# CONSTRUCTON PROJECTS
# CONTRACTOR PROCEDURE MANUAL
# (General Conditions)
# Markham Stouffville Hospital

**May 2009**

The Mission of Markham Stouffville Hospital is to provide excellent health care to our patients and their families.

Contract or service work will not interfere with this mission. Work at the Hospital will be organized and scheduled to have the least impact on our patients, their families and Markham Stouffville Hospital staff.

We therefore request that all service persons working in the Hospital be cognizant of this and plan their work and activities accordingly.

**This manual is the property of:**

**Name:**_____

**Contracting Firm:**_____

**Telephone Number:**_____

# TABLE OF CONTENTS

# MARKHAM STOUFFVILLE HOSPITAL

# MSH PROJECT LEAD CONTACT INFORMATION

**All Sites Normal Business Hours are Monday – Friday 8:30 am – 4:30 pm**

**Markham Stouffville Hospital (905) 472-7373**

**Redevelopment**

| | | |
|---|---|---|
| **AVP, Corporate Services** | **Elena Pacheco** | **Office (905) 472-7545**<br>**Cell (416) 669-7580** |
| **Project Manager** | **Dean Aziz** | **Office (905) 472-7373 Ext. #6982**<br>**Cell (416) 454-6913** |
| **Executive Assistant** | **Sharon Kenny** | **Office (905) 472-7091** |

## ACCESS TO WORK SITE

- All outside persons, contractors, trade persons, service persons or others who do not work at Markham Stouffville Hospital must make prior arrangements to enter the work area before arriving at the Markham Stouffviille Hospital site.
- These arrangements can be made through: **MSH Redevelopment Project Manager**

## IDENTIFICATION

- Contractors who will be on Markham Stouffviille Hospital property for more than three days or working in a patient care area will be required have a personal photo ID badge. These are to be returned at the end of the job.
- ID badges are not transferable and must be used only by the person to whom it is issued.
- Arrangements for obtaining an ID badge to be made through the **MSH Redevelopment Project Manager Ext#: 6989**

## PARKING

- There is no reserved parking for contract or service persons.
- Parking is not allowed anywhere on Markham Stouffviille Hospital property for any reason other than delivery or pick up of materials, tools and or equipment. Arrangements are to be made with the contact below.

- **Contact: MSH Redevelopment Project Manager Ext#: 6989**

- Please respect all Emergency, restricted, Wheelchair Parking Areas and other posted no parking areas.
- Parking for contractors to be arranged through the contact below.

- **Contact: MSH Redevelopment Project Manager Ext#: 6989**

## KEYS

- Access to mechanical and communication rooms may be available at the discretion of the Owner's Representative.
- Entrance to restricted areas can be made by contacting the MSH Redevelopment Project Manager. Off hours access to be coordinated in advance.

## DELIVERIES/EQUIPMENT AND MATERIAL STORAGE/STAGING AREAS

- Arrangement must be made with the Owner's Representative before any tools, equipment or materials are brought on site to determine acceptable storage and internal delivery routes to work area.
- All materials and equipment deliveries will be coordinated with the Owner's Representative.
- Use of the elevators shall be arranged through the Owner's Representative.
- Where permission is granted to the Contractor to use an elevator, the Contractor shall be responsible for providing protection to the cab and shall be responsible for repairing any damage caused during the use of the elevator at his cost. The Contractor shall

clear and surrender use of the elevator immediately during a Hospital emergency. The definition of any emergency shall be confirmed by the Hospital before the work commences.
- Comply with the requirements noted in Infection Control requirements during construction when transporting materials, tools & equipment to or from the work site.

**WORKING AT MARKHAM STOUFFVILLE HOSPITAL**

- Traffic through existing occupied areas shall be kept to an absolute minimum throughout the duration of the work of this project. Travel between entrances, public areas and the work area will be via the most direct route and be coordinated with the MSH Redevelopment Project Manager in advance.
- Noise, dust, odours, etc. shall be minimized to ensure tenants and patients in areas adjacent to the construction area are disturbed as little as possible. Corrective action to cease or limit disagreeable annoyances to the tenants and patients shall be implemented immediately upon notification of the MSH Redevelopment Project Manager. This may require that work be stopped and rescheduled to a mutually agreed upon time.
- Existing services shall not be worked on without first coordinating through the MSH Redevelopment Project Manager in advance.
- Submit, as per agreed upon procedure, a request for any work impacting existing services at least 72 hours prior to start time for work.
- The Owner's asbestos log is made available for contractor review at the commencement of the project.

**WORK SITE**

- It is the responsibility of the contractor to remove all garbage debris, packaging, surplus material and scrap from his work site on a daily basis – or more often if required. Hospital containers and garbage bins may not be used unless written permission is obtained from the MSH Redevelopment Project Manager.
- All tools, equipment and materials must be properly labelled, secured and protected (this is strictly enforced in occupied Hospital areas). The loss of any such material will be the responsibility of the contractor. The Owner assumes no responsibility for lost or stolen equipment. Use of Hospital's carts, ladders, tools and equipment is not allowed.
- Damage to Hospital equipment or property by the contractor must be reported immediately to the MSH Redevelopment Project Manager. The contractor will be charged for the replacement or repair of same.
- Fire routes or personnel thoroughfares must not be obstructed. Fire doors must not be wedged open or latches disengaged.
- Safety clearances are required before any cutting, welding, core drilling, open flame work or dust work is done. Submit, as per agreed upon procedure, a request for such work to the MSH Redevelopment Project Manager a minimum of 72 hours prior to the start time for work.
- Under no condition will it be permissible to connect a machine requiring electrical power to the existing building electrical panels. Contractors and subcontractors shall provide their own exterior located generators.
- Secure the building, premises and adjoining premises from damage during the construction period and during any period when the work is closed down for any cause.

- Materials which are to be removed in the existing building should be confirmed with the MSH Redevelopment Project Manager as to the requirement and at the time of handover. Where services are connected to such items, services shall be removed and capped / isolated except where required for reuse where they shall be temporarily capped / isolated.
- No signs, advertisements, or notices of any kind shall be placed on or in the building, fences, hoarding or any place on the site except as specifically directed in writing and approved by the Owner's Representative.

## EMERGENCY AND FIRE PROTECTION

- Provide and maintain at all times, ready access to fire fighting equipment.
- While work is proceeding in existing Hospital, existing fire hoses and fire extinguishers shall be used as required. Recharge fire extinguishers if used and re-rack hoses and inform the MSH Redevelopment Project Manager of their use.
- In case of a fire or an emergency, the following procedure should be followed:

**R** Remove anyone in danger.
**E** Ensure all doors are closed.
**A** Activate the fire alarm (pull station).
**C** Call Switchboard 555(5)
**T** Try to extinguish fire

- When the alarm is activated:
  a) A slow bong-bong will be heard
  b) All magnetic door holders will be released and the fire separation doors will be closed
  c) The Receptionist will announce over the PA the location of the fire for "Code-Red-Area".
- All contractors and service persons on hearing the fire alarm will stop work, listen for the location of the fire and await further instructions. Persons are requested to remain in the area that they are in until they are given further instructions or the fire alarm is cancelled. Do not transverse fire door. Work may be continued while awaiting further instructions.
- If the fire or emergency becomes more critical, an evaluation may be requested in specific areas. The fire alarm "bong" will double its frequency followed by an instruction on the PA as to which areas are to be vacated.
- On hearing the double frequency alarm, contractors should stop work and listen for the instruction.
- If the area in which the contractor is working is to be evacuated, he will turn off all equipment and leave the area and building immediately via the closest building exit closing all doors behind him.
- If the fire or emergency is cancelled, the bells will cease and an announcement will be made acknowledging this cancellation. Contractors may not continue their normal work and circulation in the Hospital.

