regulations for construction sites, and waste handling and disposal regulations.

Respiratory Protection

14. Respirators shall be NIOSH-approved. A hazard assessment must be conducted to determine what level of respiratory protection is required.

15. The respiratory protection in these procedures has been established for protection against fungal/viral particulate material, for which a NIOSH-approved respirator with a minimum of N95 rating will be required. Increased respiratory protection may be required if the cleaning will employ a disinfectant with a volatile hazardous ingredient (e.g. bleach). Consult the applicable safety data sheet (SDS) for information regarding the required respiratory protection in relation to specific cleaning products.

16. Workers should complete a respirator pre-screening questionnaire in accordance with *CSA Standard Z94.4-18, Selection, Use and Care of Respirators* and, if required, consult with an experienced physician to determine if a respirator can be used without serious difficulty.

17. Respirator wearers shall be fit-tested for each type of respirator, prior to use, in accordance with the *CSA Standard Z94.4-18, Selection, Care and Use of Respirators*.

18. Follow *CSA Standard Z180.1-19 Compressed Breathing Air and Systems* as amended, for testing of breathing air quality for supplied air respiratory protection if required.

19. Clean and maintain respirator components (i.e. facepiece, harness, gaskets, battery pack (where applicable)) in accordance with manufacturer's recommendations. Note: an appropriate disinfectant must be used when cleaning the respirator and following the manufacturers' instructions for disinfectant application.

20. No facial hair or eyeglasses/spectacle side arms, which affect the seal of the respirator to the skin, are allowed.

21. Dispose of single-use N95 filters and soft, low profile P100 filters daily due to the potential for contamination on filter media. When using P100 hard-shell particulate filters it may be possible to seal and reuse following manufacturer's instructions.

    a. Respirator filters should be disposed of at the completion of the project.

22. Due to the nature and working conditions of cleaning, single-use/disposable filtering facepiece N95 respirators shall not be utilized for Level 2 or Level 3 cleaning projects.

Personal Protection and Hygiene

23. Workers shall at a minimum wear nitrile gloves appropriate for the work underway and water-impermeable gloves for application of detergent and/or disinfectant. Refer to the SDS for the detergent and/or disinfectant for glove selection. Instruction on donning and doffing of PPE is provided in Appendix B.

24. Wash hands with soap and warm water for a minimum of 20-40 seconds before donning and after removal of PPE.

25. Wash hands before and after entering and exiting the work area.

26. Workers shall wear disposable coveralls and boot covers.

27. Workers shall wear safety goggles. Alternatively, workers can opt to wear a full-face respirator equipped with the minimum P100 filter.

28. For all levels of work, eating, drinking or smoking is prohibited in the work area.

Cleaning

29. Pre-clean items that will be retained, whether removed from the work area or covered and left in the work area. Use appropriate and effective cleaning methods.

30. Perform bulk removal of heavily soiled areas using a detergent solution before application of disinfectant. When appropriate clean the surrounding areas with a HEPA vacuum. No other type of vacuum can be used. If a HEPA vacuum is not available, wet-wiping or disinfectant misting may be adequate for Level 1 cleaning projects.

31. Do not use compressed air, dry sweep or dry whisk methods. When appropriate use power tools only if fitted with effective HEPA-filtered dust collection.

32. Wipe non-porous surfaces within the removal area with a disinfectant solution.

33. Generally, surfaces to be disinfected must be cleaned of dust and loose organic material prior to application of the disinfectant. Apply the disinfectant as specified by the manufacturer, maintaining wet surfaces for the prescribed period/contact time.

34. Use only disinfectants/chemical products that meet the regulatory definition of an "anti-microbial agent" by Health Canada (i.e. disinfectants represented for use on non-critical medical devices, environmental surfaces and inanimate objects), which are regulated as drugs under the Food and Drugs Act and Regulations. These products are commonly referred to as "hard surface disinfectants", and their label claims may represent the product as being effective against bacteria, fungi, viruses, mycobacteria, or bacterial spores.

35. Apply the disinfectant according to the manufacturer's label, observing requirements for mixing, storage time, worker safety, pre-cleaning, contact time, and requirements for rinsing.

