Quick Links to Specific Sections:

INFECTION CONTROL RISK ASSESSMENT

This policy effective April 1, 2018. All projects that have not been initiated (reached 20% schematic design or have a set scope and budget) prior to this date will need to comply with this policy.

PURPOSE

To minimize the risk for acquisition of healthcare associated infections (HAIs) to patients that may result when fungi or bacteria are dispersed into the air via dust or water aerosolization during construction, renovation, or maintenance activities in or near the University of Virginia Health System.

POLICY

This policy outlines UVa Health System's program for prevention of HAIs associated with construction, renovation and maintenance activities. All parties involved in these activities are responsible for the integration of the infection prevention and control principles in this policy throughout the planning, managing, and completion of the Work. This process is identified as the Infection Control Risk Assessment (ICRA).

The scope of this policy applies to all facilities that appear on the Medical Center's Joint Commission application as defined in this list as well as the Core Lab.

An ICRA must be performed for all construction, renovation, and maintenance work in any facility that potentially impacts patient care activities including work vertically or horizontally adjacent to patient care areas. This includes, but is not limited to common spaces around patient care areas, medical laboratories, cafeterias, pharmacies, etc. The Responsible Person for the specific project will initiate the ICRA.

There will be a multidisciplinary, collaborative process for ICRA development. Facilities Management (FM) and Infection Prevention and Control (IP&C) will have continuous involvement in the assessment, revision, monitoring, and compliance with the ICRA.

Recommended revisions to this policy and procedure will be the joint responsibility of IP&C and FM.

GENERAL DEFINITIONS

A. **Area Manager**: Person in charge of the area or patient care unit in which the work/project is being performed. The term Unit Manager may also be used interchangeably. An Area or Unit Manager may also choose a designee to act on his or her behalf.

B. **Construction Clean/Pre-Barrier Removal Cleaning**: Contractor cleaning focusing on removal of dust that results from construction including, but not limited to: wiping of hard surfaces (including ICRA barrier), cleaning air vents and replacing filters, wiping all fixtures, and cleaning windows and floors. Construction clean must be completed prior to the removal of the construction barrier and re-initiation of the HVAC system.

C. **Contractor**: For the purposes of this policy "Contractor" is defined as any entity performing **Work**, including but not limited to Facilities Management personnel, Medical Center equipment technicians, consultants performing surveys and/or inspections, the General Contractor, Construction Manager, Prime Contractor, Sub Contractor, Tradesmen, Mechanics, Apprentices, Laborers, Original Equipment Manufacturer or Technician.

D. **Contractor's Representative**: A designee of the **Contractor** to be responsible for the day to day oversight of ICRA compliance. If known at the time of ICRA review, this person will sign the Authorization Form in addition to the **Responsible Person**.

E. **Designated Contracted Vendor**: Non-UVa vendor representative appointed by a **Responsible Person** to act on their behalf in initiation of, revisions to, monitoring of, and compliance with the ICRA. The Designated Vendor representative will need to be approved by **Infection Prevention and Control**. The Designated Contracted Vendor MAY NOT act on behalf of the **Responsible Person** for the purpose of approving Level I and II **ICRA Authorizations**.

F. **Discharge Clean**: A clean scheduled with **EVS** that includes cleaning of all horizontal surfaces of the room and bathroom, spot cleaning walls, change of curtain if visibly soiled, empty trash and change linens

G. **Emergency Work**: any unplanned event that can cause harm to patients and/or team members

H. **Environmental Services (EVS):** A company contracted by the Medical Center or the Academic division to provide housekeeping services, including terminal cleaning of patient care areas following completion of construction activities. **EVS** may be arranged by the **Contractor** or UVa Medical Center.

I. **Facilities Management (FM):** The Facilities Management Department at UVa. This includes the Health System Physical Plant (HSPP), Facilities Planning and Construction, and Project Services.

J. **Infection Control Risk Assessment (ICRA):** The process of determining the potential risk of transmission of various air and waterborne biological contaminants in the facility during construction, renovation, and maintenance activities. This will be a multidisciplinary, collaborative process that evaluates Construction Activity Types and Risk Groups to determine a Classification Level and interventions.

K. **ICRA Authorization (Authorization):** The agreed upon results of ICRA which are documented on the ICRA Authorization Form. Refer to Appendix A. Also referred to as the Authorization.

