

Infection Control Risk Assessment Training (ICRA)

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Disclosure

Advisory Board Independent Contractor -
Medline

Learning Objectives

Hospitals and clinics, like any other buildings require repair, maintenance, and new construction. However, in a clinical setting, we have to pay special attention on how to keep patients safe who are vulnerable to infection.

- ◆ Implement the proper infection control risk assessment (ICRA) process
- ◆ Know what activities require an infection control permit
- ◆ Understand the ICRA Matrix
- ◆ Know how to select the correct construction project type

Activities Requiring an Infection Control Permit

- ◇ All inspections and repairs above ceiling in critical and sterile procedural areas.
- ◇ Activities that will generate dust
- ◇ Disruption of HVAC system (>4 Hours)
- ◇ Demolition or repair of walls, ceramic tile, ceiling tile and ceilings





Activities Requiring an Infection Control Permit

- ◆ Removal of flooring, carpeting, windows, casework
- ◆ Water damage and or Mold Remediation
- ◆ Demolition, construction or repair of elevator shafts
- ◆ Any project that requires cutting of building materials or sanding (dry or wet) in patient care areas.

Activities Exempt from the Permitting Process

- ◆ Non dust generating activities
- ◆ Removal of 1 ceiling tile per 50sqft only in noncritical areas. Only applies to work in noncritical areas





Activities Exempt from the Permitting Process

- ◇ Medical office buildings, administrative spaces, 3rd party physician offices
- ◇ Painting & placement of wallcovering
- ◇ Electrical trim work where dust and debris can be captured quickly
- ◇ Minor plumbing and electrical repairs that do not generate dust



Introduction to ICRA Matrix

Now that you have determined that the proposed work will require a permit, you will need to refer to the ICRA Matrix for requirements.

ICRA Matrix

Step 1 – Type of Construction

- ◆ Identify the scope of work you will be performing Type A, B, C, or D
- ◆ Place this information on the Construction Activity section of the Permit (ICRA).

TYPE A	<p>Inspection and Non-Invasive Activities. Includes, but is not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> removal of ceiling tiles for visual inspection limited to 1 tile per 50 square feet <input type="checkbox"/> painting (but not sanding) <input type="checkbox"/> 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	<p>Small scale, short duration activities which create minimal dust Includes, but is not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> installation of telephone and computer cabling <input type="checkbox"/> access to chase spaces <input type="checkbox"/> cutting of walls or ceiling where dust migration can be controlled.
TYPE C	<p>Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies</p> <p>Includes, but is not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> sanding of walls for painting or wall covering <input type="checkbox"/> removal of floor coverings, ceiling tiles and casework <input type="checkbox"/> new wall construction <input type="checkbox"/> minor duct work or electrical work above ceilings <input type="checkbox"/> major cabling activities <input type="checkbox"/> remediation / abatement <input type="checkbox"/> any activity which cannot be completed within a single work shift
TYPE D	<p>Major demolition and construction projects include, but not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> activities which require consecutive work shifts <input type="checkbox"/> requires heavy demolition or removal of a complete cabling system <input type="checkbox"/> new construction.

ICRA Matrix

Step 2 - Identify the Patient Risk Groups

- ◆ Identify the risk groups where the construction renovation will occur.
- ◆ Place this information on the infection control risk group of the Permit (ICRA).

Low Risk	Medium Risk	High Risk	Highest Risk
<input type="checkbox"/> Office areas	<input type="checkbox"/> Cardiology <input type="checkbox"/> Echocardiography <input type="checkbox"/> Endoscopy <input type="checkbox"/> Nuclear Medicine <input type="checkbox"/> Physical Therapy <input type="checkbox"/> Radiology/MRI <input type="checkbox"/> Respiratory Therapy <input type="checkbox"/> BHU <input type="checkbox"/> Cafeteria	<input type="checkbox"/> Emergency Room <input type="checkbox"/> Labor & Delivery <input type="checkbox"/> Laboratories (specimen) <input type="checkbox"/> Newborn Nursery-/MCH <input type="checkbox"/> -Pharmacy <input type="checkbox"/> Post Anesthesia Care Unit <input type="checkbox"/> Medical Surgical Unit <input type="checkbox"/> Cafeteria Food Prep/Kitchen	<input type="checkbox"/> Any area caring for Immunocompromised patients <input type="checkbox"/> BMT/Organ –Transplant <input type="checkbox"/> Cardiac Cath/EP Lab <input type="checkbox"/> Central Sterile Supply <input type="checkbox"/> –Intensive Care Units <input type="checkbox"/> Negative pressure isolation rooms <input type="checkbox"/> Oncology <input type="checkbox"/> Operating rooms including C-section rooms <input type="checkbox"/> Interventional Radiology