36. These cleaning requirements apply to exposed surfaces within the work area. The project authority will determine if soft goods and porous materials can be adequately cleaned or must be disposed of.

37. Clean equipment used in the work area by HEPA vacuuming and wet-wiping. Equipment that cannot be readily cleaned shall be HEPA vacuumed and sealed in polyethylene bags before removal from the work area.

Post Project Cleanup

38. Remove polyethylene sheeting used during cleaning project by carefully rolling towards the centre of the work area. Clean visible dust and debris using a HEPA vacuum.

39. Clean tools, supplies, and equipment in the work area using a HEPA vacuum and by wet-wiping with a disinfectant. Equipment that cannot be readily cleaned (e.g. vacuum

hose, wire brushes, etc.) shall be HEPA vacuumed and sealed in polyethylene bags or suitable sealed containers before removal from the work area.

40. Seal the intake and exhaust of HEPA filtered exhaust fans (negative air machines) and clean the cabinet by wet-wiping with a disinfectant, before removal from the work area.

41. Leave the work area and surrounding areas visibly free of dust and debris.

Waste Disposal

42. Remove waste as contaminated material, including but not limited to building debris, disposable coveralls, respirator filters and/or cartridges, and polyethylene sheeting. Waste should be immediately double-bagged into two polyethylene bags, each individually sealed. If the material cannot be bagged, wrap in 2 layers of polyethylene sheeting and seal with tape.

43. Transport and dispose of the waste material in compliance with local, provincial and federal regulations.

SECTION D: PRECAUTIONS FOR LEVELS 1, 2 AND 3 CLEANING

Level 1: Precautionary Cleaning

44. This section gives instructions for performing cleaning specifically for projects that are precautionary or preventative, where no incident or suspicion of impact has occurred. Cleaning of HVAC equipment in occupied locations shall be performed following a minimum of Level 2 cleaning procedures (contained disinfection area). Comply with the items of Section C, General Precautions, as noted above, while performing this work.

45. The worker shall wear a half-facepiece air-purifying respirator fitted with replaceable P100 filters or a filtering facepiece respirator (N95 minimum) plus appropriate gloves and goggles.

46. Workers may wear disposable protective clothing.

47. When possible consult with building operators to turn off HVAC systems.

48. Where possible, place a drop sheet (a piece of polyethylene sheeting) below the impacted area or area to be cleaned.

49. Dust suppression methods should be used where possible, prior to disturbance, or start of, cleaning protocols. Clean the work area and dispose of the waste.

Level 2: Potential Contamination

50. This section gives instructions for performing cleaning specifically for areas qualifying as Level 2 cleaning as described in Section A. Comply with the items of Section C, General Precautions, as noted above, while performing this work.

51. Consult with a qualified health and safety professional with experience performing Infection Prevention and Control, indoor environmental investigations and remediation, prior to cleaning work activities, to provide quality assurance for the project and monitoring of compliance with these guidelines.

52. A competent supervisor must be present during contaminated work procedures.

53. The worker shall wear gloves appropriate for the work being done and full-body impervious coveralls with attached hood. Secure the coveralls tight at the ankles and wrists.

54. Workers shall wear disposable boot covers or separate work boots that can be effectively HEPA vacuumed or wiped clean prior to removal from the work area.

55. The worker shall wear a half-facepiece air-purifying respirator fitted with P100 series filters and safety goggles OR a full-face respirator equipped with P100 filters.

56. Cover and seal ductwork and diffusers in the work area. Isolate the HVAC systems.

57. The cleaning work area must be secured and access restricted. Isolate access to the work area with a critical barrier constructed of fibre-reinforced polyethylene sheeting or 6 mil polyethylene sheeting, taped and supported as required. The project authority may require a single chamber decontamination / change room.

58. A competent supervisor or project authority must inspect the work area for defects in the critical barriers at the beginning of every shift and at the end of every shift. Records of the inspections should be generated and maintained.

59. Install signs warning of the exposure hazard. Example: CAUTION, WEAR ASSIGNED PERSONAL PROTECTIVE EQUIPMENT, AUTHORIZED PERSONNEL ONLY.