L. **ICRA Team**: Representatives from **Infection Prevention and Control** and **FM** charged with oversight of the ICRA process.

M. Imminent Risk: Any condition or activity which creates a hazard that could reasonably be expected to cause injury or serious infection (leading to death or serious physical harm) before the imminence of such danger can be eliminated through normal notification procedures.

N. **Infection Prevention and Control (IP&C):** Office of Hospital Epidemiology and Infection Prevention and Control

O. **Maintenance Technician**: UVa team member responsible for operation and maintenance of any installed system that has completed the mandatory training as described in the Training/Education section V.

P. **Mandatory Training**: The minimum level of training, as required by this policy, to qualify a person for a specific role in the ICRA process. The level and type of training required will correlate to level of responsibility assigned to the role by this policy. (See Training/Education – Section V)

Q. **Patient Occupancy**: The point at which the following may be brought in and the space may be utilized for its intended purpose: team members and items used for patient care (e.g. patient supplies, moveable patient equipment and furniture).

R. **Project Team:** Responsible Persons from each entity performing Work, FP&CD Project Coordinator, EVS

S. **Responsible Person**: UVa team member person charged with oversight of the work/project (and accountable for compliance with procedures in this policy. To qualify as a Responsible Person, the employee must have completed the associated mandatory training within one calendar year prior to the commencement of the work. Responsible Person may assign a **Designated Contracted Vendor** to act as the **Responsible Person** in all capacities with the exception of approving Class I and II ICRA Authorization Forms.

T. **Restricted Area**: Areas governed by AORN, AAMI or Pharmacy guidelines: Operating Rooms, Cardiac Catheterization Lab, Electrophysiology Lab, Interventional Radiology, Neuroradiology, Sterile Processing (Clean side) and Pharmacy IV med prep.

U. **Staff occupancy**: occupancy granted at substantial completion after terminal clean is performed. Any work performed during this period will require an additional cleaning consistent with the level of work performed.

V. Surgical Attire: UVa-issued gray scrubs/coveralls and hair covering to be worn in all **Restricted Areas.**

W. **TCUO**: Temporary Certificate of Occupancy issued by University Building Official (UBO)

X. **Terminal Clean**: A clean scheduled with **EVS** that includes all of the components of a **Discharge clean** plus complete washing of walls, curtain change, complete cleaning of waste receptacles

Y. **Work**: Any construction, maintenance or renovation related activity defined in Table 1 that has the potential to impact patient care environment, including work vertically or horizontally adjacent to patient care or patient assembly areas, and outdoors. See Table 1, Construction Activity Type Definition Guideline Grid, for further details and classifications of types of work covered by this policy.

PRODUCTS AND MATERIALS

A. Construction Barriers and Doors - Examples of and/or components of barriers that may be utilized per **ICRA Authorization** Form:

1. Existing doors and walls may be acceptable as the ICRA barrier as long as negative pressure is achieved for level II-III Work. Level IV work also requires an anteroom.

2. Poly Containment Wall System (e.g. –Zipwall®, Quick-wall or equivalent) – Floor length fire retardant (FR) poly that is clamped to the ceiling grid with overlapping sheets for access may be used for Type B work. For Type C work, a FR polyethylene barrier with zipper access, tightly sealed to adjacent surfaces (e.g. zip wall with appropriate poles/clamps). These temporary Barrier systems will be permitted only when discussed with and approved by the RP or **ICRA Team,** as appropriate. Constraints associated with the use of this system (e.g. duration of use) will be noted on the **ICRA Authorization** form.

3. Mobile Dust Containment Units/Containment Booth – A mobile booth mounted on caster wheels and enclosed on all sides with an open top that can be extended to create a seal against an existing ceiling in the area of work. Booths are typically equipped with a built-in ladder. Approved booths will also be equipped with an air scrubber (may be built-in or portable provided that the power cord for the scrubber does not prevent proper seal at all booth openings. Must be sized to accommodate all tools necessary to safely complete the work. Annual evaluation is required to document the integrity of the unit and HEPA filter efficiency.

4. Drywall barriers – A constructed gypsum board wall with joints and screws covered and/or sealed on at least one side. Wall construction may consist of one-sided drywall unless otherwise required to meet fire ratings. A Poly Containment Wall System should be used to create a containment during the construction of a drywall barrier.

    i. Doors in drywall barriers constructed for ICRA containment will include automatic closers and be installed with positive latching. Doors will remain locked with Red Core keys (provided by the University) whenever the area of work is unoccupied.