**EMERGENCY CODES FOR HOSPITALS**

**Code Red Fire**
**Code White Violent Patient / Physical Danger**
**Code Green Evacuation**
**Code Orange External Disaster**
**Code Brown Internal Chemical Spill**
**Code Blue Cardiac Arrest**
**Code Pink 33 Infant Cardiac Arrest**
**Code Pink 66 Paediatric Cardiac Arrest**
**Code Yellow Missing Patient**
**Code Yellow Adam Missing Child**
**Code Black Bomb Threat**

## TEMPORARY FIRE SAFETY AND FIRE ALARM

- While work of this contract is proceeding, contractor shall make certain that existing fire alarm system and life safety system (i.e. smoke detectors, enunciators, bells, exit light, etc.) are in proper operating condition at all times except when work is being done on said systems (i.e. at evenings, weekends, etc.) and said systems shall be left in proper operating conditions by temporary or permanent means.
- If, during the progress of the work, it is necessary to take all or part of the existing fire alarm system out of service, prior to final installation of the new fire alarm system, the Contractor shall provide adequate fire watch and also advise MSH Redevelopment Project Manager of the condition minimum 48 hours in advance. All such shutdowns and need for a fire watch shall be kept to a minimum. The fire watch shall consist of a person available to patrol the affected areas and initiate a proper fire drill should the need arise.

## SAFETY PROGRAM

- The contractor will supply the MSH Redevelopment Project Manager with a copy of their construction safety program.
- All work performed at Markham Stouffville Hospital must be in compliance with the Hospital's policies and procedures.
- MSDS sheets are to be available on site and readily accessible to MSH Redevelopment Project Manager at their request.

## PROPERTY DAMAGE

- Each Contractor shall be responsible for damage done by his employees and materials to the work and materials of other trades and to Owner's materials and property and shall, at his own expense, replace all materials, property and work damaged to such an extent that they cannot be restored (at his expense) to their original condition to MSH Redevelopment Project Manager's satisfaction, in a timely manner.
- Architectural, mechanical and electrical drawings indicate the approximate locations of services as far as these are known. The contractor and subcontractors shall take all measures to verify actual location of existing services prior to start of work. Nevertheless, should any mechanical or electrical service line be broken or disrupted by

- operations specified under this contract, the contractor shall repair service lines and make good all damage to the approval and satisfaction of the MSH Redevelopment Project Manager and/or Consultants. Because the breaking or disrupting of various services may cause a "matter of life or death" situation in certain Hospital departments, immediately notify the MSH Redevelopment Project Manager whenever any service line is broken or damaged.

## INCIDENT REPORTING

- Any unplanned / on toward event that occurs as a result of construction / contractor activities must be reported immediately to the MSH Redevelopment Project Manager.
- The contractor shall repair and make good all damage to the approval and satisfaction of the MSH Redevelopment Project Manager and/or Consultants.
- The contractor is required to complete a "MSH Construction Incident Report" and forward to the prime consultant and the MSH Redevelopment Project Manager within 48 hours of the incident occurrence.
- See Contractor Incident Report form in Appendix A

## CONTINUITY OF EXISTING SERVICES

The Hospital is in operation 24 hours a day, seven days a week. Disruption to the operation of the Hospital must be kept to a minimum.

- Schedule and coordinate work so that services are not unduly interrupted at any time. Interruption of services must be reviewed and scheduled with the Owner's Representative so that disruption to patients and procedures are kept to a minimum. Generally, service interruptions are to be scheduled to occur after hours.
- Notify the Owner's Representative and obtain approval to interrupt services at least 72 hours prior to interruption of services.
- Include the cost of all investigations, including ferro scanning.
- Include the cost of cryogenic freezing of domestic water.

## MARKHAM STOUFFVILLE HOSPITAL OWNER'S POLICIES

### 1) Harassment Policy

Markham Stouffville Hospital is committed to the principle of equal opportunity for all employees. Accordingly, the Hospital is committed to providing a work environment where the dignity of the employees is respected and where all staff and members of the Hospital community can enjoy the freedom to carry out their duties free from harassment.

Without restricting the generality of the Human Rights Code definition, harassment may be further defined as any unwelcome conduct, comment, gesture or contact of a sexual nature which has the purpose or the effect of creating a work environment that is intimidating, humiliating or uncomfortable; any implied or expressed condition or promise for complying with a sexually oriented request. Harassment includes behaviour that the employee knows or reasonably should know is offensive. Harassment does not refer to accepted social banter. However, tolerance for such behaviour varies and accordingly

good judgment must be exercised. Harassment is prohibited on the part of all those who have a contractual agreement or privileges with Markham Stouffville Hospital.

**2) Asbestos Management Program**

Management in Markham Stouffville Hospital
AMP applies to all categories of property with the exception of vacant lands.
AMP applies to all MSH staff as well as all service providers and contractors performing work in MSH facilities

**3) Camera Policy**

Cameras are prohibited within occupied areas of the hospital unless permissions are procured through the Owner's Representative. This may require accompaniment.

## INFECTION PREVENTION AND CONTROL GUIDELINES FOR CONSTRUCTION/RENOVATION/MAINTENANCE AT MARKHAM STOUFFVILLE HOSPITAL

### OVERVIEW

This guideline describes the precautions used to reduce the risk of construction, renovation and/ or maintenance (CRM) related nosocomial (hospital acquired) infections at Markham Stouffville Hospital.

### SCOPE

This document covers every construction, renovation and / or maintenance project at Markham Stouffville Hospital. It covers all phases of CRM: Planning, Pre-construction, Construction and Post-construction.

### PURPOSE

The purpose of this document is to:

1. Ensure a safe environment for patients, staff, and visitors during any CRM project at MSH.
2. Ensure all CRM projects are monitored starting with the planning phase and ending with a post-construction review and evaluation.
3. Provide guidance for project managers, architects, Facilities Management and Redevelopment planning, Environmental Service workers, engineers, contractors, department heads, physicians, all hospital staff and volunteers.

### BACKGROUND

CRM activities may pose a risk of life-threatening infection to immunocompromised and other susceptible individuals. The health risk to both patient and staff is associated with dust particles in the air and stagnant water, both of which are transport media for bacteria and fungi. The

biological contaminants include: molds, spores, fungi, dust mites and bacteria. The key to decreasing the risk of nosocomial infection, related to construction, is to contain the construction site and prevent the infiltration of dust into patient care areas.

The need to understand the responsibilities of the personnel involved in the project and to establish and maintain clear lines of communication between them and Infection Control (IC) is important in the prevention of construction-related nosocomial infections. Infection Control professional participation during the planning stage is key to the prevention of nosocomial infections.

Facilities Management/Redevelopment, Infection Prevention and Control and Occupational Health and Safety Services (OHSS), are able to stop construction projects if breaches in preventive measures arise. Senior Management support is essential for reducing the risks associated with, and for successful completion of, CRM projects.

## ROLES AND RESPONSIBILITIES

### Facilities Management

Notify Infection Prevention and Control of any planned maintenance, renovation or construction work via the Risk Assessment and Prevention Measures Checklist Form supplied in Appendix I.

Notify appropriate department heads of plans for any CRM projects that are in, or adjacent to, or may affect patient care or critical support areas.

Facilities Management/Redevelopment, will initiate a Construction Project Management Team (CPMT) to ensure that the required communication, training, control, monitoring and post-work review of covered projects is accomplished as required by this document.

Implement infection prevention and control recommendations into specifications and contract documents.

Inform contractors and maintenance personnel of the potential risks and required appropriate work practices. Ensure all contractors have received and submitted a signed Safety Agreement. Contractors and maintenance personnel includes, but is not limited to, the following:

- Telecommunication Companies
- Computer and Information Service Companies
- General Contractors and their employees
- Sub contractors e.g. electrical, mechanical and their employees
- Facilities Management personnel

Inspect construction and maintenance work for compliance with infection prevention and control procedures.

Arrange for inspection of work site by IC.
Implement the use of construction zone signage outside the barrier and entrance to all work areas.

Organize cleanup with Environmental Services or contractors.

**Infection Control (IC)**

Provide written / email response to every RISK ASSESSMENT AND PREVENTIVE MEASURES CHECKLIST FORM (see Appendix I) initiated and submitted by Facilities Management.