60. Provide continuous negative pressure within the enclosed area by drawing air from the work area and exhausting it out of the work area, either by use of a HEPA vacuum or a portable HEPA-filtered exhaust fan.

61. On-site integrity testing of the HEPA-filtered equipment is required by using dioctyl phthalate (DOP) or polyalphaolefin (PAO) procedures per *EACC Guideline Performance Leak Testing Guideline for HEPA Filtered Equipment, 2021*. Negative pressure must be maintained until the completion of all contaminated work. Please refer

to the *EACC Guideline Performance Leak Testing Guideline for HEPA Filtered Equipment, 2021* listing provided in Appendix D – Additional Resources.

62. Clean the work area and dispose of the waste.

63. Before exiting the work area, workers shall fully wipe/clean footwear using disinfectant solution, coveralls and other personal protective equipment and remove and dispose of PPE not intended for re-use. Workers shall then complete personal cleaning as described in Section C, General Precautions.

Level 3: Confirmed Contamination

64. The following work procedures describe the general set-up, conduct and safety measures for Level 3 cleaning. Each project should be conducted following a site-specific work plan or specification developed by a health and safety professional.

65. This section provides instructions for performing cleaning specifically for Level 3 cleaning projects. Comply with the items of Section C, General Precautions, as noted above, while performing this work.

Quality Assurance

66. Consult with a qualified health and safety professional with experience performing Infection Prevention and Control, indoor environmental investigations and remediation, prior to cleaning work, to develop a site-specific work plan or specification and quality assurance services for the project and monitoring of compliance with these guidelines.

Worker Protection

67. The worker shall wear a tight-fitting full-facepiece powered air purifying respirator (PAPR) with high efficiency particulate filters or a non-powered full-facepiece air purifying respirator fitted with P100 filters.

68. The worker shall wear gloves appropriate for the work being done and full-body impervious coveralls with attached hood. Secure the coveralls tight at the ankles and wrists.

69. Workers shall wear disposable boot covers or separate work boots that can be effectively HEPA vacuumed or wet-wiped clean prior to removal from the work area.

70. A competent supervisor must be present during contaminated work procedures.

Site Isolation

71. Seal ductwork and diffusers in the work area. Isolate the HVAC systems.

72. Isolate the work area from adjacent spaces using temporary hoarding, tape and minimum woven polyethylene sheeting, etc.

73. Install signs warning of the exposure hazard. Example: CAUTION, WEAR ASSIGNED PERSONAL PROTECTIVE EQUIPMENT, AUTHORIZED PERSONNEL ONLY.

74. Provide continuous negative pressure within the enclosure through use of portable HEPA-filtered exhaust fans. Note that higher levels of negative air pressure may be required to maintain site isolation. Discharge the filtered air outside the building and away from persons.

75. On-site integrity testing of the HEPA-filtered equipment is required by using dioctyl phthalate (DOP) or polyalphaolefin (PAO) procedures per *EACC Guideline Performance Leak Testing Guideline for HEPA Filtered Equipment, 2021*. Negative pressure must be maintained until the completion of all contaminated work. Please refer to the *EACC Guideline Performance Leak Testing Guideline for HEPA Filtered Equipment, 2021* listing provided in Appendix D – Additional Resources.

76. A competent supervisor must inspect the work area for defects in the enclosure, barriers and change room at the beginning of every shift, at the end of every shift where there is no shift beginning immediately following the shift that is ending, and at least once per day on days where there are no shifts. Records of the inspections should be generated and maintained.

Worker and Waste Decontamination Facilities

77. Provide a worker decontamination facility, to include a clean change room and a dirty change room. Install flap doors (constructed with polyethylene sheeting) at each opening into and within the decontamination facility. Provide a wash station consisting of at least a basin, fresh water, soap, hand sanitizer and toweling in the clean change room. A shower for worker comfort may be provided but is optional. Refer to Appendix A for a diagram of a typical decontamination facility.