IC Matrix - Class of Precautions: Construction Project by Patient Risk
Construction Project Type

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

ICRA Matrix

Step 3 – Construction Project by Patient Risk

Once Step (1) and Step (2) have been assessed. Use the matrix below to identify the required infection control precautions. (Next slide will include an example).



ICRA Matrix Example

- ◇ Example: A flood occurs in the ICU caused by a domestic water line fracture. The walls are saturated, and it has been determined demolition is required.

ICRA Matrix

◇ Next Step: Review Types of Construction (Step1)

(Located on ICRA Template)

◇ Notes:

- A Flood has occurred in ICU and will require wall demolition and replacement; the work activity is expected to entail multiple shifts.
- The highlights represent items expected to be impacted.

Step One:

Using Table 1, identify the Construction Project Activity Type (A-D).

Table 1 - Construction Project Activity Type:

Type A	<p>Inspection and non-invasive activities. Includes but is not limited to:</p> <ul style="list-style-type: none"> • Removal of ceiling tile for visual inspection-limited to 1 tile per 50 square feet with limited exposure time. • Limited building system maintenance (e.g., pneumatic tube station, HVAC system, fire suppression system, electrical and carpentry work to include painting without sanding) that does not create dust or debris. • Clean plumbing activity limited in nature.
Type B	<p>Small-scale, short duration activities that create minimal dust and debris. Includes but is not limited to:</p> <ul style="list-style-type: none"> • Work conducted above the ceiling (e.g., prolonged inspection or repair of firewalls and barriers, installation of conduit and/or cabling, and access to mechanical and/or electrical chase spaces). • Fan shutdown/startup. • Installation of electrical devices or new flooring that produces minimal dust and debris. • The removal of drywall where minimal dust and debris is created. • Controlled sanding activities (e.g., wet or dry sanding) that produce minimal dust and debris.
Type C	<p>Large-scale, longer duration activities that create a moderate amount of dust and debris. Includes but is not limited to:</p> <ul style="list-style-type: none"> • Removal of preexisting floor covering, walls, case work or other building components. • New drywall placement. • Renovation work in a single room. • Non existing cable pathway or invasive electrical work above ceilings. • The removal of drywall where a moderate amount of dust and debris is created. • Dry sanding where a moderate amount of dust and debris is created. • Work creating significant vibration and/or noise. • Any activity that cannot be completed in a single work shift.
Type D	<p>Major demolition and construction activities. Includes but is not limited to:</p> <ul style="list-style-type: none"> • Removal or replacement of building system component(s). • Removal/installation of drywall partitions. • Invasive large-scale new building construction. • Renovation work in two or more rooms.

ICRA Matrix

◆ Next Step: Identifying Patient Risk Groups (Step 2)

(Located on ICRA Template)

Notes: The incident occurred in ICU (highlighted)

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
<input type="checkbox"/> Office areas	<input type="checkbox"/> Cardiology <input type="checkbox"/> Echocardiography <input type="checkbox"/> Endoscopy <input type="checkbox"/> Nuclear Medicine <input type="checkbox"/> Physical Therapy <input type="checkbox"/> Radiology/MRI <input type="checkbox"/> Respiratory Therapy <input type="checkbox"/> BHU <input type="checkbox"/> Cafeteria	<input type="checkbox"/> Emergency Room <input type="checkbox"/> Labor & Delivery <input type="checkbox"/> Laboratories (specimen) <input type="checkbox"/> Newborn Nursery/MCH <input type="checkbox"/> Pharmacy <input type="checkbox"/> Post Anesthesia Care Unit <input type="checkbox"/> Medical Surgical Unit <input type="checkbox"/> Cafeteria Food Prep/Kitchen	<input type="checkbox"/> Any area caring for Immunocompromised patients <input type="checkbox"/> BMT/Organ Transplant <input type="checkbox"/> Cardiac Cath/EP Lab <input type="checkbox"/> Central Sterile Supply <input checked="" type="checkbox"/> Intensive Care Units <input type="checkbox"/> Negative pressure isolation rooms <input type="checkbox"/> Oncology <input type="checkbox"/> Operating rooms including C-section rooms <input type="checkbox"/> Interventional Radiology