Class I IC Measures: IC Risk Assessment and Preventive Measures Checklist Form not required.
Class II IC Measures: IC must concur and return written form / email to Facilities Management, or advise Facilities Management that project classification is being changed to require Class III or Class IV IC Measures.
Class III or Class IV IC Measures: IC will be a member of the Construction Project Management Team (CPMT) in order to address infection prevention and control issues.

Identify patient populations that may be at risk.

Participate in design and planning of renovation and construction projects from initial planning phases to project completion.

Assist in the preparation of training materials and sessions as required.

In collaboration with OHSS educate staff about dust during construction and the risks to immunosuppressed patients, visitors as well as to the staff themselves.

Inspect construction and maintenance work for compliance with infection prevention and control procedures. Inspection will include pre-construction site inspections to evaluate conditions prior to start of work, inspections during construction to ensure proper work practices and post-construction to ensure an appropriate level of cleanliness upon completion. (See checklists Appendix 3).

Investigate and report to appropriate management any incidents of infections that may be related to CRM.

Stop and review any work, in consultation with Facilities Management, which is not in compliance with infection prevention and control guidelines.

The Infection Control Practitioner (ICP), in consultation with Facilities Management and Occupational Health and Safety is able to stop construction if there is a significant breach in infection control or safety measures.

**Occupational Health and Safety Services**

Respond, (in writing/email) as required for any Occupational Health and Safety issues or inquiries and investigate/ report any incidents that may be related to CRM.

Identify staff and visitors at risk and in collaboration with Infection Prevention and Control, educate regarding dust and construction.

Participate in design and planning of renovation and construction projects from initial planning phases to project completion.

Participate with the Joint Occupational Health and Safety Committee in inspections of construction areas.

OHSS, in consultation with Facilities Management and Infection Control is able to stop construction if there is a significant breach in safety measures.

**Construction Project Management Team (CPMT)**

A Construction Project Management Team (CPMT) should be brought together prior to any significant renovation, construction or demolition projects. IC will be included as a member of the CPMT. The Team must also include a Project Manager, architectural and engineering personnel, Occupational Health and Safety, Environmental Services, and the managers of Patient Care Areas involved in or adjacent to the CRM.
For Class III and IV Projects, the CPMT ensures that required communication, training, control, monitoring and post-work review / improvement activities occur on a timely basis.
Meet on a regular basis during CRM Projects.

**Nursing and Medical Staff**

Assist IC in identifying patient populations that may be at risk.
Report violations of infection prevention and control procedures to IC.
Discuss with appropriate staff all necessary and appropriate protective measures.

**Contractor / Maintenance Personnel**

Follow all infection prevention and control guidelines.
Ensure that all workers are trained to ensure compliance with the requirements and spirit of this document.
Take immediate action to correct all deficiencies.
Notify IC practitioner and Project Manager of any difficulty in compliance with these guidelines.

## PART A: INSTRUCTIONS ON HOW TO COMPLETE

The Risk Assessment and Preventive Measures Checklist (see Appendix I) is to be completed *during the planning design phase* of the construction / renovation project by Facilities Manager. Infection prevention and control professionals must be involved in each phase of the project to ensure that the appropriate preventive measures are initiated and followed. The type of construction activity is first identified by selecting the level of activity that best describes the project being planned for the Health Centre. The types of construction activity are described in Part A. The second step (Part B), involves identifying the population and geographical risk group that may be affected by the project because of its physical proximity or exposure to the construction / renovation activity.

There are four groups described in Part B that will help the Facilities Manager to identify the risk group. The appropriate infection prevention measures are identified by matching the construction activity with the population risk group in Part C. As indicated by the shaded areas in the “Construction Activity and Risk Group Matrix”, the checklist must be completed and a

copy sent to the infection control department to be filed for all Class II, Class III, and IV categories. Adaptations to the prevention measures can be made only after **approval has been provided by ICP.**

**PART B: TYPES OF CONSTRUCTION ACTIVITY**

| | |
|---|---|
| **TYPE A** | Inspection and non-invasive activities: These include, but are not limited to, activities that require removal of ceiling tiles for visual inspection (limited to 1 tile per 50 square feet), painting (but not sanding), wall covering, electrical trim work, minor plumbing (disrupts water supply to a localized patient care area [e.g. 1 room] for less than 15 minutes), and other maintenance activities that *do not generate* dust *or* require cutting of walls *or* access to ceilings other than for visual inspection. |
| TYPE B | Small scale, short duration activities that create minimal dust. These include, but are not limited to, activities that require access to chase spaces, cutting of walls or ceilings where dust migration can be controlled for the installation / repairs of minor electrical work, ventilation components, telephone wires or computer cables, and sanding of walls for painting or wall covering to *only repair* small patches. It also includes plumbing that requires disruption to the water supply of more than one patient care area (e.g. > 2 rooms) for less than 30 minutes. |
| TYPE C | Any work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies (e.g. counter tops, cupboards, sinks). These include, but are not limited to, activities that require sanding of walls for painting or wall covering, removal of floor-coverings, ceiling tiles and casework, new wall construction, minor duct work or electrical work above ceilings, major cabling activities, and any activity that *cannot be completed* within a single work shift. It also includes plumbing that requires disruption to the water supply of more than one patient care area (e.g. > 2 rooms) for more than 30 minutes but less than 1 hour. |
| TYPE D | Major demolition, construction and renovation projects. These include, but are not limited to, activities that involve heavy demolition or removal of a complete cabling system and new construction requiring consecutive work shifts to complete. It also includes plumbing that results in disruption to the water supply or more than one patient care area (e.g. > 2 rooms) for more than 1 hour. |

**PART C:** **POPULATION AND GEOGRAPHIC RISK GROUPS**

| | |
|---|---|
| **Group 1**<br>**Lower Risk** | Office areas<br>Unoccupied wards<br>Public areas |
| **Group 2**<br>Medium Risk | All other patient care areas unless stated in Group 3 or 4<br>Outpatient clinics (except for oncology & surgery)<br>Admission / discharge units<br>Physiotherapy tank areas<br>Echocardiography<br>Laboratories (specimens) |
| **Group 3**<br>**Medium to High Risk** | Emergency room<br>Radiology / MRI<br>Post anesthesia care units<br>Labour and delivery (non operating room [OR])<br>Normal newborn nurseries<br>Day surgery<br>Nuclear medicine<br>General med / surg wards other than those listed in Group 4<br>Paediatrics<br>Geriatrics<br>Long-term care |
| **Group 4**<br>**Highest Risk** | All ICU's including Neonatal ICU<br>All ORs<br>Labour and Delivery<br>Anesthesia and pump areas<br>Oncology units and outpatient clinics for patients with cancer<br>Outpatient clinics for patients who have received bone marrow or solid organ transplants<br>Patient care areas and specialty clinics for patients with immunodeficiency<br>Dialysis units<br>All areas performing invasive procedures<br>Cardiovascular / cardiology patients<br>All endoscopy areas<br>Pharmacy admixture rooms<br>Sterile Processing Department |

## PART D: CONSTRUCTION ACTIVITY AND RISK GROUP MATRIX

A copy of the Risk Assessment and Preventive Measures Checklist must be sent to the Infection Prevention and Control Program when the matrix indicates that Class II, Class III, and / or Class IV preventive measures are required (see shaded areas). Adaptations to the prevention measures can be made only after approval by the IC. IC should also be consulted when construction activities need to be done on hallways adjacent to Class III and Class IV areas.

| | Construction Activity | | | |
|---|---|---|---|---|
| Risk Group | Type A | Type B | Type C | Type D |
| Group 1 | I | II | II | II / IV |
| Group 2 | I | II | III | IV |
| Group 3 | I | III | III / IV | IV |
| Group 4 | I – III Contact IC to Ensure appropriate Classification | III / IV | III / IV | IV |

**APPENDIX I**

**RISK ASSESSMENT AND PREVENTIVE MEASURES CHECKLIST**
**(See Part A for instructions on how to complete)**

**This form must be completed during the planning design phase for each maintenance, renovation and construction project undertaken at SJHC. If the risk class is II, III, or IV, a copy of the form must be submitted to IC. See construction activities chart below.**