78. When entering the contaminated work area, the worker will don clean disposable coveralls and a respirator in the clean change room ensuring proper donning and order of application of PPE is followed (refer to Appendix B).

79. Prior to exiting the contaminated work area, the worker will use a HEPA vacuum in the work area to remove gross contamination from coveralls and boot covers (or separate dirty work boots).

80. The worker will then enter the dirty change room where the dirty coveralls and boot covers are removed (to be used only once). Work boots used without boot covers will also be removed and stored in the dirty change room.

81. The worker then proceeds to the clean change room to complete decontamination procedures and doffing of PPE. Please refer to Appendix B for further details.

82. A separate waste decontamination facility, consisting of a double-bagging room and a waste transfer room should be provided where large volumes of waste will be removed. Seal the waste into bags (or polyethylene sheeting sealed with tape) in the contaminated work area and wipe the exterior of the bags or other containers with disinfectant. Transfer the waste to the double-bagging room and place a second bag around bagged waste. Seal the second bag and wipe with disinfectant. Transfer the double-bagged waste into the waste transfer room for removal by workers entering from the outside of the decontamination facilities.

Removal, Salvage and Cleaning

83. Clean the work area and dispose of the waste. Clean tools and equipment such as vacuums, portable HEPA-filtered exhaust fans or other items that were exposed during disinfection.

SECTION E: MONITORING AND INSPECTION DURING CLEANING ACTIVITIES

84. Oversight and inspections undertaken during the cleaning activities are to ensure that prescribed hazard control measures remain in place and continue to be effective, and that the prescribed work procedures are followed in accordance with the site-specific work plan. Deficiencies identified during the inspection should be corrected immediately. These inspections also ensure the public and the environmental service workers' health and safety are maintained.

85. Monitoring and inspection during cleaning activities include the following:
    - Review of site-specific work plan.
    - Review of the selected disinfectant, including review of the applicable safety data sheets.
    - On-site visual inspection of containment, personal protective equipment used and personnel decontamination.
    - On-site visual inspection of the application of the disinfectant to ensure adequate coverage and contact time as recommended by the supplier.

SECTION F: POST-CLEANING ASSESSMENT

86. Following the completion of cleaning activities, a third-party assessment should be conducted to ensure that the cleaning activities were effective. A post-cleaning assessment may include the following:
    - Review of notes and observations made from the monitoring and inspection activities undertaken during cleaning work procedures.
    - Visual assessment of the work area following the completion of cleaning activities.

- Clearance sampling (if deemed appropriate and client is aware of limitations of sampling).

Monitoring and Inspection During Cleaning Activities

87. Review of the notes collected during monitoring and inspection of cleaning activities are important as they provide confirmation on the effectiveness of the cleaning activities and to ensure the planned protocol/work plan was followed and all controls were implemented.