5. Modular Barrier Walls (e.g. –EDGE-Guard or equivalent) – Interlocking modular wall and door panels and other modules that are quickly and cleanly installed, relocated or dismantled. Integrated features help manage difficult sealing problems and provide flexibility for most isolation situations. This also includes prefabricated containment devices approved by the ICRA team.

6. Cabling Access Point (CAP) - Ceiling panel with opening protected by bristles for use in pulling

cable into (and only into) the above ceiling space (as approved by the ICRA team).

7. Anteroom - Temporary room immediately inside or outside the work zone entrance providing a transition point for people going in and out of the work area. Required in all Level IV work authorizations. Anteroom should be sized to accommodate the vast majority of materials, equipment, and trash going into and out of the site without opening both doors at the same time

8. Any of the barrier types indicated above may be required to contain the ceiling envelope, chases, interstitial spaces, etc. using approved non-combustible materials including polycarbonate panels and fire retardant insulated duct board, as determined during the ICRA process.

B. Dust Control Mats - Used at all construction entrances/exits as the last line of defense (NOT as an alternative to good housekeeping practices) to keep dust, dirt, and other particulates from spreading due to foot traffic. Mats should be secured appropriately.

C. Duct Wrap Film (DWF) - A polyethylene film with a high-tack adhesive designed to be applied over the openings of ductwork during transportation and storage to protect the inside from moisture, dust, debris, paint, and other particles that can lead to poor indoor air quality. Open ends of all ductwork stored and/or installed in the area of work will be covered with wrap film. DWF may also be used to protect existing or installed grills, registers and diffusers (GRD's) where air flow has been disconnected but the GRD is to be left in the area of work.

D. HEPA Vacuum – True HEPA filtered vacuum certified by the EPA for recovery of lead, dust, paint chips and other hazardous materials. Used for cleaning personnel, tools and materials prior to exiting the work area.

E. Portable Air Scrubbers - HEPA filter equipped air circulation (non-ducted) machines that provide roughing filters (stage 1 pre-filter), primary filters (stage 2 pre-filters), and will clearly indicate airflow capacity, to permit the Responsible Person to easily calculate and record the Air Change Rate for the work area. A minimum 6 air exchanges per hour are required (for recirculating option only). If negative pressure is achieved with less than the required portable air scrubbers, remaining air scrubbers will be used as recirculating machines. Safety features will include thermal overload protection, auto reset and UL compliance rating. HEPA filters to be a minimum of 99.97% efficient. Charcoal filter may be desired to decrease odors. Annual inspection of scrubbers is required. This inspection can either be via third party certification or ICRA team inspection. (See section III C for methods of achieving negative air pressure.)

F. Room Pressure Monitor – An installed device used to monitor the pressure inside the containment in reference to the outside area. Examples include both visual-only, airflow direction indicators (such as manometers, and/or the *Ball-In-The-Wall* pressure indicator) and automated devices capable of measuring and recording differential pressure. Automated systems may provide options for logging, alarming, and notification.

G. Sweeping Compound – Oil or Wax based product sprinkled on flooring surface prior to sweeping to minimize dust particles becoming airborne during sweeping. Sweeping compounds commonly use sawdust or cellulose as the main bulk materials with either oil or wax added for dust adhesion. Only

nonpetroleum-base sweeping compounds are permitted for use in patient care areas. Care should be taken to ensure that oil based products do not create a slippery surface.

PROCEDURE

The following procedure is designed to assist all parties involved in or impacted by construction, renovation, and/or maintenance activities to evaluate the potential risks associated with the activities, and address necessary precautions.

I. INFECTION CONTROL RISK ASSESSMENT (ICRA) DEVELOPMENT AND AUTHORIZATION

A. The **Responsible Person** will complete the **ICRA Authorization** once project scope has been fully identified (no earlier than Construction Document phase for projects receiving building permits and preferably after site visit has verified approach for maintenance, repairs and work authorized by project permit). If possible, the contractor(s)/person(s) that will be performing the work should be included in the **ICRA Authorization** review and approval process.

B. A file copy of authorizations for levels III and IV will be maintained in Infection Prevention and Control; Responsible Persons should maintain a copy with the project file.