ICRA Matrix

Next Step - Class of precautions:
Final requirements by patient
risk and types of construction
(Step 3)

(Located on ICRA Template)

Notes: We have determined this
project meet the construction
requirements listed as type C and
occurs in highest patient risk
group.

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Construction Project Type

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ICRA Process Finalization

Now that you have determined the elements of the ICRA Matrix, here are the final steps:

- ◆ Our previous example of the ICU flood indicated that this project was categorized as a Class III/IV containment. This type of project requires a signature by your infection preventionist.

(Note: Class I&II ICRA's will not require an IC signature. These only require the project managers signature).

- ◆ Work with your infection preventionist to determine PPE Requirements for Class III/IV containments

ICRA Process Finalization

◆ Selecting Personal Protective Equipment:

◆ Class III & IV Containments may consist of the following PPE requirements.

Shoe Covers

Head Covers

Bunny Suits

Tyvek Suits

Gloves

P-100

N-95

◆ Note: **All personnel entering Class IV containments are required to wear shoe covers.** Work with your IC preventionist to determine PPE Requirements.



ICRA Process Finalization

◆ Transportation of Debris in the Healthcare Environment:

- ◆ The project planning team should discuss the following expectation of debris removal from the worksite:
 - All transport receptacles should be covered when transporting debris through the healthcare environment.
 - Ensure trash bags are closed and gooseneck taped
 - Wet mops with disinfectant should be utilized to minimize dust dispersal
 - Provide a vacuum for the Anteroom



ICRA Process Finalization

- ◆ The picture on the right represents the finalized ICRA for our ICU flood example
- ◆ Post copy of signed ICRA on Containment and include additional signage that may be necessary.
- ◆ Note: Possible additional signage may include the following:
 - ILSM
 - Pardon our dust
 - Altered floor plans
 - Directional Signage