Visual Assessment Following Cleaning Activities

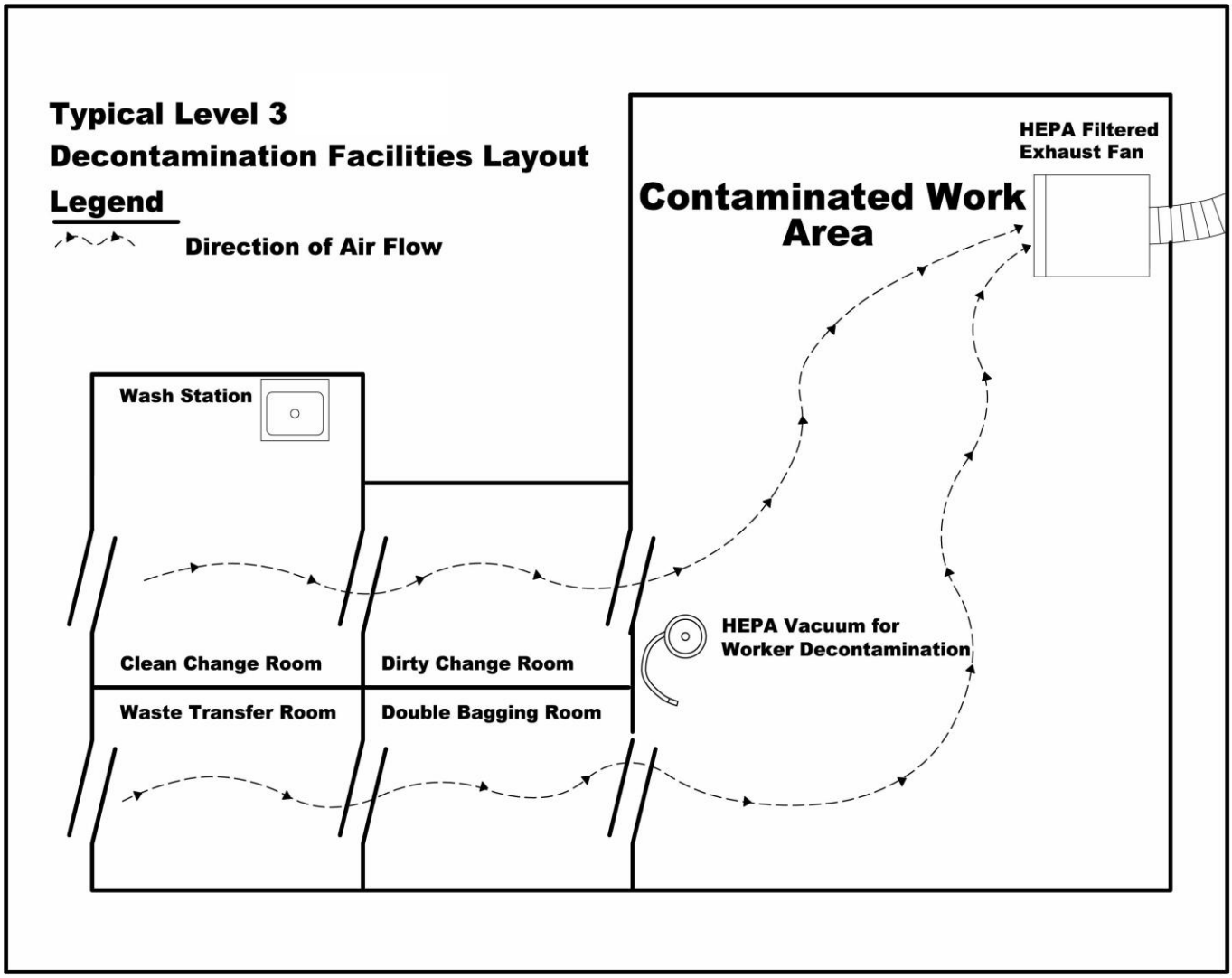
88. A thorough visual assessment of the work area should be conducted by a third-party consultant to determine the effectiveness of cleaning. The third-party is to review all stages of the cleaning process. All surfaces should be inspected, particularly those areas that are difficult to access or clean, such as corners or rough surfaces. The presence of dust, debris, or other residues may indicate that the cleaning was insufficient. Additional cleaning may be required. A follow-up visual assessment should be conducted after each additional cleaning.

Clearance Sampling

89. It is recommended that a health and safety professional / third-party representative oversee cleanup of potential or confirmed cases of infection (i.e. Level 2 and 3 cleaning precautions). The principle means of verifying cleanliness should be visual observation of procedures during various stages of the cleaning, and at completion of the disinfection process, to confirm that the procedures outlined above have been followed.

90. Where there are no commercially available clearance tests for the pathogen of concern, an option to evaluate cleanliness of surfaces could include total bacteria as an indicator for cleanliness. British Columbia Centre for Disease Control (BCCDC) *Environmental Hygiene Monitoring: A Guide for Environmental Health Officers* provides technical guidance on this method. This process does not provide technical assurance that the pathogen of concern is no longer present on a surface; however, it is an effective tool to document cleaning procedures.
    a. Consult an accredited laboratory for further information.

APPENDIX A – TYPICAL DECONTAMINATION FACILITY LAYOUT



APPENDIX B – DONNING AND DOFFING OF PERSONAL PROTECTIVE EQUIPMENT

Staging Area (Level 2) or Decontamination Area (Level 3)

Create a staging area (clean area) outside of the contaminated work area. At a minimum use a 10'x10' drop sheet made with woven polyethylene sheeting. Note: this drop sheet will be misted with disinfectant, rolled corners in and disposed of at end of each cleaning shift.

