



Construction, Renovation and Maintenance Guide For IPAC Leads in LTC and RH

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SE IPAC Hub Team

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Introduction

Introduction

Construction, remediation and renovation activities create and spread contaminants that can be harmful to Long Term Care home residents. Careful planning is required to isolate those contaminants and remove it safely, even for small maintenance projects.

The Infection Prevention and Control (IPAC) Lead has an important role to play during all stages of a construction project. The IPAC Lead should be involved in decision-making, complete practice audits, and ensure thorough cleaning after the completion of the project. The Canadian Standard Association (CSA) provides guidance on Construction, Renovation, and Maintenance of Health Care Facilities and will be referred to throughout this document.

The SE IPAC Hub and Spoke Team are available to support facilities in any construction, renovation, remediation or maintenance project. Contact the team at SEHubIntake@kingstonhsc.ca.

Common construction projects you may encounter

- carpet removal
- drywall replacement
- ceiling tile access or replacement
- guiding wire through wall/ceiling tiles
- recovery from minor or major floods or water damage

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Reference Documents

Reference Documents

Association	Document	Link
Canadian Standards Association (CSA) - Main Document	CSA Z317.13:22 <i>Infection control during construction, renovation, and maintenance of health care facilities</i>	https://www.csagroup.org/store/product/CSA%20Z317.13:22/
Canadian Standards Association (CSA) – Additional Documents	<p>CSA Z317.1:21 <i>Special requirements for plumbing installations in health care facilities</i></p> <p>CSA Z317.2:19 <i>Special requirements for heating, ventilation, and air conditions (HVAC) systems in health care facilities</i></p> <p>CSA Z8004 <i>Long-Term Care Home Operations and Infection Prevention and Control</i></p>	https://www.csagroup.org/
Canadian Construction Association (CCA)	Mould guidelines for the Canadian construction industry	https://www.cca-acc.com/wp-content/uploads/2019/02/Mould-guidelines2018.pdf
Canadian Centre for Occupation Health and Safety (CCOHS)	<p>Indoor Air Quality Health and Safety Guide, 3rd Edition, 2008</p> <p>Mould in the Workplace, A Basic Guide, 2008</p>	https://www.ccohs.ca/
Canada Communicable Disease Report (CCDR)	Construction-related Nosocomial Infections in Patients in Health Care Facilities	https://publications.gc.ca/collections/Collection/H12-21-3-27-2E.pdf

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Keywords and Definitions

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Anteroom: room that is right beside the construction area, intended to be used for construction storage, as well as a place to put on/remove protective clothing, including footwear.

Contaminants: a potentially harmful substance, such as a chemical or microorganism.

CRMD: Construction, Renovation, Maintenance and Design.

HEPA vacuum: a vacuum cleaner which has been designed with a high-efficiency particulate air (HEPA) filter as the last filtration stage. A HEPA filter is a filter that is capable of capturing particulates of 0.3 microns with 99.97% efficiency.

Hoarding: a type of barrier that is constructed to separate the construction area and the health care facility. Types of material used in hoarding can be plastic sheeting or drywall, depending on the location and/or the duration of the project.

HVAC system: Heating, Ventilation and Air Conditioning system which controls the temperature, humidity, and freshness of the air within a facility.

Infection Control Risk Assessment (ICRA): The processes of identifying potential infection control risks as a result of the planned construction project.

Microorganism: a bacteria, virus, or mould. Common microorganisms that can cause health care associated infections during construction/renovation projects are *Aspergillus* (mould) and *Legionella* (bacteria).

Multidisciplinary Team: a team which has members from different professions and roles throughout the organization. This may include IPAC Lead, Administrator, Contractor/Maintenance, Housekeeping, and Electrician/Plumber.

Preventative Measures: steps and strategies taken to decrease the risk of illness as a result of a construction project. The recommended preventative measures are based on the type of construction project and where the project is being completed. The CSA Standard Z317.13:22 provides guidance on the recommended measures.

Traffic flow: how construction workers and materials move throughout the facility

Ventilation: the provision of fresh air to a room.

Walk-off mat: sticky mat placed outside a construction area or anteroom, and is used to remove contaminants from workers shoes as they exit.

Wet dusting/wet mopping: the act of using water to weigh down dust and minimize it's dispersal in the air.

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IPAC Lead Checklist

Planned Project:

Construction Start Date: (date)

Length of Project:

Multidisciplinary Team Members:

- IPAC Lead
- Administrator
- Contractor/Maintenance
- Housekeeping/Environmental Services

IPAC Lead Checklist

Before Construction

- ✓ Establish **Multidisciplinary Team**, including a member from every group involved at your facility, as well as a representative from any external contractors involved.
- ✓ Review and understand current applicable standards (i.e. CSA, CCA, CCOHS).
- ✓ Complete **infection control risk assessment (ICRA)**, considering the resident risk assessment and the nature of the construction work.
- ✓ Ensure IPAC requirements and preventative measures for project are reflective of the ***infection control risk assessment (ICRA)***.
- ✓ Create **Project Plan** (see template Appendix I), and set up schedule of project meetings.
- ✓ Ensure plan(s) and technical drawings for project have been reviewed and signed off.
- ✓ Ensure that those involved with doing the work have necessary IPAC education and information.

