

INFECTION CONTROL RISK ASSESSMENT (ICRA) MATRIX
FOR CONSTRUCTION AND RENOVATION

Step 1: Using the following table, *identify* the Type of Construction Project Activity (A-D)

Type A	Inspection and Non-Invasive Activities Includes, but is not limited to: <ul style="list-style-type: none"> • 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, and activities, which 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 which create minimal dust Includes, but is not limited to: <ul style="list-style-type: none"> • Installation of telephone and computer cabling • Access to chase spaces • Cutting of walls or ceiling where dust migration can be controlled • Minor duct work or minor electrical/cable work above ceilings • Sanding of walls for painting or wall covering where dust can be controlled
Type C	Work that generates a moderate level of dust or requires demolition or removal of any fixed building components or assemblies Includes, but is not limited to: <ul style="list-style-type: none"> • Major uncontrolled sanding of walls for painting or wall covering • Removal of floor coverings • New wall construction • Major duct work or major electrical/cable system work above ceilings
Type D	Major demolition and construction projects that generates high level of dust Includes, but is not limited to: <ul style="list-style-type: none"> • Activities which require consecutive work shifts • Requires heavy demolition or removal of a complete cabling system • New construction or complete renovation

Step 2: Using the following table, *identify* the Patient Risk Groups that will be affected. If more than one risk group will be affected, select the higher risk group:

Low Risk	Medium Risk	High Risk	Highest Risk
<ul style="list-style-type: none"> • Office areas • Non-patient care areas/rooms • Prosthetics • Building 3 • Building 4 Admin • Engineering shops • Laundry • Outside 	<ul style="list-style-type: none"> • Echocardiography • Primary Care • Mental Hygiene • Physical Therapy • Respiratory Therapy • Ultrasound • Radiology/Imaging • MRI/CT Scan • Endoscopy • Nuclear Medicine • All Outpatient Clinics • Dental • Women's Health 	<ul style="list-style-type: none"> • Urgent Care • Surgical Inpatient • Medical Inpatient • Psychiatry Inpatient • Clinical Labs • Ambulatory Surgery Prep • Pharmacy • Nutrition & Food Service (cafeteria) • VCS (cafeteria) • Radiology/ Special Procedure 	<ul style="list-style-type: none"> • Oncology Clinic • Operating rooms • Pharmacy Admixture • Anesthesia areas • SPD/Sterile processing • ICU/PACU • Negative Pressure Isolation rooms

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Step 3: Match the Patient Risk Group (low, medium, high, highest) with the planned Construction Project Type (A, B, C, D) on the IC Matrix (below) to find the Class of Precautions (I, II, III, IV) or level of infection control activities required. Classes of precautions are described in the table on the following page.

IC Matrix: Class of Precautions for Construction Projects by Patient Risk

Patient Risk Group	Type A	Type B	Type C	Type D
LOW Risk Group	I	II	II	III
MEDIUM Risk Group	I	II	II	IV
HIGH Risk Group	I	II	III	IV
HIGHEST Risk Group	I	III	IV	IV

Step 4: Identify the areas surrounding the project area, assessing potential impact and indicate patient risk group (consider this when completing the ICRA).

Unit Below	Unit Above	Lateral	Lateral	Behind	Front
Decon/Sterile Prep	Roof	Corridor/storage	Recovery	Corridor/storage	Changing Rooms for OR
Risk Group	Risk Group	Risk Group	Risk Group	Risk Group	Risk Group
Highest	Low	Low	High	Low	High

Step 5. Assess the following as appropriate:

- Specific site of activity (e.g., patient room, medication room, etc.)
- Issues related to air handling and ventilation, plumbing, electrical in terms of occurrence of probable outages
- Consider potential risk of water damage or disruption
- Issues related to comprises in structural integrity (walls, ceiling, roof)
- Work hours: Can or will work be done during non-patient care hours?
- Disruption of traffic flow and re-routing of traffic flow
- Potential for closing patient areas during project or relocation of patients
- Impact of disrupting essential services to patients and employees
- Protection of the domestic water system to limit waterborne pathogens
- Protection of patients from construction hazards such as demolition, removal of debris
- Do project plans allow for:
 - Adequate number of isolation/negative air flow rooms
 - Required number and type of hand washing sinks
 - Separation of clean and dirty (clean and soiled utility rooms)

