## General

900 .1.00 Infection control precautions during construction should be integrated into the design and documentation of the facility from the beginning of the design stage. It is important that the dust control and infection control principles developed during the pre-design stage are integrated at the initial stages of the design development. It is important that the pre-design team comprehensively brief the design team and submit the findings of the survey and risk profile.

900 .2.00 Building, renovation and maintenance activities within a Health Care Facility impose risks upon the incumbent population unlike any other building site. Building practices therefore require a range of precautions appropriate to the risk. Identification of the 'at risk' population, a knowledge of the transmission route of a likely pathogen and location of the 'at risk' population in relation to the construction, all need to be taken into account in the planning stages.

## Risk Management

900 .3.00 A formal approach to risk management must be part of all building and renovation activities.

A process for assessing risk during construction projects, and adopting appropriate precautions is provided below.

900 .4.00 A more detailed review of risk is beyond the scope of this document, but adherence to Australian Standard 4360 - Risk Management principles will provide the framework to assemble a relevant risk management strategy.

900 .5.00 The risk profile should contain as a minimum:

+ Identify the location of high-risk patients in relation to the site;

+ Identify ventilation system types and potential impact;

+ Determine air monitoring requirements, methodology and frequency;

+ Take air quality samples to establish a baseline;

+ Identify possible contaminants and their locations (contaminants may be present in ceiling dust, service shafts (especially if dampness is present), sprayed on fire retardants and bird droppings.

900 .6.00 Airborne sampling should be part of any risk management program. Cumulative data is used to establish indoor and outdoor background levels of filamentous fungi for a particular site. This will enable establishment of risk profiles for particular locations in and around the hospital.

900 .7.00 It is important to consult with a Microbiologist experienced in environmental sampling to identify what outcomes are required of the sampling. Equally important it is necessary to have an approximate idea of the expected number of fungi that will be obtained. This will determine the appropriate sampling system.

## Construction

900 .8.00 Infection control measures to consider during construction are:

+ Infection control site induction of building workers should be carried out as a major component of the OHS induction. This induction process should be documented and signed off by each person inducted.

+ Worker compliance with procedures should be monitored and the results of this monitoring should be fed back to the workers routinely through the Builder. A system must be in place to manage major breaches.

+ Ensure that adequate inspections by the nominated representatives take place during the construction of the barriers. These inspections should be monitored and reported on.

900 .9.00 Movement in and out of the site shall be controlled by restricting access to only those who have undergone site induction. This will assist greatly in reducing the spread of contaminants.

900 .10.00 All inspections should be documented including a non-conformance system for defaults, complete with a corrective and preventative action loop.

900 .11.00 After handover it is the responsibility of the hospital to ensure the area complies with hospital standards for occupation.

As a minimum the hospital should:

+ Thoroughly clean and decontaminate all the surfaces including walls, ceilings, windows and in high-risk areas ventilation systems, service cavities and ceiling spaces.

+ Conduct air sampling and particle counts and implement a program of regular air sampling in high-risk areas, allowing time for culturing and results and repeat cleaning and testing prior to occupation.

+ On completion, re-certify HEPA filters and laminar/clean flow systems where installed.

Refer also to the Commissioning section of these Guidelines.

## Verification

900 .12.00 All infection control measures described in this section are required to be verified by inspection. There must be no barriers in place to prevent the checking and validating the measures described.

## Construction Risk Assessment and Action Plan

900 .13.00 The Construction Risk Assessment and Action Plan comprises four main steps.

STEP 1 - SELECT CONSTRUCTION ACTIVITY TYPE FROM TABLE BELOW

Definition of Construction Activity Type is defined by :

+ The amount of dust that is generated

+ The duration of the involvement of the Heating Ventilation and Airconditioning systems (HVAC).

900 .14.00 STEP 2 - SELECT THE INFECTION CONTROL RISK GROUPS FROM TABLE BELOW

Definitions of Infection Control Risk Groups are defined based on the project location and the occupancy by patients. Contact the Infection Prevention & Control Unit if any type of location is not mentioned as examples in the guideline.

Where possible, as in outpatient facilities and day treatment centres etc work should be conducted after patient care hours, as these areas have limited times when patients are seen.

## Construction Risk Assessment and Action Plan

900 .15.00 STEP 3 - DETERMINE THE CONSTRUCTION CLASSIFICATION CLASS

Using the Construction Activity Type and the Infection Control Risk Group selected from the above tables, use the matrix below to determine the Construction Classification Class.

The Construction Classification Class determines the procedures to be followed during construction and renovation projects.

900 .16.00 STEP 4 - IMPLEMENT THE INFECTION CONTROL CONSTRUCTION GUIDELINES

Implement the appropriate Infection Control Construction Guidelines based on the Construction Activity Matrix (above) Step 3.

Infection Control Construction Guidelines are procedures to control releases of airborne contaminants resulting from construction demolition or renovation activities.