**PROJECT INFORMATION**

| | | |
|---|---|---|
| LOCATION OF PROJECT: | PROJECT START DATE: | ESTIMATED DURATION: |
| PROJECT MANAGER (PM)<br>Name:<br>Phone: | CONTRACTOR (S):<br>Name:<br>Phone: | INFECTION CONTROL COORDINATOR<br>Name:<br>Phone: |

ACTIVITY TYPE: _____ **[ A, B, C, D ] (Refer to Type of construction activity – Part B)**

RISK GROUP: _____ **[ 1, 2, 3, 4 ] (Refer to Population and Geographic Risk Groups)**

CLASS OR PREVENTIVE MEASURES REQUIRED: _____ **[ I, II, III, IV ] (Refer to Part D)**

**Concurred:**_____
**Infection Prevention and Control**

**Introduction to Appendix 2**
**INFECTION PREVENTION AND CONTROL MEASURES – SPECIFIC TASKS**

**Introduction:**

This appendix identifies specific tasks to be carried out based on the **Classification** of the construction project. Classes range from I to IV with Class IV as the most critical. The task specifications build on each other. For example, Class II tasks include all of those found in Class II as well as those outlined in Class I.
Any deviations to the tasks outlined are to be discussed with Infection Prevention and Control and the Construction Management Team.
Facilities Management must ensure that all workers are trained to ensure compliance with the requirements and spirit of this document.

**CLASS I**

**Date:** _____ **Initials:** _____

**Engineer/Maintenance Staff and Contractors**

***Construction /Renovation Activities***
Dust Control *
- Immediately replace tiles displaced for visual inspection
- Vacuum work area

**b)** ***Plumbing Activities***
- Schedule water interruptions during low activity (e.g. evenings if at all possible).
- Flush water lines prior to reuse.
- Observe for discoloured water.
- Ensure water temperature meets the standards set by the health care facility.
- Ensure gaskets and items made of materials that support the growth of *Legionella* are not being used.
- Ensure faucet aerators are not installed or used.
- Maintain as dry an environment as possible and report any at water leaks that occur to walls and substructures.

**Environmental Services**

***a) Plumbing Activities***
- Report discoloured water and major water leaks to maintenance and Infection Prevention and Control.

**Medical/Nursing Staff**

***a) Construction/Renovation Activities***
- Identify means to minimize patients' exposure to construction area.

***b) Plumbing Activities***

- Report discoloured water and water leaks to maintenance and Infection Prevention and Control.

* Note Class II specifications must be followed if dust should be created during the Type A construction Activity.

**CLASS II**

***The following tasks are to be carried out in addition to Class I***

Date:_____ Initials:_____

**Engineer/Maintenance Staff & Contractors**

**a) *Construction/Renovation Activities***

*Dust Control*

- Execute work by methods that minimize dust generation from construction or renovation activities.
- Wet mop or vacuum as per hospital schedule and as necessary.
- Provide active means to minimize dust generation and migration into the atmosphere.
  Use drop sheets to control dust
  Control dust by water misting work surfaces while cutting
  Seal windows and unused doors with duct tape
  Seal air vents in construction /renovation area
  Place dust mat at entrance to and exit from work areas

*Ventilation*

- Disable the ventilation system in the construction/renovation area until the project is complete
- Monitor need to change and/or clean filters in construction or renovation area

*Debris Removal and Clean up*

- Contain debris in covered container or cover with a moistened sheet before transporting for disposal

***b) Plumbing Activities***

- Avoid collection tanks and long pipes that allow water to stagnate
- Consider hyper chlorinating or superheating stagnant potable water (especially if nosocomial *Legionella* has been identified.

**Environmental Services**

***Construction/Renovation Activities***

*Dust Control*

- Wet mop vacuum area with a HEPA filtered vacuum as needed and when work is complete
- .tnatcefnisid a htiw secafrus krow latnoziroh epiW

**Medical/Nursing Staff**

***Construction/Renovation Activities***

*Risk Reduction*

- Identify high risk patients who may need to be temporarily moved away from the construction zone.
- Ensure that patient care equipment and supplies are protected from dust exposure.

**Class III**

Date:_____ Initials:_____

***The following specifications are to be considered in addition to Class I and II***

**Engineer/Maintenance Staff & Contractors**

*a**) Construction/Renovation Activities***

**Risk Reduction**

- Ensure that ICP consultation has been completed and infection prevention and control measures have been approved

**Dust Control**

- Erect an impermeable dust barrier from true ceiling (includes area above false ceilings) to the floor consisting of 2 layers of 6 ml polyethylene or Sheet Rock
- Ensure that windows, doors, plumbing penetrations, electrical outlets and intake and exhaust vents are properly sealed with plastic and duct taped within the construction/renovation area
- Vacuum air ducts and spaces above ceilings if necessary
- Ensure that construction workers wear protective clothing that is removed each time they leave the construction site before going into patient care areas
- Do not remove dust barrier until the project is complete and the area has been cleaned thoroughly and inspected
- Remove dust barrier carefully to minimize spreading dust and other debris particles associated with the construction project

**Ventilation**

- Maintain negative pressure within construction zone by using portable HEPA equipped air filtration units
- Ensure air is exhausted directly outside and away from intake vents or filtered through a HEPA filter before being recirculated
- Ensure ventilation system is functioning properly and is cleaned if contaminated by soil or dust after construction or renovation project is complete
- Install Construction Filters on air return systems within the construction zone.
- Establish contingencies to prevent air from construction zones entering areas dependent on windows for their air circulation.

**Debris Removal and Cleanup**

- Remove debris at the end of the work day using an established route
- Erect an external chute if the construction is not taking place on ground level if physically possible
- Vacuum work area with HEPA filtered vacuums daily or more frequently if needed

**b*) Plumbing Activities***

- Flush water lines at construction or renovation site and adjacent patient care areas before patients are readmitted.

**Environmental Services**

***a) Construction/Renovation Activities***

- Increase frequency of cleaning in areas adjacent to the construction zone while the project is under way
- In collaboration with ICP ensure that construction zone is thoroughly cleaned when work is complete

**Infection Prevention and Control Personnel**

***a) Construction/Renovation Activities***

**Risk Reduction**

- Move high risk patients away from the construction area
- In collaboration with Environmental Services ensure that construction zone is thoroughly cleaned when work is complete
- Inspect dust barriers

**Traffic Control**

- In collaboration with the facility project manager designate a traffic pattern for construction workers that avoids patient care areas and a traffic pattern for clean or sterile supplies and equipment that avoids the construction area.

***b) Plumbing Activities***

- Consider hyper chlorinating or superheating stagnant potable water (especially if *Legionella* is already present in potable water supply)

**Medical/Nursing Staff**

***Construction/Renovation Activities***

**Risk Reduction**

- Move high risk patients away from the construction area
- Ensure that patients do not go near the construction area
- In collaboration with environmental services and ICP ensure that construction zone is thoroughly cleaned when work is complete

**Class IV**

*Date:_____ Initials: _____*

*The following specifications are to be considered in addition to Class I, II and III*

**Engineer/Maintenance Staff & Contractors**

***a) Construction/Renovation Activities***

*Dust Control*
Before starting the construction project erect an impermeable dust barrier that also has an anteroom

- Place a walk-off mat outside the anteroom in patient care areas and inside the anteroom to trap dust from the workers' shoes, equipment and debris that leaves the construction zone.
- Ensure that construction workers leave the construction zone through the anteroom so they can be vacuumed with a HEPA filtered vacuum cleaner before leaving the work site; or that they wear cloth or paper coveralls that are removed each time they leave the work site.
- Direct all personnel entering the construction zone to wear shoe covers
- Ensure that construction workers change the shoe covers each time they leave the work site.
- Repair holes in walls within 8 hours or seal them temporarily.

