



<p>Team Name: Infection Prevention and Control</p> <p>Team Lead: Regional Director, Staff Development/Infection Prevention and Control</p> <p>Approved by: VP - Human Resources</p>	<p>Reference Number: CLI.8011.PL.010</p> <p>Program Area: Infection Prevention and Control</p> <p>Policy Section: Infection Prevention and Control</p>
<p>Issue Date: February 4, 2019</p> <p>Review Date:</p> <p>Revision Date:</p>	<p>Subject: Infection Prevention During Construction, Renovation and Maintenance</p>

**POLICY SUBJECT:**

Infection Prevention During Construction, Renovation and Maintenance.

**PURPOSE:**

- To reduce the potential for health care-associated infections (HAIs) related to construction, renovation and maintenance.
- To ensure client and personnel safety needs are met through implementing and maintaining Infection Prevention and Control (IP&C) measures, including clear lines of communication.
- To provide guidelines to be followed during construction, renovation and maintenance of health care facilities.

**BOARD POLICY REFERENCE:**

Executive Limitation (EL-02) Treatment of Clients  
 Executive Limitation (EL-03) Treatment of Staff  
 Executive Limitation (EL-07) Corporate Risk

**POLICY:**

Projects undertaken and/or contracted by Southern Health-Santé Sud abides by the precautionary and remedial measures for preventing exposure to infectious agents released or augmented because of actions undertaken during health care facility construction, renovation, maintenance and repair work, in compliance with the most current CSA Standard CAN/CSA Z317.13. Appropriate infection prevention and control measures are documented, outlined in construction documentation, and employed, before any construction project is started, and are maintained for the duration of the project. The Regional Infection Prevention and Control Coordinator (Regional IP&C Coordinator), Infection Control Practitioner (ICP), or any member of

the project's Multidisciplinary Team (MDT), has the authority to stop any construction, renovation, maintenance or repair work, if client, health care workers or visitors are deemed to be at risk of exposure to potentially pathogenic dust or substances.

### **General Principals and Guidelines:**

Construction, renovation and some maintenance projects in health care facilities pose a health risk to certain clients, particularly the immunosuppressed, the elderly and the very young.

Documented incidents of construction-related infections occurring in health care facilities caused by *Aspergillus*, *Legionella*, and other agents have been reported. Good planning and early implementation of preventive measures are necessary to prevent the transmission of infectious agents to vulnerable clients, health care workers and visitors during construction, renovation and maintenance projects.

Prevention of construction-related infections must include:

- control of dust generated during demolition and construction;
- prevention of dust infiltration into client care areas, laboratories, food preparation areas, and diagnostic areas;
- prevention of the generation of aerosols from contaminated water sources.

Appropriate mitigation measures, focusing on client safety, are necessary before construction and renovation begins and throughout the construction process.

### **DEFINITIONS:**

**Adjacent areas** – all of the areas surrounding an area where construction, renovation, or maintenance work is occurring, including, where applicable, all or part of the floors above and below.

**Client** - Refers to an individual and/or their family/care provider who accesses and/or receives health care related services from a Southern Health-Santé Sud facility or program. Clients may be clients in an acute care setting, residents in a personal care home, or clients in a community program or facility.

**Construction** – major and minor facility activities that disturb or modify facility structures and/or systems, which includes renovation, maintenance, and repairs.

**Construction Officer** – the Southern Health-Santé Sud person in charge of the construction / renovation / maintenance project, e.g. the owner's representative.

**Contractor** – a person or company that undertakes a contract to provide materials or labor to perform a service or do a job.

**Health Care Facility** – a set of physical infrastructure elements supporting the delivery of health-related services.

**HEPA (high-efficiency particulate air) Filter** – being, using, or containing a filter usually designed to remove 99.97 percent of airborne particles measuring 0.3 micrometers or greater in diameter passing through it.

**Regional Infection Prevention & Control Coordinator (Regional IP&C Coordinator) and Infection Control Practitioner (ICP)** – a professional with demonstrated education and training, knowledge, and experience who advises on and monitors required infection prevention and control strategies, approaches, methods, and measures.

**Infection Control Risk Assessment (ICRA)** – a process used to identify design elements that increase the risk of microbial transmission in the environment taking into account the facility's client population and clinical programs, and the potential effects of disruptions of essential services that could affect client placement or necessitate relocation of clients. The ICRA focuses on the potential infection risks posed by construction activities and the movement of people and materials in and around construction sites.

**Maintenance** – a type of construction activity conducted to preserve the condition and functionality of a physical element of a health care facility.