C. UVa Health System Maintenance employees (HSPP, CE and IT technicians who have completed the Maintenance Technician training) trained as **Maintenance Technicians** as defined herein will follow ICRA interventions (From Table 4) for Type A and B **maintenance** work without a written ICRA Authorization form. For Type C and D work, they will follow the process for completing an ICRA Authorization form as described herein. Maintenance work contracted to a vendor must be directly supervised by a trained Maintenance Technician.

D. Review the Infection Control Risk Assessment Guideline below:
   1. Identify the construction activity type (Types A-D) using Table 1. Activity types are defined by the amount of dust that is generated, the potential for water aerosolization, the duration of the activity (Work continuing across consecutive shifts), and the amount of shared HVAC systems. Contact Facilities or IP&C if any activity is questionable under these guidelines.

TABLE 1: Work Activity TYPES

Type A	**Inspection and non-invasive activities, including but not limited to:** **1.** Opening of ceiling tile(s) not more than 10 sq. ft. in a single room/corridor for visual inspection, non-destructive diagnostics, mechanical adjustments of above-ceiling equipment, or tile replacement. Work area must be continuously attended while ceiling is open **(appropriate barrier *required* in all areas designated as highest risk).** 2. This does not include installation of cabling. 3. Painting (but not sanding) 4. Installation of self-supporting furniture 5. Drilling a maximum of 4 holes (less than 1" diameter each) in wall or ceiling with a HEPA vacuum 6. 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 (**appropriate barrier required in all areas designated as highest risk**)
Type B	**Small scale, short duration activities which create minimal dust** Includes, but is not limited to: 1. Opening of ceiling tile(s) not more than 10 sq. ft. in a single room/corridor for any reason other than those defined in Type A. 2. Installation of cabling (e.g. telephone and computer) 3. Installation of wall-mounted furniture or casework 4. Access to mechanical chase or shaft spaces 5. Cutting of walls or ceiling less than one square foot where dust migration can be controlled (must use HEPA vac)
Type C	**Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies, including but not limited to:** 1. Dry sanding of walls 2. Cutting of walls, removal of drywall or building finish components where work is limited to one room or suite (including removal of floor coverings, ceilings, and casework) 3. Wall demolition or new wall construction 4. Work above ceilings requiring more than 10 sq. ft. of ceiling removal (not including system demolition or installation) 5. Major cable pulling activities, multiple rooms/lines where multiple access points are needed 6. Outdoor construction of new structures located in close proximity (as determined by the ICRA team) to existing patient care facility 7. Excavation activities within close proximity (as determined by the ICRA team) of hospital building
Type D	**Major construction and demolition projects, including but not limited to:** 1. Replacement, demolition, or removal of a complete cabling, HVAC, plumbing, medical gas, or electrical system 2. Demolition of major fixed building components, assemblies, fit-out elements, or structural elements 3. Major new construction with penetrations into an existing patient care facility

2. Identify the risk groups (Low, Medium, High or Highest Risk) that will be affected using Table 2. If more than one risk group will be affected, select the higher risk group. **For all construction classes, patients must be removed from the Work area while the work is being performed.**

TABLE 2: Risk Groups

Low	Medium Not during operating hours or unoccupied High During operating hours	High	Highest
Non-clinical areas adjoining patient care areas.* Public corridors and spaces not on or directly adjoining patient units or treatment locations Equip Storage – Dirty **** Non-clinical areas embedded in medium, high, and highest risk areas will be evaluated considering the adjacent Patient Risk Group.***	Admissions Cafeteria Cardiac Rehab Dialysis Centers Echocardiography Gamma Knife Hyperbaric Oxygen (HBO) Public corridors directly adjoining patient units Nuclear Medicine Nutr Svcs Kitchen Outpatient clinics, all PETC Prosthetics/Orthotics Pulmonary Function Labs Radiation Oncology (Moser) Radiology/MRI	Autopsy Suite Blood Bank Bronchoscopy Suite Equipment Storage – Clean Emergency Department Endoscopy Suite/Monroe Lane Inpatient Units (incl. corridors), not listed as Highest Laboratories (specimen) Linen Room Pharmacy – (non IV prep) Phlebotomy Post Anesthesia Care unit Surgical Admissions Suite SAS Sterile Processing – Decontam Store Room/Clean Supply	Apheresis (SCTU) *Cardiac Cath/*EP Labs *Interventional Radiology *Neuroradiology NICU *ORs incl. 8E and OPSC (BB) *Pharmacy – IV med prep Stem Cell Transplant Unit 8 West Acute *Sterile Processing – Clean * Indicates Restricted Area

3. Use the criteria identified in Table 1 (Construction Type) and Table 2 (Risk Group) to identify the ICRA Classification in Table 3.