*Ventilation*

- Ensure negative pressure is maintained within the anteroom and construction zone
- Ensure ventilation systems are working properly in adjacent areas
- Review ventilation system requirements in the construction area with ICP to ensure system is appropriate and is functioning properly.

*Evaluation*

- Review infection control measures with other members of the planning team or delegate to evaluate their effectiveness and identify problems at the end of the construction project.

***b) Plumbing Activities***

- If there are concerns about Legionella, consider hyper chlorinating stagnant potable water or superheating and flushing all distal sites before restoring or repressurizing the water system.

**Environmental Services**

***a) Construction/Renovation Activities***

**Evaluation**

- Review infection prevention and control measures with other members of the planning team or delegate to evaluate their effectiveness and identify problems at the end of the construction project.

## Infection Prevention and Control Personnel

### *a) Construction/Renovation Activities*

**Risk Reduction**

- Regularly visit the construction site to ensure that preventive measures are being followed. Wear coveralls and shoe covers when visiting the site.

**Evaluation**

- Review infection prevention and control measures with other members of the planning team or delegate to evaluate their effectiveness and identify problems at the end of the construction project.

### *b) Plumbing Activities*

- If there are concerns about Legionella, consider hyper chlorinating stagnant potable water or superheating and flushing all distal sites before restoring or re-pressurizing the water system.

## Medical/Nursing Staff

Staff are not allowed to visit the construction site.

### *a) Construction/Renovation Activities*

**Evaluation**

- Review infection prevention and control measures with other members of the planning team or delegate to evaluate their effectiveness and identify problems at the end of the construction project

### *b) Plumbing Activities*

- Consider using another source of potable water for patients who are at greatest risk until potable water has been cleared for signs of *Legionella* after major plumbing installation/repairs

**APPENDIX 3**

**CONTRACTOR NOTIFICATION FORM**

Aspergillosis and related nosocomial fungal infections are caused through inhalation of mould spores by immunocompromised patients. Mould spores are naturally occurring in settled dust throughout Markham Stouffville Hospital. Disturbance of this settled dust during maintenance, renovation and demolition activities can result in infection in immunocompromised patients.

**Inhalation of Aspergillus and other fungal spores by immunocompromised patients can lead to serious complications and death**.

**Aspergillus and other fungal spores are present in the natural environment. Airborne exposure to mould spores in settled dust is not a risk to healthy construction / maintenance workers**.

As a condition of our contract to provide services and materials to the owner, this company will not disturb settled dust within wall cavities or ceiling spaces without prior notification of Facilities

Staff. This firm and it's workers, working in Markham Stouffville Hospital will follow all Infection Prevention and Control procedures specified by the Markham Stouffville Hospital Construction-Related Nosocomial Infection Prevention and Control Program.

As Infection Prevention and Control procedures are mandatory, Contractors to recognize that Markham Stouffville Hospital will incorporate mandatory adherence to Infection Prevention and Control procedures in the construction contract with implications for non-compliance and mechanisms to ensure timely correction of problems.

Responsible and accountable

COMPANY NAME: _____

SIGNATURE: _____ DATE: _____

NAME AND TITLE: _____

**APPENDIX 4**

**INFECTION PREVENTION AND CONTROL CHECKLIST**
**DURING CONSTRUCTION/RENOVATION**

Date: _____ Time: _____

**BARRIERS**

| | |
|---|---|
| Construction signs posted for the area | □ Yes □ No |
| Doors properly closed and sealed | □ Yes □ No |
| Critical barrier intact and true sealing | □ Yes □ No |
| Floor and horizontal surfaces clean, no dust | □ Yes □ No |
| Hole, pipes, conduits, and punctures sealed | □ Yes □ No |

**AIR HANDLING**

| | |
|---|---|
| All windows closed behind barrier | □ Yes □ No |
| Negative air pressure at barrier entrance | □ Yes □ No |
| Negative air machine running | □ Yes □ No |

**PROJECT AREA**

| | |
|---|---|
| Debris removed in covered container | □ Yes □ No |
| Trash in appropriate container | □ Yes □ No |
| Routine cleaning done on construction site | □ Yes □ No |
| Mats appropriately placed | □ Yes □ No |

**TRAFFIC CONTROL**

| | |
|---|---|
| Restricted to construction workers and essential staff | □ Yes □ No |
| All doors and exits free of debris | □ Yes □ No |

**DRESS CODE**

| | |
|---|---|
| Appropriate for the area (i.e. OR, BMTU) | □ Yes □ No |
| Required to enter | □ Yes □ No □ N/A |
| Required to leave | □ Yes □ No □ N/A |

COMMENTS: _____
_____

Facility Project Manager: _____
cc: Infection Prevention and Control Program

**INFECTION PREVENTION AND CONTROL**
**CONSTRUCTION/RENOVATION**
**FINAL CHECKLIST**

Date: _____ Time: _____

After the project is completed, Infection Prevention and Control Personnel will inspect the area to make sure that all requirements have been met. The following will be verified completed.

Check location of soap and towel dispensers and sharps container □ Done □ Not done □ N/A

Check all areas to ensure that the appropriate flooring, ceiling, wall finishes have been installed. □ Done □ Not done □ N/A

Check all procedure rooms, kitchens, and utility rooms to ensure that they have the appropriate flooring and splash guards on sink. □ Done □ Not done □ N/A

Inspect water faucets to ensure that they do not have aerators in patient care areas. □ Done □ Not done □ N/A

Check water system has been flushed day before patients occupy the unit. □ Done □ Not done □ N/A

Evaluate the direction of air flow in negative air pressure rooms. □ Done □ Not done □ N/A

Area thoroughly cleaned. □ Done □ Not done □ N/A

Inspect the area one week after the barriers have been removed (it takes that long for the dust to settle) to make sure it has been thoroughly cleaned. □ Done □ Not done □ N/A

COMMENTS: _____
_____

Infection Prevention and Control personnel (name): _____

cc: Facility Project Manager

## INFECTION CONTROL PROCEDURES DURING CONSTRUCTION

### 1. Pre-Construction

1.1 Notify Infection Control, through the MSH Redevelopment Project Manager a minimum of 1 week prior to start of work (except in the case of an unplanned emergency situation requiring immediate attention). Infection Control will perform a CSA approved Preventative Measures Analysis* according to population at risk and type of construction activity. This Analysis will determine the Infection Control Procedures and any barriers required prior to start, during and in completion of the specific project. Analysis Form attached.

1.2 Ensure that all construction personnel associated with the projects have received and read a copy of Markham Stouffville Hospital Construction Contractor's Procedure Manual.

1.2.1 Ensure that all sub-trades and all workmen are familiar with and follow the required Infection Control Procedures.

1.3 Identify possible service disruptions e.g. water, electrical, HVAC, Oxygen, etc.

1.4 Review the potential for the contamination of occupied areas from air intakes or ductwork with the MSH Redevelopment Project Manager prior to start of work. Review the location of all air intakes so as to prevent cross contamination from the work site.

1.5 Establish with the MSH Redevelopment Project Manager and Infection Control a safe traffic pattern for workers, tools, supplies and debris removal.

1.6 Identify and discuss barrier placement with the MSH Redevelopment Project Manager and Infection Control. For long term / large scale projects, drawings indicating hoarding lines are to be provided.

1.7 All tools, carts, supplies and workers clothing must be clean when entering occupied areas.

1.7.1 Carts used to transport equipment/supplies through an occupied area need to be clean and may need to be covered.

1.8 Before the construction project is started, requirements for cleaning the adjacent areas shall be determined.

1.9 Notify the MSH Redevelopment Project Manager if all Hospital equipment and supplies have not been removed, sealed with poly, or taped in a closet or cupboard prior to barrier installation.

### 2. Barrier Installation: S*hort Term / Low Risk Population as determined by Infection Control*

2.1 Prior to the start of work, including ceiling tile removal, exploratory opening of walls, ceilings or access hatches and any other dust generating activity, erect barriers, which shall comply with the following:

2.2 Barriers to extend from floor to false (finished) ceiling to completely enclose and isolate the work site from adjacent occupied spaces. If ceiling tiles are to be opened then barrier must go to true ceiling unless a Kontrol Kube (Portable Vinyl Enclosure with Hepa-Filter equipped Vacuum) is used to contain the ceiling opening.