Description of Required Infection Control Precaution Guidelines by Class

Class I	<ol style="list-style-type: none"> Execute work by methods to minimize raising dust from construction operations. Immediately replace a ceiling tile displaced for visual inspection. 	<ol style="list-style-type: none"> Cleanup and disposal as appropriate. Traffic: Decrease patients' exposures. Water: Schedule interruptions during low activity.
Class II	<ol style="list-style-type: none"> Provide active means to prevent airborne dust from dispersing into atmosphere. Water mist work surfaces to control dust while cutting. Seal unused doors with duct tape. Block off and seal air vents. Place tacky mat at entrance and exit of work area. 	<ol style="list-style-type: none"> Wipe work surfaces with disinfectant. Contain construction waste before transport in tightly covered containers. Wet mop and/or vacuum with filtered vacuum before leaving work area
Class III	<ol style="list-style-type: none"> Remove or isolate HVAC system in areas where work is being done to prevent contamination of duct system as required on a per project basis. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method before construction begins. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units as required on a per project basis. Place dust mats at entrance and exit of work areas and replace with new mats daily or as necessary. Contain construction waste before transport in tightly covered containers. Cover transport receptacles or carts. Tape the covering unless solid lid. 	<ol style="list-style-type: none"> Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. Wet mop and/or vacuum work area with HEPA-filtered vacuums. Depending on the project location and the ICRA, protective clothing should be worn and removed each time the worker leaves the work site to control dust throughout the medical center. Otherwise an anteroom must be constructed and clothing will be vacuumed using a HEPA-filtered vacuum before entering the "clean space".
Class IV	<ol style="list-style-type: none"> Remove or isolate HVAC system in areas where work is being done to prevent contamination of duct system as required on a per project basis. Take necessary actions to ensure HVAC system cannot cross contaminate other areas of the hospital. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method before construction begins. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units as required on a per project basis. Seal holes, pipes, conduits, and punctures appropriately. All personnel entering work site are required to wear appropriate protective clothing as required by the area. Place tacky mats at entrance and exit of work areas and replace with new mats daily or as necessary. It is the contractor's responsibility to ensure contamination is kept at an absolute minimum outside the work area. Provide appropriate clean up daily; wet mop with disinfectant as required. Contain construction waste before transport in tightly covered containers. Cover transport receptacles or carts. Tape covering unless solid lid. 	<ol style="list-style-type: none"> Do not remove barriers from work area until completed project is inspected by the VA's IH/Safety Officer, Infection Control Coordinator, & Engineering Service and thoroughly cleaned by the VA's Environmental Management Service. Remove barrier material carefully to minimize spreading of dirt and debris associated with construction. Wet mop area and/or vacuum work area with filtered vacuums. Protective clothing should be worn and removed each time the worker leaves the work site to control dust throughout the medical center. Otherwise an anteroom must be constructed and clothing will be vacuumed using a HEPA-filtered vacuum before entering the "clean space".

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Pre-Construction/Renovation Safety & Infection Control Risk Assessments & Safety Risk Assessment:

Guidelines	Y/N	Areas to Be Impacted	Control Activities Needed
AIR QUALITY/VENTILATION Will there be any compromise to the quality of building air? (dust; HVAC system; air pressure; air evacuation)	N		
UTILITY REQUIREMENTS Are there any anticipated utility disruptions? (planned outages; contingency plans)	N		
-Patient care areas? - Communication - Electrical - Generator - Temperature - HVAC - Medical Gases - Natural Gas - Vacuum - Sewer / Sanitary - Water - Other	Y	Operating Rooms	
NOISE Will there be any unusually loud or high-pitched noise levels? (amount; time of day; areas affected)	N		
VIBRATIONS Will vibration levels be excessive for hospital machinery to operate properly? (amount; time of day; areas affected)	N		
TRAFFIC CONTROL Movement of debris?	Y	Removal of existing lighting and lighting fixtures	Hallway to elevator to dock.
Signage needed?	N		
Entrances and exits for workers?	N		
Patients need to be moved?	N		

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Guidelines	Y/N	Areas to Be Impacted	Control Activities Needed
Egress paths?	N		
Patient, visitor, employee traffic areas?	N	Plan to do rooms when OR closed	
EMERGENCY PROCEDURES Does the construction present any conflicts with the emergency disaster management program?	N		
-Patient care areas?	N		
-Non-Patient care area?	N		
-Public access areas?	N		
Hot work permits?	N		
Sprinkler systems?	N		
Fire drills?	N		



Infection Control Orientation - Construction Service Workers

The goal of the Infection Control Program is to identify and reduce the risks of acquiring and transmitting infections among patients, employees, physicians and other licensed independent practitioners, contract service workers, volunteers, students and visitors.