Staging and/or decontamination areas are to be equipped with disinfectant wipes/sanitizer gel and/or a wash station and disposable towels.

Donning PPE

Only one worker will occupy the staging area at any one time.

Prior to entering staging area each worker will thoroughly wash hands with anti-bacterial soap for a minimum of 20 seconds. Dry hands using a disposable towel.

Respirators are to be disinfected with disinfectant wipes or solution prior to each use. Use new, clean filters prior to entry into the work area.

PPE to be donned ONLY within staging area in the following order:

1. Put on disposable coveralls and cover work boots with disposable boot covers (if required).

2. Put on half-facepiece respirator equipped with P100 filters and goggles OR full-facepiece respirator equipped withP100 filters. Conduct the positive and negative seal check.

3. Put on first pair of gloves, ensuring they are tucked under the sleeves of the disposable coveralls, then put on second pair of nitrile gloves.

4. Seal the seam between gloves and coveralls, and boot covers and coveralls, with impermeable tape.

Doffing PPE

Following cleaning activities, only one worker will occupy the decontamination area at any one time.

1. Enter decontamination area (Level 3) or staging area (Level 2).

2. Apply disinfectant to exterior surfaces of PPE (including disposable coveralls, boot covers, gloves).

3. Loosen tape seal around boot covers and gloves.

4. Remove outer pair of nitrile gloves following these steps:

    a) Pull fingers off first glove, balling into second hand.

    b) Using the first hand, insert fingers at wrist and invert second glove over the first and deposit into waste receptacle.

5. Remove disposable coveralls by first unzipping and inverting sleeves, pushing suit to below knees and then stepping out of the suit completely. Remove boot covers. Grasp interior of suit (unexposed to exterior contaminants) and place in already open disposal bag.

6. Wash hands with anti-bacterial soap for a minimum of 20-40 seconds.

7. Remove respirator by reaching back and grasping straps then pulling respirator forward and off.

8. Disinfect respirator and dispose of filters.

9. Remove second set of gloves as per item 3.

10. Wash hands with antibacterial soap for a minimum of 20-40 seconds.

11. Dry with disposable towel and discard towel.

APPENDIX C – DEFINITIONS

Term	Definition
Biohazard	The presence of (a) biologically derived aerosols, gases, or vapour of a kind and concentration likely to cause disease or predispose persons to adverse health effects, or (b) indoor biological growth and remnants of growth that may become airborne and to which people may be exposed.
Canister or Cartridge	A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.
Clearance Tests	Environmental tests (e.g. air samples, tape lifts, swabs) collected after cleaning has been completed as a quality assurance measure.
Competent Person or Supervisor	A person who is qualified because of knowledge, training and experience to organize the applicable work procedures, is familiar with cleaning procedures, and has knowledge of the hazards of pathogens, and other dangers in the contaminated work area.
Contaminated Work Area	The portion of the cleaning project during which active disturbance, handling or cleanup of contaminated materials is occurring.
DIN	Drug Identification Number. Registration number given by Health Canada for approval of disinfectants. Specifies the organisms against which the disinfectant is effective, and requirements for mixing, storage, application, and rinsing, if required.
Designated Substance	Hazardous materials (asbestos, lead, silica, mercury and others) designated by the Ontario Ministry of Labour for specific regulation under the Occupational Health and Safety Act. Property owners must notify contractors bidding on projects of the presence of Designated Substances. In addition to a regulation on asbestos, the Ontario Ministry of Labour has issued guidelines for the potential exposure from silica, lead, mercury and isocyanates on construction projects.
Disinfectant	Substance used to reduce the number of micro-organisms such as bacteria or viruses to below the level necessary to cause infection. Some common disinfectants include sodium hypochlorite, quaternary ammonium compounds, and hydrogen peroxide.
Dust Suppression	Measures taken to reduce the release of biohazards and other particulate matter during cleaning procedures.
Filtering Facepiece	Particulate-filtering respirator where the facepiece is also the filter.
Fit-test	A qualitative or quantitative method to evaluate the fit of a specific make, model and size of respirator on an individual.