2.3 For small minimal dust generation projects, up to 10 square feet in area that can be completed within a single 8 to 12 hour work shift, barriers can be erected out of a single layer heavy gauge poly sheet with minimum 4" laps between sheets and at floor and ceiling.

2.4 Seal junctions of poly sheeting and existing surfaces with tape so as to be airtight.

2.5 Entry to work site to be through a double layer of poly sheeting, over lapped by at least three feet.

**3. Barrier Installation Long Term/Higher Risk Population as determined by Infection Control**

3.1 Barriers for larger projects or those projects that will extend beyond a single shift are required to be constructed out of solid impermeable panels screwed to steel studding spaced at 2'-0" on centre maximum. Barriers extending above false ceiling may be heavy gauge (6 mil) poly.

3.1.1. In certain circumstances, a heavy gauge Poly barrier may be required to protect the occupied area from dust and debris created during hard barrier installation.

3.1.2. Vacuum (HEPA filtered equipped) and /or wet wipe adjacent protected (or occupied) area
immediately following barrier installation

3.1.3. Long term hard surface barriers (e.g. > 1 month) shall be painted to allow for regular cleaning.

3.2 Barriers shall extend from floor to finished ceiling and shall be continuously sealed with tape along the bottom, top, sides and at junction of panels.

3.3 Extend the dust barrier above the finished ceiling or provide airtight isolation to separate the work site from the ceiling space in occupied areas.

3.4 Access to the work site shall be through an airtight anteroom (vestibule), complete with walls and ceiling to completely isolate the anteroom from occupied areas.

3.5 A door equipped with door closer, weather stripping, door sweep, and keyed locking device shall be provided from occupied areas to the anteroom. Provide similar door from anteroom to work site.

3.5.1. Seal doorframe to barrier walls with tape or caulking.

3.6 Arrange anteroom and doors so that one door can be closed prior to opening the second door and is large enough to hold equipment and debris carts so that one door is closed before the other is opened.

3.7 Lock access to work site when workmen are not on site. Provide a key to security office through the Owner's Representative.

3.8 Install "high tack" contamination mats within the anteroom and outside the anteroom door, to remove dust and dirt from shoes and wheeled traffic. Replace as required (i.e. no longer sticky).

3.9 Keep anteroom clean and clear of tools, materials, debris and rubbish. Wet mop the area immediately in front of anteroom thoroughly on a daily basis, if it becomes dusty or dirty and as requested by LHC staff. Vacuum the walls and ceiling of the anteroom, daily with a HEPA equipped vacuum cleaner.

**Worksite**

3.10 Post signage to maintain site (e.g. “Construction Zone”, “Entrance restricted to Construction Personnel only” or “Do Not Shut Off Exhaust Fan”).

3.11 Provide an airtight seal to all ductwork from the work site and adjust airflow to ensure that the work site is under negative air pressure to the adjacent areas of the Health Care Facility at all times.

3.12 Securely seal any gaps, holes or leakage paths around any pipes (Including plumbing penetrations and electrical outlets) between construction site and adjacent areas of the hospital.

3.13 Removal of debris, tools, equipment and materials from the work site shall be via an agreed to route and at an agreed to time, generally after hours.

3.13.1 Transport debris in clean containers with tightly fitting lids or completely cover debris with a wet blanket or wrapped in heavy gauge poly. Wipe and/or vacuum clean containers prior to leaving the site to reduce risk of dust transfer to occupied areas.

3.13.2 Cover all rubbish chutes and bins and thoroughly wet rubbish and/or debris prior to placing in chutes. Locate rubbish chutes to prevent dust migrating into air intakes

3.14 Areas of external excavation and the connecting road way must be kept moist at all times to keep dust to a minimum.

3.15 Carefully remove ceiling tiles so as to keep them in a horizontal position until vacuum cleaned with a HEPA-filter equipped vacuum cleaner.

3.15.1 Clean all ductwork, conduits, cable trays etc. and ceiling space with a HEPA equipped vacuum cleaner, prior to or immediately after removal of existing ceiling tiles and prior to start of work. Replace ceiling tiles should work be interrupted or stopped for any reason.

3.16 Seal and make air tight all exterior windows and doors in the vicinity of a) site work b) demolition and c) rubbish bins and chutes.

3.17 Maintain negative pressure within the construction area by using:

- ★ Portable HEPA filter-equipped air filtration units that include pressure gauges and an alarm (High Risk Areas), or
- ★ HEPA-Filter equipped vacuum (Lower risk areas as determined by I.C).

Filters shall be monitored and replaced if clogged or functioning below the manufacturer’s specifications.

Reminder: Anteroom should be negative to the occupied area, and positive to the worksite. .Worksite must be negative to Anteroom and adjacent occupied areas

3.17.1 * Ensure that the air is either exhausted directly outside and away from intake vents or filter through a HEPA filter before going through regular exhaust and possibly being recirculated. Air movement from all adjacent occupied areas of the health care facility into the construction area shall be monitored to ensure that it exceeds 10m/min and that the negative pressure differential with respect to all adjacent building areas is no less than 7.5 Pa (0.03wc). High-efficiency exhaust fans with High-Efficiency Particulate Air (HEPA) filters shall be used for the duration of the work.

3.18 Maintain barriers throughout the work. Repair or replace as required or instructed. Replace torn or dirty poly sheeting and reapply tape as required to maintain airtight barrier.

3.19 Clean immediately outside the work area with a HEPA filter-equipped vacuum cleaner every day or more frequently if necessary.

3.20 Workers must use the route identified to enter and exit the work site. Workers should not enter the occupied hospital unless the hospital and Infection Control have identified an approved route. Prior to entering an occupied area, dust must be removed from the body, clothing and shoes using a HEPA equipped vacuum cleaner; as well, when workmen leave the work site and enter occupied areas; or workmen must wear coveralls which are to be removed prior to leaving the work site.

3.21 An entrance and if possible an elevator shall be designated by the Hospital for use by the Contractor to transport material and workmen to and from the work site. DO NOT TRANSPORT construction personnel, materials or debris in an elevator that is used to transport patients, visitors and staff.

3.21.1 Ensure that the dedicated elevator is vacuumed (HEPA) and damp mopped daily (or more often if necessary) to remove dust.

3.21.2 If an elevator is not available for use by the Contractor, workmen must use a designated stairwell.

3.21.3 Contractor shall ensure assigned elevator and/or stairwell remains free of dust and debris and must be cleaned on a daily basis, as required, and at the end of the day.

3.22 In areas designated by the Hospital (i.e. Operating Rooms) workmen may be required to wear protective clothing. DO NOT ENTER THESE AREAS without protective clothing if directed.

3.23 For small projects, tools, carts and/or toolboxes are to be clean and may be kept in the area immediately adjacent to entry to the barrier.

3.23.1 For larger projects, toolboxes and equipment are to remain within the work site barriers until completion of work. Do not leave tools or equipment unattended in any occupied areas

3.23.2 Thoroughly vacuum all tools, toolboxes and equipment prior to removal from behind work site barrier.

3.24 Use water or dust abating material to keep dust to a minimum in the construction area.

3.24.1 Provide pest control if required.

3.24.2 Clean the construction area with HEPA filter-equipped vacuum cleaner, a wet mop, or both, as necessary.

3.25 Replace any and all existing or new ceiling tiles, which become wet due to work being done by the contractor.

3.26 Replace any and all drywall that becomes wet due to flooding or work being done by the contractor.

3.27 Use cryogenic procedures to isolate valves and supply water piping. Hot and cold domestic water piping must not be drained. If drained for any reason, coordinate with the Hospital to have piping sanitized.

3.28 Report any water leaks or flooding immediately to the Owner's Representative, who will inform Facilities, Infection Control and managers of the affected patient care areas.