## DEFINITIONS OF CONSTRUCTION ACTIVITY

| |
|---|
| **TYPE A:**<br>**INSPECTIONS AND GENERAL UPKEEP ACTIVITIES** |
| Includes but is not limited to : removal of ceiling tiles for visual inspection (limited to 1 tile per 5 m2); painting (but not sanding); installation of wall covering; electrical trim work; minor plumbing; any activities that do not generate dust or require cutting into walls or access to ceiling other than for visual inspection. |
| **TYPE B:**<br>**SMALL SCALE, SHORT DURATION ACTIVITIES, WHICH CREATE MINIMAL DUST** |
| Includes, but is not limited to, installation of telephone and computer cabling, access to chase spaces, cutting into walls or ceiling where dust migration can be controlled. |
| **TYPE C:**<br>**ANY WORK THAT GENERATES A MODERATE TO HIGH LEVEL OF DUST** |
| Includes, but is not limited to, demolition or removal of built-in building components or assemblies, sanding of wall for painting or wall covering, removal of floor covering/wallpaper, ceiling tiles and casework, new wall construction, minor ductwork or electrical work above ceiling, major cabling activities. |
| **TYPE D:**<br>**MAJOR DEMOLITION AND CONSTRUCTION PROJECTS** |
| Includes, but is not limited to heavy demolition, removal of a complete ceiling system, and new construction. |

## DEFINITION OF INFECTION CONTROL RISK AREA / LOCATION

| GROUP 1<br>LOW | GROUP 2<br>MEDIUM | GROUP 3<br>MEDIUM HIGH | GROUP 4<br>HIGHEST |
|---|---|---|---|
| • Office areas<br>• Non-patient/ low risk areas not listed elsewhere | • Patient care & other areas not covered under group 3 or 4<br>• Laundry<br>• Cafeteria<br>• Dietary<br>• Materials Management<br>• PT/OT/Speech<br>• Admission/ Discharge<br>• MRI<br>• Nuclear Medicine<br>• Echocardiography<br>• Laboratories not specified as Group 3<br>• Public Corridors (through which patients, supplies, and linen pass) | • Emergency Rooms<br>• Radiology<br>• Recovery Rooms<br>• Delivery Wards<br>• High dependency Unit<br>• Newborn Nurseries<br>• Paediatrics (except those listed in Group 4)<br>• Microbiology lab<br>• Virology lab<br>• Long term/sub-acute Units<br>• Pharmacy<br>• Dialysis<br>• Endoscopy<br>• Bronchoscopy areas | • Oncology Units<br>• Radiation Therapy<br>• Clinical areas<br>• Chemo Infusion<br>• Transplant<br>• Pharmacy Admixture – clean room<br>• Operating Rooms<br>• Sterilisation - processing Departments<br>• Cardiac Catheterisation<br>• Outpatient Invasive Procedure Rooms<br>• Anaesthesia and Pump areas<br>• Newborn Intensive Care Unit (NICU)<br>• All Intensive Care Units (except those listed in Group 4) |

## CONSTRUCTION ACTIVITY MATRIX

| CONSTRUCTION ACTIVITY RISK LEVEL | TYPE A | TYPE B | TYPE C | TYPE D |
|---|---|---|---|---|
| **GROUP 1** | Class I | Class II | Class II | Class III/IV |
| **GROUP 2** | Class I | Class II | Class III | Class IV |
| **GROUP 3** | Class I | Class III | Class III/IV | Class IV |
| **GROUP 4** | Class III | Class III/IV | Class III/IV | Class IV |

## INFECTION CONTROL CONSTRUCTION GUIDELINES

| | |
|---|---|
| CLASS I | • Execute work by methods to minimise raising dust from construction operations.<br>• Replace any ceiling tile displaced for visual inspection as soon as possible. |
| CLASS II | • Provide active means to prevent air-borne dust from dispersing into atmosphere.<br>• Seal unused doors with duct tape.<br>• Contain construction waste before transport in tightly covered containers.<br>• Wet mop and/or vacuum with HEPA filtered vacuum.<br>• Place dust-mat at entrance and exit of work area and replace or clean when no longer effective.<br>• Isolate HVAC system in areas where work is being performed.<br>• Wipe casework and horizontal surfaces at completion of project. |
| CLASS III | • Isolate HVAC system in area where work is being done to prevent contamination of the duct system.<br>• Complete all construction barriers before construction begins.<br>• Maintain negative air pressure within work site utilising HEPA filtered ventilation units or other methods of maintain negative pressure. Public safety will monitor air pressure.<br>• Do not remove barriers from work area until complete project is thoroughly cleaned.<br>• Wet mop or vacuum twice per 8 hour period of construction activity or as required in order to minimise tracking.<br>• Remove barrier materials carefully to minimise spreading of dirt and debris associated with construction. Barrier material should be wet wiped, HEPA vacuumed or water misted prior to removal.<br>• Contain construction waste before transport in tightly covered containers.<br>• Place dust-mat at entrance and exit of work area and replace or clean when no longer effective.<br>• Wipe casework and horizontal surfaces at completion of project. |
| CLASS IV | • Isolate HVAC system in area where work is being done to prevent contamination of duct system.<br>• Complete all construction barriers before construction begins.<br>• Maintain negative air pressure within work site utilising HEPA filtered ventilation units or other methods of maintain negative pressure. Public Safety will monitor air pressure.<br>• Seal holes, pipes, conduits, and punctures to prevent dust migration.<br>• Construct Anteroom and require all personnel to pass through the room. Wet mop or HEPA vacuum the Anteroom daily.<br>• During demolition, dust producing work or work in the ceiling, disposable shoes and coveralls are to be worn and removed in the Anteroom when leaving work area.<br>• Do not remove barriers from work area until completed project is thoroughly cleaned.<br>• Remove barrier materials carefully to minimise spreading of dirt and debris associated with construction.<br>• Barrier material should be wet wiped, HEPA vacuumed or water misted prior to removal.<br>• Contain construction waste before transport in tightly covered containers.<br>• Place dust-mat at entrance and exit of work area and replace or clean when no longer effective.<br>• Keep work area broom clean and remove debris daily<br>• Wet mop hard surface areas with disinfectant at completion of project, HEPA vacuum carpeted surfaces at completion of project.<br>• Wipe casework and horizontal surfaces at completion of project. |