Project # 1231		Contractor Name: ABC Contractor				
Project Name: ICU Flood 3 rd Floor		Project Start Date: 3/8/2022				
Project Manager: Facilities PM		Contact#: (xxx) xxx-xxxx		Estimated Completion Date: 3/10/2022		
General Contractor: ABC Const		Contact#: (xxx) xxx-xxxx		OSHPD Permit #: N/A		
IOR: N/A		Contact#: (xxx) xxx-xxxx		IC Subcontractor Contact#: ABC Const		
CONSTRUCTION ACTIVITY			INFECTION CONTROL RISK GROUP			
TYPE A: Inspection, non-invasive activity			GROUP 1: Low Risk			
TYPE B: Small scale, short duration, moderate to high levels			GROUP 2: Medium Risk			
X TYPE C: Activity generates moderate to high levels of dust, requires more than 1 work shift for completion			GROUP 3: Medium/High Risk			
TYPE D: Major demolition and construction activities Requiring consecutive work shifts			X GROUP 4: Highest Risk			
Circle required containment, all that apply Containment cube; moFidified cube; zip flap; Visqueen barrier; Coroplast barrier; drvwall barrier; anteroom			Circle needed PPE, all that apply Shoe covers; head covers; polypropylene suits; Tyvek type suits; gloves; P100; N95			
CLASS I Date: Initials:	1. Execute work by methods to minimize raising dust from construction operations. 2. Immediately replace any ceiling tile displaced for visual inspection.		3. Cleanup and disposal in accordance with defined procedures.			
CLASS II Date: Initials:	1. Continue Class I requirements 2. Provides active means to prevent air-borne dust from dispersing into atmosphere 3. Water mist work surfaces to control dust while cutting. 4. Seal unused doors with vinyl tape. 5. Block off and seal air vents. 6. Wipe surfaces with approved disinfectant.		7. Contain construction waste before transport in tightly covered containers. 8. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area. Vacuum Personnel if needed. 9. Place dust mat at entrance and exit of work area. 10. Remove or isolate HVAC system in areas where work is being performed.			
CLASS III Date: Initials:	1. Continue Class I & II requirements 2. Obtain infection control permit before construction begins. 3. Isolate HVAC system in area where work is being done to prevent contamination of the duct system. 4. Complete all critical barriers or implement control cube method before construction begins. 5. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 6. Seal holes, pipes, conduits, and punctures appropriately. 7. Do not remove barriers from work area until complete project is thoroughly cleaned.		8. Vacuum work area with HEPA filtered vacuums including Personnel, if needed. 9. Wet mop with approved disinfectant 10. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 11. Contain construction waste before transport in tightly covered Containers. 12. Cover transport receptacles or carts. Tape covering. 13. Remove or isolate HVAC system in areas where work is being performed.			
CLASS IV Date: 3/8/22 Initials: AB	1. Continue Class I, II & III requirements 2. Obtain infection control permit before construction begins. 3. Isolate HVAC system in area where work is being done to prevent contamination of duct system. 4. Complete all critical barriers or implement control cube method before construction begins. 5. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 6. Seal holes, pipes, conduits, and punctures appropriately. 7. Construct anteroom and require all personnel to wear PPE - coveralls and shoe covers, which are removed each time they leave the work site. If space permits use HEPA vacuum to vacuum excess dust and debris from personnel.		8. All personnel entering work site are required to wear shoe covers 9. Do not remove barriers from work area until completed project is thoroughly cleaned. 10. Vacuum work area with HEPA filtered vacuums. 11. Wet mop with approved disinfectant. 12. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 13. Contain construction waste before transport in tightly covered containers. 14. Cover transport receptacles or carts. Tape covering. 15. Remove or isolate HVAC system in areas where work is being done.			
Class of Precautions: Construction Project by Patient Risk		Patient Risk Group	TYPE A	TYPE B	TYPE C	TYPE D
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Additional Requirements: (if scope of project changes IP)						
Exceptions /Additions to this permit are noted by attached memoranda: Date: Initials:						
Permit Request By:		ICRA Authorized By:		ICRA De-permitted By:		Comments:
Date:	Title:	Date:	Title:	Date:	Title:	
Phone:		Phone:		Phone:		

Work Practice Requirements for Class I,II,III & IV Containments

After going through the matrix to develop individual permits there will be steps which must be followed for each specific class.

Class I&II Project Classifications

- ◇ Execute work by methods to minimize raising dust
- ◇ Immediately replace any ceiling tile displaced for visual inspection
- ◇ Provide active means to prevent airborne dust from dispersing into atmosphere
- ◇ Water mist surfaces to control dust while cutting
- ◇ Seal unused doors with tape
- ◇ Place Tacky Mat at entrance
- ◇ Remove or isolate HVAC system in areas where work is being performed

Work Practice Requirements for Class I,II,III & IV Containments

Class III & IV Project Classifications

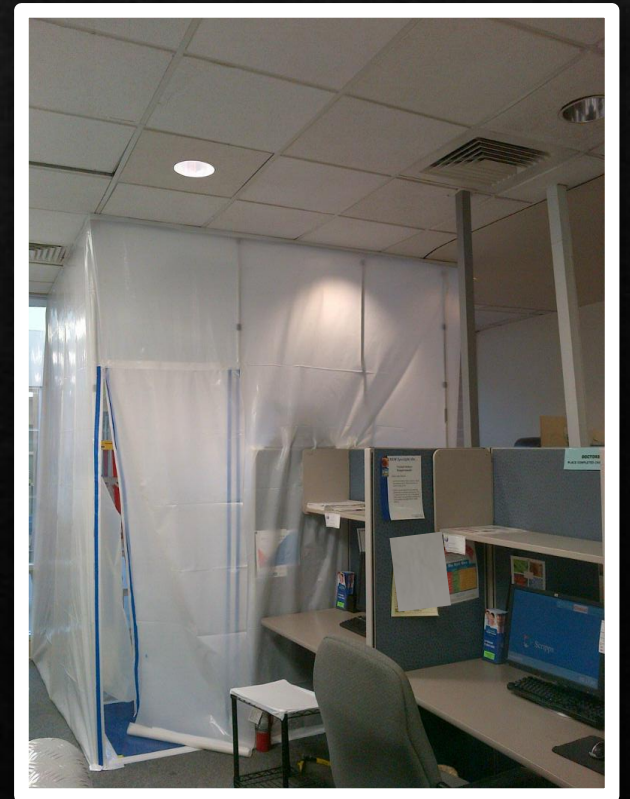
- ◆ Isolate HVAC system in the area where work is being performed (Vinyl tape or coroplastic)
- ◆ Ensure all critical barriers i.e., sheetrock, plywood, visqueen, & coroplastic are in place to segregate and seal from all non construction related space.
- ◆ Maintain negative pressure within the worksite utilizing HEPA equipped filtration.