## 4. After Construction

4.1 Infection Control / I.C. Appointed Designate required to inspect the site prior to removal of barriers.

4.2 Thoroughly vacuum (HEPA filter-equipped) and/or wet clean the work site and all surfaces of the dust barriers and anterooms in preparation for removal.

4.3 Poly barriers to be erected on the non construction side of the hard barriers before removal of the hard barriers.

4.4 Thoroughly vacuum and/or wet clean the areas occupied by barriers. Repair finishes damaged by barrier installation or the work and touch up paint as required to leave the site in the same condition or better than, it was prior to start of work.

4.5 Infection Control / I.C. Appointed Designate and the MSH Redevelopment Project Manager are required to inspect the site prior to removal of the Poly barriers.

4.6 The contractor is required to do a construction clean of the area, then Environmental services to do final clean before removal of the poly barriers.

4.7 Remove barriers at times designated by the Hospital.

4.8 Infection Control/ I.C. Appointed Designate and the MSH Redevelopment Project Manager are required to inspect the site after removal of barriers.

**Failure to comply with Infection Control requirements may be cause for stoppage of work. Costs that may be incurred as a result of non-compliance are the responsibility of the Contractor.**

*Z317.13-07 CSA Standard Infection Control during Construction or Renovation of Health Care Facilities is used by Infection Control to do Preventive Measures Analysis.
Specific reference for 4.8.1 (sections 6.6.2. and 8.3.22) of the above document

## REQUEST FOR SHUTDOWN PROCEDURE

Construction managers/contractors and subcontractors must request the scheduling of all construction related utility shutdowns through the MSH Redevelopment Project Manager. MSH staff is always responsible for the disconnection or shut off of all valves, circuit breakers and smoke detectors for utility outages. **Contractors and sub-contractors shall not shut down, tie into or disrupt any utility systems unless specifically directed to do so by the MSH Redevelopment Project Manager. Contractors and sub-contractors shall not bag, disconnect, or impede any smoke or heat detection systems.** The utilities affected by this policy include but are not limited to all plumbing, fire sprinkler, gases, smoke detection, fire alarm, electrical, telephone, data, security, steam, heating, air conditioning, exhaust and conveying systems. Contractors must never assume the work they are performing in any MSH facility is not covered under this policy. The contractor's request for a utility shutdown must be performed in accordance with the procedures outlined in the "Specific Information" section of this document.

**Specific Information:**

A. The first step in the utility shutdown process is for the contractor and their subcontractor to identify the utility that needs to be shutdown, all areas of the building that will be affected by the shutdown, and any other associated utilities that might be affected. (Example: An electrical shutdown, which shuts down an associated air conditioner.)

B. After the contractor and their subcontractor have identified the affected areas, will obtain verification of this information from the Redevelopment Project Manager. The contractor/subcontractor should thoroughly research the shutdown to determine which valves or electrical panel boxes will be affected by the shutdown. The contractor should also determine the duration of time required for the shutdown prior to meeting with the Project Manager and Engineering. However, **Engineering is responsible for the final scheduling of the actual start time and duration of all construction and renovation related utility shutdowns.** The contractor and his subcontractors shall perform all work necessary prior to the shutdown in order to minimize the duration of the shutdown. (i.e. install all necessary piping or pull all necessary wiring.)

C. After collecting all necessary information, the contractor will complete a "Request for Shutdown Form" This form must be submitted to the MSH Redevelopment Project Manager. It must be submitted in writing or by email a **minimum of 72 hours prior to the requested time of the shutdown**. The 72 hour notice is required in order to allow enough time for the processing of paperwork as well as the coordination of Engineering staff and any affected departments within the building. It will also allow enough time to resolve any scheduling conflicts between all parties affected by the shutdown. The actual amount of notice time may vary, depending on the type of shutdown, the area affected by the shutdown, the scheduled activities of occupants in the area affected, and the current workload of Engineering.

D. The contractor's request for a shutdown must include the following information:
   - Project Name
   - Submission Date
   - Building affected & locations ( all room numbers )
   - Requestor Information

- Type of Shutdown request ( i.e. electrical, sprinkler, etc.
- Reason for the shutdown
- Requestor shutdown start and stop date and time
- Signature of trades person performing the work

**Note: Contractor's Request for Shutdown Form is attached in Appendix A**

E. Upon receipt of the Contractor's Request for Shutdown Form, the MSH Redevelopment Project Manager will coordinate with Engineering and the building occupants to verify the actual start date and time of the shutdown. Depending on the complexity of the shutdown, a meeting may be scheduled with the MSH Redevelopment Project Manager, the contractor and all appropriate subcontractors to coordinate the logistics of the shutdown.

F. After the start time, duration and logistics of the shutdown have been verified; the MSH Redevelopment Project Manager will create the appropriate shutdown notices.

G. The contractor/subcontractor must be on site, have all preparations in place and be ready to begin the shutdown at least 15 minutes prior to the posted start time of the shutdown. This preparation includes having all of the equipment, supplies and manpower needed at the correct location to perform the work. Failure to do this can result in the shutdown being cancelled and re-scheduled for another time.

H. When the contractor/subcontractor's work is completed, the contractor/subcontractor must notify the MSH Redevelopment Project Manager so the system can be re-energized.

I. The contractor/subcontractor that is responsible for the work must remain on-site until the system is fully re-energized and no leaks or other deficiencies have been detected.

J. Sign the Shutdown Request Form complete space and return to the MSH Redevelopment Project Manager for close out and filing.

## SAFETY REGULATIONS & WELDING PROCEDURES

Before commencement of any welding, soldering or cutting in Markham Stouffville Hospital, the following precautions and procedures must be strictly adhered to:

1. Person(s) who use the equipment must be competent and have permission to use the equipment.
2. The equipment to be used must first be checked to make sure it is in good and safe operating condition.

When all of the following procedures and precautions have been taken, you may begin to weld, solder or cut.

1. Complete the Hot Work Permit (see Appendix A) and return to the MSH Redevelopment Project Manager.

2. Check with the MSH Redevelopment Project Manager to verify smoke detectors, and fire alarms have been disconnected (request for shutdown must be requested 72hrs in advance

3. Before starting to weld, solder or cut, make certain there is no combustible material nearby or opening leading to combustible material, that flame, sparks, hot slag or hot metal might ignite. Ensure that the proper fire extinguisher is nearby.

4. Be sure to keep a clear space between cylinders and the work. This is important so that cylinders and regulators can always be reached quickly.

5. Never use acetylene at pressures above 15 LBS PER SQ in. Using acetylene at pressures in excess of 15 LBS PER SQ. in. is a hazardous practice. To do so is contrary to insurance regulations and is prohibited by law in many places.

6. Never release acetylene into the air near other welding or cutting or sparks or flames. If it is necessary to release acetylene, release it out in the open, in a place where a mixture with air will not be ignited.

7. Always make sure hose is securely connected before using equipment. When using equipment, after making or remaking connections at the blowpipe and regulators, test for leakage.

8. Never hang a torch with its hose on regulators or cylinder valves. The weight of a torch and hose may strain or damage the regulator, or interfere with the quick closing of the cylinder valve.

9. Use special care when working in restricted or confined spaces (following Occupational Health & Safety Act, Healthcare O.Reg 67-93).

10. Special clothing should be worn, preferably fireproof, but certainly wool, which is relatively resistant to sparks and hot slag. Never do any welding, soldering or cutting on containers until they have been thoroughly cleaned and safeguarded.

11. Protect cylinders, hose, legs and feet when flame cutting. Do not cut material in such a position that will permit sparks, hot metal, or the severed section to fall on the cylinder, hose, legs or feet.

12. Avoid dropping stub ends of welding rods on floor. Put them in a suitable container. Carelessly dropped stub ends are a fire hazard, and also if stepped on, may cause a serious fall, resulting in serious injury. A suitable container partly filled with water and within easy reach is a good place in which to dispose of these short ends.