TABLE 3: ICRA Classification

CONSTRUCTION ACTIVITY→ Risk Group ↓	TYPE A	TYPE B	TYPE C	TYPE D
Low Risk	I	I	II	III
Medium Risk	I	II	III	IV
High Risk	I	II	III or IV[2]	IV
Highest Risk	II	II or III[1]	III or IV[2]	IV

[1]Higher class when working above ceiling

[2]Higher class may be required dependent on duration, location and potential impact of work

E. Complete the Infection Control Risk Assessment Authorization form in Appendix A.

F. Obtain appropriate approvals. All **Work** requires the completion of the **ICRA Authorization** Form.

G. Completion of the **Authorization** includes all applicable reviews, approvals, and signatures by the person responsible for the work.

1. All Class I - II Work must be reviewed and authorized by the Responsible Person and may proceed without prior approval from the ICRA team.

2. Class III & IV Work requires the review and approval of the ICRA team prior to the commencement of the project.
    i. The ICRA team meets weekly by appointment. The Responsible Person will request an appointment at the desired weekly ICRA Authorization Review meeting by sending an email to Epi/InfControl@hscmail.mcc.virginia.edu.
    ii. In the event of an emergency (any unplanned event that can cause harm to patients and/or team members) an ICRA Authorization will be completed and reviewed per this document as soon as possible after initial mitigation.
    iii. IP&C will schedule and confirm the appointment time. Responsible Person will invite the Area Manager or his/her designee and bring the completed ICRA Authorization form to the meeting.

3. Phased work or work requiring construction activities outside of the area of construction as identified/covered in the project ICRA Authorization should have an ICRA Authorization for the overall project as well as separate ICRA Authorizations for each phase/work area of the project.

4. A signed copy of the ICRA Authorization form will be displayed at the job site or work area (including mobile dust containment units) prior to beginning work and will be displayed for the duration of the project.

5. If the **Contractor**(s) performing the work covered by the ICRA Authorization were not identified prior to the Authorization approval, it is the responsibility of the Responsible Person to review the requirements of the Authorization with the person(s) performing the work. If, during this review, alternative work methods and/or compliance paths are identified, the Authorization should be revised.

6. The ICRA Authorization and the listed interventions may be modified as deemed necessary with ICRA Team approval and acknowledgement from all affected parties. Revisions must be documented on the ICRA Authorization form.

7. The Responsible Person initiating the ICRA authorization will notify the ICRA Team of the actual project start date prior to the commencement of the work

H. ICRA interventions will include the interventions listed for the ICRA class identified and the interventions for all previous levels as indicated in the ICRA Authorization form (Refer to Appendix A).