Work Practice Requirements for Class I,II,III & IV Containments

- ◆ Ensure proper signage is posted. (May need to incorporate Safety Officer or Safety Technician for assistance)
- ◆ Ensure proper PPE is being worn as described on the Infection Control Risk Assessment (ICRA). This can be found on the right-hand side of the Permit
- ◆ Tacky mats and floor covering may be used as a form of dust compliance and or protection during construction renovation.

Containment Construction

At this point the ICRA has been developed and the contractor is aware of all construction requirements, and the containment can be built



Engineering / Designee Roles & Responsibilities

- ◆ Now that the containment has been built, Engineering / Designee plays an important role in the infection control process: Their duties will include the following:
- ◆ Conduct periodic visual inspections of all construction barriers and record your finding
- ◆ Immediately report any discrepancies or deficiencies to the points of contact listed on the ICRA (PM, IP, Safety)
- ◆ Authority to suspend project if there is an infection risk, loss of containment or noncompliance with IPC policies. Take immediate action to correct all deficiencies (i.e., loss of negative pressure, breach of containment, contractors not abiding by PPE requirements)

Visual Inspections

- ◇ Rounding on containments is conducted on a routine on a basis. The rounds are broken down into (3) categories. Below is what you should look for when conducting your site inspection.
- ◇ Barrier Configuration
 - Barrier is intact [tape secure, holding, breach, no damage]
 - Barrier should match the permit graphics
- ◇ Negative Pressure
 - Pressure reading should be negative
 - Visual inward pull is appropriate
 - Flex duct connected securely and properly, free of damage
 - HEPA unit in functioning acceptable condition
- ◇ Ante-Room
 - Clean dust free and organized
 - Trash bag available in ante-room
 - Walk off mats available and properly maintained
- ◇ The actual round sheet used by to perform the visual inspections appears on the next slide

Visual Inspections Round Sheet (Class III&IV)

Rounds should be conducted periodically throughout the duration of the project.

ATTACHMENT D: ICRA Rounds Checklist (Level 3 & 4)

Identifier: S-FW-IC-0013

Date: 02/2022

Page: 1 of 1

Project _____

Project Manager _____

Contractor _____

Rounds performed by: Print name and Initials

	Permitting process review	Date/Time	Initial
Permit posted			
Contractors	Dust Buster training completed		
Location			
Barrier configuration	Barrier is intact [tape secure, holding, breach, no damage]		
	Barrier should match the permit graphics		
Negative pressure	Pressure reading should be negative		
	Visual Inward pull is appropriate		
	Flex duct connected securely and properly, free of damage		
	HEPA unit in functioning acceptable condition		
Anteroom	Clean, dust free and organized		
	Trash bag available in anteroom [removed after each work shift]		
	Walk off mats available and properly maintained		
Worksite			
Site inspection	Inspect all areas of the barrier – Is the area clean at the end of shift		
Any unusual findings?	Document findings and provide details in the Notes section		
	Document Corrective Action to resolve issues in Notes section		

Days	Initial
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Days	Initial
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Days	Initial
21	
22	
23	
24	
25	
26	
27	
28	
29	
30/31	

Comments: _____

Completion Acceptance (signed by PM, Engineering designee): _____ Date _____

Depermit

- ◆ The ICU flood project is now complete. All the drywall has been freshly painted and repaired.
- ◆ Next Step: Infection prevention and or designee will need to visually review the containment for cleanliness.
- ◆ The contractor or EVS will provide a terminal clean prior to removal.