**Multidisciplinary Team (MDT)** – a well-managed team with appropriate expertise established early in the planning stage of every construction/renovation project. The team is responsible for guiding construction during the planning and execution stages, including determining the steps needed to protect occupants who might be affected by the construction/renovation. The membership may include expertise in the following areas; infection control, administration, project management, environmental services, health care, design, maintenance and construction.

**Maintenance staff** – health care facility employees or contract personnel responsible for the day-to-day operation of, and repairs to, the facility infrastructure and systems. May be referred to as facility engineers, engineering department staff, facility operations, engineering, and maintenance staff, etc.

**Preventive Measures (PM)** – a system involving precautionary actions, equipment, barriers, and inspections at each phase of a project to decrease the spread of contaminants during construction, renovation, or maintenance of a health care facility.

**Project Manager** – the contractor representative in charge of the project.

## **PROCEDURE:**

### **➤ MDT's Role in Construction/Renovation/Maintenance Projects**

- A MDT is established for each construction/renovation/maintenance project. The magnitude of the project dictates the membership of the MDT. The Regional IP&C Coordinator or ICP is part of the MDT throughout the life of the projects identified as PMs III and IV, or involving population risk group 4. The role of the Regional IP&C Coordinator or ICP is to educate team members on the need for PMs, to ensure that appropriate PMs are initiated and adhered to, and to provide infection control input into the project (see Preventive Measures Quick Reference List CLI.8011.PL.010.SD.01). The Regional IP&C Coordinator or ICP must give approval prior to any changes or discontinuation of PMs. If significant failure to adhere to the required PMs is found, the Regional IP&C Coordinator, ICP or any member of the MDT has the authority to stop the project.
- For construction/renovation/maintenance projects that impact on foodservice areas and/or water systems, the Public Health Inspector and/or Drinking Water Officer may be notified. If a permit to *Construct or Alter a Water System* is issued under the Drinking Water Safety Act for a specific project, the Construction Officer will ensure that all permit requirements are met.
- The Regional IP&C Coordinator or ICP and/or Construction Officer, and/or maintenance staff, and/or MDT work in collaboration throughout the project and review issues as they relate to infection prevention and control.
- The Construction Officer, in consultation with the Regional IP&C Coordinator or ICP, ensures that an Infection Control Risk Assessment (ICRA) (CLI.8011.PL.010.FORM.01), is completed for every construction/renovation project. The maintenance staff, ensures that an ICRA is completed for every in-house renovation/maintenance project and consults with the Regional IP&C Coordinator or ICP on all PM III or IV projects.
- The maintenance staff assigned to complete the work order must comply with the PMs.
- The maintenance staff regularly inspects worksites and are responsible to ensure compliance with the required PMs.
- The ICRA and required PMs are included in the construction/renovation/maintenance documents submitted for tender for external contract work or with the work order for in-house projects.
- During construction/renovation, the Regional IP&C Coordinator and/or ICP and/or the Construction Officer regularly inspects the site for compliance with PMs.
  - Construction air handling units (CAHUs) used for dust mitigation and the maintenance of differential pressures in construction zones are performance leak-tested and verified at least every 12 months by a competent third party. The CAHUs are inspected at least once a day and filters changed on a regular basis as determined by the environmental conditions at the work site. A permanent log of these inspections is attached to the filter unit, signed and dated, at each inspection by the person maintaining the units using the Construction Air-Handling Unit Inspection Sheet (CLI.8011.PL.010.FORM.04).
  - The contractor and/or maintenance staff continually monitors the pressure differential between the construction/renovation/maintenance zone and

occupied areas by means of a pressure differential monitoring device. If the configuration of the site permits, the monitoring device is no closer than 5 meters from the entrance to the construction site and be located on the adjacent or exterior side of the dust barrier. The contractor and/or maintenance staff records the pressure differential from the monitoring device daily on the Pressure Differential Daily Checklist (CLI.8011.PL.010.FORM.05). If the pressure differential is less than 7.5 pascals (Pa) or -0.03 inches of water column of negative pressure within the construction zone for more than 4 hours, or if it drops to less than 2.5 Pa or -0.01 inches of water column for more than 90 seconds, the contractor and/or maintenance staff immediately takes corrective measures to restore and maintain the required pressure differential.

- The Regional IP&C Coordinator or ICP documents site visits using the Infection Control Construction Site Monitoring Tool (CLI.8011.PL.010.FORM.02).
- Prior to building occupancy, the Construction Officer and/or maintenance staff organizes a final walk through with the MDT. The Infection Control Post Construction Checklist (CLI.8011.PL.010.FORM.03) is completed by the Regional IP&C Coordinator or ICP. Occupancy of the space must not begin until the work is complete and ready for turnover.