HEPA-Filtered Exhaust Fan	Portable exhaust fan in sealed cabinet equipped with HEPA filtration used to exhaust filtered air out of an enclosed work area for the purpose of establishing and maintaining a negative pressure in the work area with respect to surrounding areas, and also to provide general ventilation of the work area.
Health and Safety Professional	An individual qualified by knowledge, skills, education, training and experience to perform assessments of potential pathogen contamination, collect and interpret environmental samples, develop recommendations for work and provide inspection and quality assurance services.
HEPA	High-efficiency particulate air (often referred to as high-efficiency particulate absorbing and high-efficiency particulate arrestance) filter capable of trapping and retaining particles greater than or equal to 0.3 micrometers in diameter, at a minimum efficiency of 99.97%
HVAC	Heating, ventilating and air conditioning (equipment).
N95	A respirator particulate filter, 95% efficient at stopping a 0.3 micrometer aerosol, and not resistant to oil, a classification of particulate filters set by NIOSH.
Negative Pressure	A reduced pressure established within a work/containment enclosure by extracting air directly from work area and discharging this air outside the work area. The discharged air must be HEPA-filtered, the exhaust unit should be leak-checked/tested and preferably the air is discharged outside the building.
NIOSH	National Institute for Occupational Safety and Health, part of the U.S. Centers for Disease Control and Prevention.
P100 Series Filter	Any respirator particulate filter, 99.97% efficient at stopping a 0.3 micrometer aerosol. A classification of particulate filters set by NIOSH.
Pathogen	A bacterium, virus, or other microorganism that can cause disease.
Polyethylene Sheeting	Polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required providing a continuous membrane to protect underlying surfaces from damage, and to prevent escape of airborne contamination through sheeting into occupied areas.
Porous	Permeable to micro-organism growth, allowing growth to extend significantly below the immediate surface.
Project Authority	A competent person with the authority to make critical decisions on a project.

Quality Assurance	Measures of inspection, testing and documentation to promote confidence that the cleaning process will meet the desired goals.
Respirator	A device to protect the user from inhaling a hazardous atmosphere.
Sanitization	Also referred to as cleaning. Removing visible contamination and debris and dramatically lowering the number of contaminants on the surface.
SDS	Safety Data Sheet, required by Workplace Hazardous Materials Information System (WHMIS) legislation, and giving information on hazardous materials, including properties, hazards, first-aid, emergency response, and personal protection.
Susceptible Occupants	Persons with elevated risks of reacting to pathogen, bacteria or mould exposure, usually due to allergic pre-disposition or compromised immune state. Examples include but are not limited to infants (less than 12 months old), persons recovering from recent surgery, or people with immune suppression, asthma, severe allergies, sinusitis or other chronic inflammatory lung diseases.
Transmission Mode	Various ways in which the infectious agent can be transmitted from one host to another: ingestion, injection, mucous membrane/skin contact, inhalation (airborne or aerosols).
Viability	The ability of an infectious again to survive or live successfully under various certain conditions (e.g. on surfaces outside of a host).
Waste Decontamination Facility	A series of two rooms (i.e. for double-bagging and transfer) constructed in such a way as to allow waste and equipment to enter and leave a work area without spreading contaminants beyond the work area.
Worker Decontamination Facility	A series of two rooms (i.e. clean and dirty) constructed in such a way as to allow persons to enter and leave a work area without spreading the contaminants beyond the work area.

APPENDIX D – ADDITIONAL RESOURCES

CSA Group (Canada)

EACC Guideline Hygiene Practices for Construction Workers and Infection Control, 2021

EACC Guideline Performance Leak Testing Guideline for HEPA Filtered Equipment, 2021

EACC Mould Remediation Guideline

Health Canada

IPAC Canada

Public Health Agency of Canada (PHAC)

World Health Organization

Environmental Abatement Council of Canada

Canadian Chapter of the EIA

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