During construction, renovation and minor improvement projects, hidden infectious disease hazards may be released into the air, carried on dust particles or on clothing - for example, fungal organisms such as *Aspergillus*. *Aspergillus* species may be found in decaying leaves and compost, plaster and drywall, and settled dust. These organisms usually do not cause problems in healthy people, but a hospital is full of sick patients! *Aspergillus* and other fungal organisms can cause illness and even death in premature babies, transplant patients, cancer treatment patients, and patients with lung problems or poor immunity. Therefore, it is critical that you do your part to keep our patients, employees, and visitors as safe and healthy as possible. We, in turn, will make conditions as safe as possible for you.

1. Medical Waste:

- a. We will remove any medical waste, including sharps containers (for used needles and syringes), from construction areas prior to the start of the projects.
- b. If you (contract workers) find any needles, syringes, sharp medical objects, please notify your job superintendent or foreman immediately.

2. Barrier Walls:

- a. The construction areas **MUST** be kept separated from patient care areas by barriers that keep the dust and dirt inside the worksite.
- b. The walls must provide a complete seal of the construction area from adjacent areas (walls may be rigid or 4-6 mil thickness plastic as appropriate for the project).

3. Environmental Control:

- a. Negative air pressure must be maintained within the construction area.
- b. Demolition debris is removed in tightly fitted covered carts - use specified traffic patterns.
- c. Sticky or walk-off mats are placed immediately outside the construction zone and changed whenever necessary to control the spread of dust and dirt. It is the contractor's responsibility to ensure contamination is kept to an absolute minimum outside the work area.
- d. Exterior window seals are to be used to reduce the amount of outside excavation debris coming into the building.
- e. If demolition chutes are used, they must be sealed when not in use; the chute and damper should be sprayed with water, as necessary to maintain dust control.

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- f. Control, collection and disposal must be provided for any drain liquid or sludge found when demolishing plumbing.
- g. Any water leakage or disruption of water system should be reported immediately to the project coordinator.

4. **Traffic Control:**

- a. Use designated entry and exit procedures.
- b. Keep all egress pathways free of debris.
- c. No unauthorized personnel should be allowed to enter construction areas.
- d. Use designated elevators only.
- e. Post appropriate signage to direct traffic flow and restrict unauthorized entrances.

5. **Cleaning:**

- a. Keep the construction area clean on a DAILY basis.
- b. Dust and dirt **must** be kept to a minimum.

6. **Workers:**

- a. Clothing must be free of loose soil and debris when exiting the construction area.
- b. Use personal protective equipment (masks, face shields, etc.) as indicated for the task at hand. Avoid entering rooms with Isolation Precaution signage but if entry is necessary comply with all the Isolation Precaution requirements, including proper hand hygiene and donning appropriate personal protective equipment (PPE).
- c. Handwashing is the best method of reducing the transmission of infection: always wash your hands with soap and water after visiting the restroom, before eating, when leaving the construction site.

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**DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER
 Fayetteville, Arkansas**

Infection Control Pre - Construction Review of ICRA and Requirements

Date of review	19 October 2017
Project no.	564-18-114
Project name	Replace OR Lights

	YES	NO	N/A
Infection Control			
1. ICRA and Infection Control Orientation handout reviewed and questions addressed or answered.	Y		
2. Location of and erection methods for interim dust barriers reviewed and evaluated.	Y		
3. Requirement for dust barriers assessed to prevent airborne particulate escape.	Y		
4. Requirement for negative airflow ventilation and filtration reviewed and evaluated.	Y		
5. HEPA vacuum and equipment requirements reviewed and evaluated.	Y		
6. Debris removal and control requirements reviewed and evaluated.	Y		
7. Circulation and traffic control patterns reviewed and evaluated.	Y		
8. Limitations/restrictions for outdoor construction/demolition activities reviewed and evaluated.			Y
9. This project has the possibility of exposing the Construction Workers to Tuberculosis (TB) due to the construction site location, patient population, or hospital layout.	Y		
10. Clothing requirements reviewed and evaluated.	Y		

Construction Project Type: B
Class of Precautions: III

Patient Risk Group: Highest
ICRA Completed: October 19, 2017

Assessment Performed by:	
IH/Safety Officer	
Project Engineer	
Infection Control Practitioner	

Reviewed by:	
Contracting Officer (VA)	
Architect/Contractor	