#### ➤ **Infection Prevention and Control's Role in Construction/Renovation Projects**

- Planning Stage for New Building Projects or Major Renovation of Existing Space
  - In collaboration with maintenance staff and or Construction Officers, complete the Infection Control Risk Assessment (ICRA) (CLI.8011.PL.010.FORM.01).
  - Projects identified as PMs III or IV, and projects involving Risk Group 4, requires consultation with Infection Prevention and Control prior to project initiation or tender.
  - The Regional IP&C Coordinator or ICP is an active member of the MDT throughout the life of the construction project, from the planning stage to the final evaluation after completion of the work.
  - The Regional IP&C Coordinator or ICP ensures that the members of the MDT are adequately educated on the need for PMs to decrease construction-related infections.
  - The Regional IP&C Coordinator or ICP ensures that the appropriate preventive measures are initiated and adhered to.
  - As part of the MDT, the Regional IP&C Coordinator or ICP reviews and make recommendations on:
    - The design of client care areas.
    - The design of client rooms.
    - The hand washing stations, sinks and facilities for personal hygiene within the building.
    - The design of facility cleaning and processing areas, and linen management areas.
    - The temporary or permanent changes to the water supply.

- Construction Stage
  - Prior to start of the project:
    - The Regional IP&C Coordinator or ICP approves the Infection Control Preventive Measures Plan (CLI.8011.PL.010.SD.02) proposed by the Project Manager.
    - Infection Control attends a meeting with the MDT to discuss deconstruction and construction plans and ensure the following items are discussed:
      - ❖ Approval of the Project Manager's plan.
      - ❖ Expected alterations of the ventilation and water systems.
      - ❖ Plans to eliminate/control dust production.
      - ❖ Changes required in movement patterns of client or equipment.
      - ❖ Where construction supplies will be stored.
      - ❖ How demolition materials will be removed.
      - ❖ Whether alternative accommodations for clients may be needed.
    - As deemed necessary, the Regional IP&C Coordinator or ICP provides mandatory Infection Prevention and Control education to contractors and/or construction workers prior to start of project and as required throughout project.
  - During Construction, Renovation and Maintenance:
    - The MDT reviews the project on an ongoing basis and ensure that PMs are followed.
    - Changes or discontinuation of PMs must receive prior approval from the Regional IP&C Coordinator or ICP.
    - Stop work orders may be issued if there is non-compliance with the PMs.
- After Construction
  - Prior to turnover of the area:
    - Housekeeping performs terminal cleaning prior to inspection.
    - Final inspection is guided by the Infection Control Post Construction Checklist (CLI.8011.PL.010.FORM.03). When all action items are completed, the area turnover can take place.
  - At the end of the project, the project team including the MDT conducts an infection control procedures quality review/debrief session.

**SUPPORTING DOCUMENTS:**

- [CLI.8011.PL.010.SD.01](#) Preventive Measures Quick Reference List
- [CLI.8011.PL.010.SD.02](#) Infection Control Preventive Measures Plan
- [CLI.8011.PL.010.SD.03](#) Infection Control Construction Barrier Sign English
- [CLI.8011.PL.010.SD.03.F](#) Infection Control Construction Barrier Sign French
- [CLI.8011.PL.010.FORM.01](#) Infection Control Risk Assessment (ICRA) For Health Care Facility  
Construction, Renovation and Maintenance
- [CLI.8011.PL.010.FORM.02](#) Infection Control Construction Site Monitoring Tool
- [CLI.8011.PL.010.FORM.03](#) Infection Control Post Construction Checklist
- [CLI.8011.PL.010.FORM.04](#) Construction Air Handling Unit (CAHU) Daily Checklist
- [CLI.8011.PL.010.FORM.05](#) Pressure Differential Daily Checklist

**REFERENCES:**

- Alberta Health Services/Covenant Health, *Infection Prevention & Control Construction Site Monitoring Tool, Construction and Design, December 17, 2008.*
- Alberta Health Services/Covenant Health, *Infection Control (ICP) Post Construction Checklist for Newly Constructed or Renovated Areas, Construction and Design, December 17, 2008.*
- Canadian Standards Association, *Infection Control during Construction, Renovation, and Maintenance of Health Care Facilities, CAN/CSA-Z317.13-17.*
- Construction-related nosocomial infection in clients in health care facilities – decreasing the risk of aspergillus, legionella and other infections. *CCDR* 2001; 2752.