During Construction

- ✓ Participate in scheduled project meetings.
- ✓ Tour area and complete the **CRMD Preventative Measures Audit** (see Appendix II).
- ✓ Provide immediate feedback on IPAC gaps or issues to project lead/team.
- ✓ Provide reports to **Multidisciplinary Team**.
- ✓ Provide additional education as required.

After Construction

- ✓ Debrief with project team and provide report to **Multidisciplinary Team**.

Project-Specific Considerations

When performing the infection control risk assessment, consider the area the project is being completed in (i.e. resident room, office, common area). Refer to CSA Standard Z317.13:22 for further guidance.

✓ Dust

- Construction supplies and debris covered while transported through the facility (put into plastic bag or covered cart at the site prior to being removed).
- Protect resident-care equipment (remove equipment from the area, if not possible to remove, consider covering the equipment).
- Depending on the amount of dust produced, **wet dusting/wet mopping** may be considered.
- Hoarding** may be recommended to minimize contamination from dust.
- Construction workers may vacuum their clothing prior to leaving the construction area and traveling through your facility.
- An **anteroom** with **walk off mats** at the entrance of the construction area may be recommended.
- IPAC Lead should assess the cleanliness of the construction site prior to the removal of any barriers.

✓ Ventilation

- Assess the **ventilation** in the construction area.
- HEPA vacuum** may be recommended.
- All air intakes, conduits, outlets, and holes may need to be covered with a barrier and sealed to prevent contamination to the facility's **HVAC system**.

✓ Traffic Flow

- Traffic flow** planned with input from **Multidisciplinary Team** members along with managers and staff from affected areas.
- Traffic flow** for construction workers, supplies, and debris should avoid resident care areas.
- Consider dedicating elevators for transporting garbage and construction supplies, or have scheduled times of use.
- Facility may need to consider redirecting **traffic flow** for residents, staff and facility supplies to minimize exposure to dust and other **contaminants**.

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Project Plan Outline Template

Appendix I - CRMD Project Plan

Project name:

Project lead:

Start date	Length of project

Where (location/floor)	Adjacent areas of concern

Scheduled meeting dates

Type of project: new construction renovation repair

Will residents be moved? Yes No

Description of project: (consider amount of dust produced, and length of project)

Contact Information

Team Member	Contact number	Email address
Project Lead		
IPAC Lead		
Administrator		
Contractor/maintenance		
External contractor		

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CRMD Preventative Measures Audit

Appendix II – CRMS Preventative Measures Audit

Project:

IPAC Preventative Measures Audit (if applicable)

Criteria	Yes	No	N/A
Construction signage is present.			
Construction area is clearly defined from non-construction areas.			
Hoarding (plastic or drywall barriers) is in good shape, any holes are sealed, and it extends from floor to true ceiling.			
All doors, vents, windows, and outlets in construction area are covered with barrier and are sealed.			
Resident doors near to construction area are kept closed.			
Doors to anteroom remain closed.			
Areas near construction area are wet-mopped.			
HEPA vacuum available for use.			
Supply vents are blocked and return vents are filtered to prevent contamination of HVAC system.			
Walk-off mats are clean and available at construction entrance.			
Tools are wet-dusted before leaving the construction area.			
All transported supplies and debris are covered.			
No visible dust or footprints outside of work zone.			
Pre-determined traffic flow is being followed by construction workers.			
Construction area is cleaned daily.			

Additional comments:

Completed by: _____ **Date completed:** _____

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Resources

1. Association for Professionals in Infection Control and Epidemiology; APIC State-of-the-Art Report: The role of infection control during construction in health care facilities. Judene Mueller Bartley, The 1997, 1998, and 1999 APIC Guidelines Committees.
2. CSA Group. CSA Z317.13:12 : Infection control during construction, renovation, and maintenance of health care facilities. Toronto, ON: CSA Group; 2022.
3. Public Health Ontario. CRMD Checklist: ICP responsibility, retrieved from <https://www.publichealthontario.ca/en/health-topics/infection-prevention-control/crmd>
4. Public Health Ontario. CRMD Checklist: Hoarding, retrieved from <https://www.publichealthontario.ca/en/health-topics/infection-prevention-control/crmd>
5. Public Health Ontario. CRMD Checklist: Infection Control Risk Assessment (ICRA), retrieved from <https://www.publichealthontario.ca/en/health-topics/infection-prevention-control/crmd>
6. Public Health Ontario. CRMD Checklist: Managing Traffic Flow, retrieved from <https://www.publichealthontario.ca/en/health-topics/infection-prevention-control/crmd>