***** Where welding, soldering or cutting must be done near combustible materials, special precautions should be taken to make certain that flame, sparks, hot slag or hot metal do not reach combustible material, and thus start a fire. It is especially important to take special precautions in the case of portable cutting operations. Cutting produces a greater quantity of sparks and hot slag than does welding and locations where portable cutting equipment is used, must therefore, be thoroughly safeguarded against fire.

**Additional Precautions For Safeguarding Against Fire:**

- Never use welding, soldering or cutting torch where sparks or open flame of any kind would be a hazard. Flames are a hazard in any rooms containing flammable gas vapors, liquids or dust, or any material that ignites easily.

- Take welding, soldering or cutting work that can be moved to a location where there will be no possibility of setting fires. This must always be done when the metal to be welded, soldered or cut is in a place where open flames are prohibited. This practice may also be sensible in many other locations,

even if open flames are allowed. If the work cannot be moved, combustible materials should be taken a safe distance away, if possible. If cutting is to be done this distance may be 30 to 40 feet or more.

- Floors should be swept before work is started. If flammable materials cannot be moved, use sheet metal guards, flame proof curtains, or similar protection to keep sparks close to the work you are doing.

- Have someone stand by to watch the sparks so that they can give warning if sparks get beyond the protective guards. It is not reasonable to expect whoever is doing the welding or cutting to watch the sparks, since his attention is on the work. In addition, the sparks cannot always be seen easily through goggles.

- Be ready to put out any fire promptly with fire extinguishers, pails of water, water hose, or sand. If there is a possibility that a smoldering fire may have been started, keep a worker at the scene of the work for at least half an hour after the job is completed. Have them look carefully for smoke or fire before leaving.

- Never forget that heavy cutting sparks sometimes fly 25 to 30 feet or more and hold their heat for several seconds after landing.

# APPENDIX A

## REQUEST FOR SHUTDOWN / BYPASS

Project Name: _____

Date Submitted: _____

Building(s) affected: _____

Locations affected _____

## REQUESTOR INFORMATION

Person Requesting Shutdown _____

Company Name _____

Phone _____

Fax: _____

Cell Phone: _____

Email: _____

## TYPE OF SHUTDOWN

☐ Water Domestic Cold
☐ Water Domestic Hot
☐ Electrical
☐ HVAC Building Supply
☐ HVAC Building Exhaust
☐ Fire Alarm Bypass
☐ Sprinkler
☐ Steam

☐ **Asbestos Log Review Completed**

Other System Shutdowns: _____

Reason for Shutdown _____

Known Building Impacts: _____

Shutdown Start Date_____Time_____ ☐ AM ☐ PM

Shutdown End Date_____Time _____ ☐ AM ☐ PM

Trade Person Performing Shutdown _____

MSH Approval: _____

## HOT WORK PERMIT

**Start Date:** _____ **Start Time:**_____

**End Date:** _____ **Completion Time:** _____

**Job Location:** _____

**Description Of Work:** _____

_____

**Company Name:** _____ **Requestors Name:** _____

**Phone #:** _____ **Cell #:** _____

**Detailed Area Of Work:** _____

_____

| | | |
|---|---|---|
| MSH Safety Regulations & Welding Procedures Reviewed | ☐ Yes | ☐ No |
| Is there combustible material in the area or openings to combustible materials | ☐ Yes | ☐ No |
| Is this area considered a restricted of confined space | ☐ Yes | ☐ No |
| Patient Occupancy | ☐ Yes | ☐ No |

**Fire Safety: (request for shutdown must be submitted 48hrs in advance, if required)**

| | | |
|---|---|---|
| Sprinklers to be deactivated | ☐ Yes | ☐ No |
| Smoke detectors in area | ☐ Yes | ☐ No |
| Notification to Security & Fire Department (Engineering Responsibility) | ☐ Yes | ☐ No |
| Fire Extinguisher Available | ☐ Yes | ☐ No |
| Is a spotter required | ☐ Yes | ☐ No |

**Approval:**

**Signature of Requestor**_____

**Signature of MSH Redevelopment Project Manager**_____

**Important Information**

*It is the responsibility of the requestor to complete the work as described above within the timeframe requested. This is strictly enforced.*
*Should the requestors be unable to complete the work within the timeframe requested, the requestor must return to the Redevelopment office one (1) hour prior to completion time (as per above). All overtime incurred will be the responsibility of the contracted Company.*

1 – copy – Posted at Job Site 1 – copy – Engineering Office

**Markham Fire and Emergency Services Fire Watch Procedures**

Date _____ Time _____

Building Name _____

Building Address _____

Nature of Problem _____

_____

In the event of a fire alarm or sprinkler system failure, and/or maintenance repairs, the following procedures will be followed:

1. For shutdowns longer than **24 hours**, Markham Fire & Emergency Services must be given **notice in writing**.

2. All occupants must be notified by posting written notice that the fire alarm and/or sprinkler systems do not operate and if they suspect and/or see a fire, the occupants must notify Markham Fire & Emergency Services by calling 9-1-1 giving the address, location and type of fire. The occupant must contact the fire watch person, stating the emergency.

3. The fire watch person must contact Markham Fire & Emergency Services and the other occupants in the building when a fire emergency exists.

4. The fire watch person must meet Markham Fire & Emergency Services at the principal entrance with all available information.

5. **On an hourly basis**, all rooms (storage, mechanical, laundry, electrical, furnace, elevator room, stairwells, etc.) and each floor area must be visually inspected by the designated fire watch person, until the fire alarm and/or sprinkler system is functional.

6. A written record must be kept of the hourly fire watch, documentation shall be provided to Markham Fire & Emergency Services upon request.

7. Written fire watch instructions must be given to the fire watch person by the owner, or owner representative.

8. Markham Fire & Emergency Services must be notified when the fire alarm and/or sprinkler system is functional.

Owner/Occupant _____ _____
(print) (sign)

On Site Phone Number _____

## Fire Watch Log

Date: _____

Fire watch conducted by: _____

Approved signs posted _____
Monitoring company contacted _____
Dispatch contacted _____
Approved fire alarm zones disabled _____

| Time Rounds Started | Initial | Time Rounds Finished | Initial |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Approved signs removed _____
Monitoring company contacted _____
Dispatch contacted _____
Fire alarm fully restored _____

# CONTRACTOR INCIDENT REPORT

**Markham Stouffville Hospital** **PROJECT** _____

**CONSTRUCTION INCIDENT** **REPORT # [ ]**

Description of Incident: _____

**IMMEDATE ACTION & CONTACTS**

| | | | |
|---|---|---|---|
| Incident reported by: | [ ..... ] | Time/Date: | ..... |
| Redevelopment P. M. Contacted by: | ..... | | ..... |
| Security contacted by: | [ ..... ] | Time/Date: | ..... |
| Facilities contacted by: | [ ..... ] | Time/Date: | ..... |
| Infection Control notified by: | [ ..... ] | Time/Date: | ..... |
| Immediate remedial action taken by: | [ ..... ] | Time/Date: | ..... |
| Consultants contacted by: | [ ..... ] | Time/Date: | ..... |

**CONSULTANTS REPORTS**

| | | | | |
|---|---|---|---|---|
| Architectural inspection & report required | Yes ☐ / No☐ | Confirmed by: | [ ..... ] | |
| Structural inspection & report required | Yes ☐ / No☐ | Confirmed by: | [ ..... ] | |
| Mechanical inspection & report required | Yes ☐ / No☐ | Confirmed by: | [ ..... ] | |
| Electrical inspection & report required | Yes ☐ / No☐ | Confirmed by: | [ ..... ] | |
| Required reports received and distributed | Architectural | [ ☐ ] | Time/Date: | ..... |
| | Structural | [ ☐ ] | Time/Date: | ..... |
| | Mechanical | [ ☐ ] | Time/Date: | ..... |
| | Electrical | [ ☐ ] | Time/Date: | ..... |

**Redevelopment office notified and comments received**

.....

**Proposed Remedial Action Summary**

.....

**MSH Redevelopment Review & Acceptance**

.....

**Remedial Action Carried Out**

.....

**Signed off as complete by** [ ..... ] Time/Date: .....