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Date:	Title:	Date:	Title:	Date:	Title:	
Phone:		Phone:		Phone:		

Depermit

- ◆ A final job walk should be performed by Infection Preventionist and or Engineering to ensure the following:
 - No penetrations
 - All debris has been removed
 - Ceiling tiles reinstalled
 - Plumbing fixtures tested for leaks (toilets, drains, faucets)
 - All surfaces are dust free and disinfected
- ◆ Once terminal clean has been performed and visually inspected, Infection Preventionist and or Designee can sign off the permit. These documents will need to be archived.
- ◆ A record of all approved ICRA's will be maintained for a period of 3 years

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CLASS IV Date: 3/8/22 Initials: AB	1. Continue Class I, II & III requirements 2. Obtain infection control permit before construction begins. 3. Isolate HVAC system in area where work is being done to prevent contamination of duct system. 4. Complete all critical barriers or implement control cube method before construction begins. 5. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 6. Seal holes, pipes, conduits, and punctures appropriately. 7. Construct anteroom and require all personnel to wear PPE - coveralls and shoe covers, which are removed each time they leave the work site. If space permits use HEPA vacuum to vacuum excess dust and debris from personnel.	8. All personnel entering work site are required to wear shoe covers 9. Do not remove barriers from work area until completed project is thoroughly cleaned. 10. Vacuum work area with HEPA filtered vacuums. 11. Wet mop with approved disinfectant. 12. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 13. Contain construction waste before transport in tightly covered containers. 14. Cover transport receptacles or carts. Tape covering. 15. Remove or isolate HVAC system in areas where work is being done.				
Class of Precautions: Construction Project by Patient Risk		Patient Risk Group	TYPE A	TYPE B	TYPE C	TYPE D
		LOW Risk Group	I	II	II	III/IV
		MEDIUM Risk Group	I	II	III	IV
		HIGH Risk Group	I	II	III/IV	IV
		HIGHEST Risk Group	II	III/IV	III/IV	IV
Additional Requirements: (If scope of project changes IP)						
Exceptions /Additions to this permit are noted by attached memoranda: Date: Initials:						
Permit Request By:		ICRA Authorized By:		ICRA De-permitted By:		Comments:
Date:	Title:	Date:	Title:	Date:	Title:	
Phone:		Phone:		Phone:		

YOUR TURN

Question #1

Which one of these activities would require an ICRA?

- A) Removal of a ceiling tile to inspect an HVAC motor in a non-critical area
- B) Painting a wall
- C) Non dust generating removal of wallpaper
- D) Removal of carpeting

Question #2

- ◇ Which one of these activities would require an ICRA?
 - A) Removal of a ceiling tile to inspect an HVAC motor in a non-critical area
 - B) Painting a wall
 - C) Non dust generating removal of wallpaper
 - D) Removal of carpeting

Question #3

◇ True or False

◇ Inspection above the ceiling in an O.R. will always require a permit

A) True

B) False

Question #4

- ◇ Which of the following is not an acceptable condition observed during the containment visual inspection rounding?
 - A) Containment visqueen is pushing outward slightly
 - B) Walk off mats have been recently changed
 - C) Trash bag is present in ante-room
 - D) HEPA unit flex hose is intact and functional

Question #5

- ◇ Which of the following is not a component of the ICRA Matrix development?
- A) Type of construction
- B) Area of the hospital where work is being performed
- C) Contractor performing the work
- D) Duration of the project

Question #6

◇ How often should rounding be conducted on containments?

- A) Twice a day
- B) Daily
- C) Periodically
- D) Never

Question #7

◇ Engineering has the ability to suspend work?

A) True

B) False

Question #8

◇ The ICRA's should be retained for _____ ?

- A) The duration of the project
- B) 3 Years
- C) Calendar Year
- D) Fiscal Year

Question #9

- ◇ When should the designee sign off the ICRA to authorize containment removal?

- A) Visually Inspected by Designee & Terminally Cleaned
- B) Terminally Cleaned
- C) Construction Cleaned
- D) After The Work is Complete

Question #10

◇ True or False?

◇ An ICRA is required if the HVAC system is shut down for more than 4 hours?

References

[Infection Control Risk Assessment 2.0 \(ICRA 2.0\) | ASHE](#)

[ASHE publishes revised infection control risk assessment guide | Health Facilities Management \(hfmmagazine.com\)](#)

Questions?