Table 4: Infection Control Interventions

Class I	1. Patients must be removed from the Work area while the Work is being performed. 2. Execute Work by methods to minimize raising dust from construction operations. 3. Immediately replace ceiling tile if displaced. 4. Contractor is educated before the start of the project about the importance of adhering to Infection Prevention & Control measures. 5. Clean (wipe down or HEPA vacuum) work area upon completion of task
Class II	1. All Class I interventions 2. High Risk Patients must remain out of room for one hour after completion of Work. 3. Provide active means to prevent air-borne dust from dispersing. 4. Contain Work area with an approved ICRA containment barrier (Section A on page 4). 5. Clean/sterile patient care items must be removed from within ICRA barrier. Contractor to notify RP is not removed. 6. Take appropriate measures at the source (e.g. HEPA vac, water mist, etc.) to control dust while cutting. 7. Seal unused doors with painters tape. 8. For Type C Work, take appropriate measures to isolate HVAC system as specified in ICRA authorization 9. Doors and windows within the Work zone to remain closed at all times except during ingress/egress. Use appropriate cleaning measures to minimize all visible debris throughout the site. 10. Maintain dust control mats (carpet and/or adhesive walk off mat) at site access points as necessary. Any dust or construction debris tracked outside of the Work area will be promptly cleaned. 11. All renovation, construction, maintenance & tool carts entering/leaving area must be tightly covered and wiped and/or vacuumed so they are of free of dust and debris 12. Cover construction waste before transport using clean, hard-covered containers. 13. Use designated travel route/elevators for all construction related activities. 14. Area to be free of dust and or debris at end of job or end of Work shift. RP to Coordinate with EVS for Discharge Clean if Work done outside of mobile dust containment booth.
Class III	1. All Class I and II interventions 2. Isolate HVAC system in areas where work is being performed to prevent contamination of duct system. Maintain until barrier is removed at completion of project. 3. Designate entry and exit traffic pattern, unauthorized personnel are not permitted to enter Work zone, place traffic control signs. 4. Complete all barriers (or implement portable containment with HEPA vacuum) before construction begins. When working above ceiling, barriers must go to deck unless exception approved on ICRA authorization. Barriers will stay in place until PM authorizes removal. 5. Seal all holes, pipes and conduit penetrations in critical barriers. 6. Maintain negative pressure within work site and utilize HEPA equipped air machines. Both will be maintained until finishes are complete, the HVAC system is operational and PM authorizes removal. Air from work zone within Operating room theatre must not be exhausted into adjacent corridors. 7. Air pressure to be monitored & documented at least daily range -0.01 to -0.05 wc or smoke test). 8. The contractor will maintain the construction zone in a clean manner. a. Vacuum debris from clothing and shoes prior to exiting barriers (including containment booth) b. The area will be HEPA-vacuumed or damp mopped daily or more often as necessary to minimize dust. c. Daily cleanup of debris, material and waste shall be completed. Walk off mats monitored & changed on a regular basis so that they remain effective. d. Any dust or construction debris tracked outside of the work area will be promptly cleaned. 9. Do not open previously sealed HVAC registers and grills until finishes are in place and site is clean. 10. Barriers will be removed carefully to minimize spreading of construction dust and debris. 11. RP to Coordinate with EVS for a Terminal Clean. 12. For Type C and D work, additional steps for re-occupancy may be required as outlined in Section IV of this document. 13. **For adjacent outdoor work, many of the above interventions may not apply, however, additional interventions may be required to isolate construction from building entrances and mitigate construction impact to patient care (e.g. re-route patient traffic, wet down excavation areas, charcoal filters on air intakes, additional physical barriers at entrance/windows).
Class IV	1. All Class I, II, and III interventions 2. Continuous air pressure monitoring may be required (range: -0.01 to -0.05 wc). For all Class IV work in highest risk areas, continuous pressure and daily particle count monitoring outside of construction entrance is required. 3. When exhausting into adjacent space, daily particle count monitoring of the HEPA exhaust efficiency in highest risk areas is also required. 4. Utilize anteroom and require all personnel to pass through this room so that they can be vacuumed using a HEPA vacuum cleaner before leaving work site. a. In certain situations wearing coveralls and/or shoe covers upon leaving the worksite may also be required. 5. To erect a barrier in Highest Risk areas, a temporary plastic barrier must first be established using extension poles and fire retardant poly. To remove barriers upon completion of work, a temporary barrier must again be established and the permanent barrier removed within the temporary barrier. 6. Portable air scrubbers used in Class IV interventions should be connected to emergency power, if available

1. A more detailed description of the interventions applying to a specific work activity will be provided in the 'Additional Comments or Requirements' section.

2. If the work takes place within a **Restricted Area**, the **Contractor** must adhere to the Supplemental Infection Control Interventions (Appendix C). The Supplemental Infection Control Interventions may be applied to other highest risk areas (Sterile Processing, Bone Marrow Transplant, NICU, etc.) as determined necessary by the Primary **ICRA Team**.

II. MOBILIZATION/REMOBILIZATION

Following is the typical sequence for the implementation of the Infection Control Interventions at the beginning of a project or any time a new pre-approved ICRA intervention is implemented:

A. **RP** or Contractor's Representative will complete Pre Dust-Generating Activity Checklist (Appendix E) or the Mobile Dust Containment Unit Checklist (Appendix D) and post at the **Work** site or in the Mobile Dust Containment Unit prior to initiation of dust-generating activity. RP must maintain a copy of all completed checklists.

B. The Responsible Person and **Area Manager** will arrange for the relocation of supplies, equipment, furniture, etc. from the work zone before the containment barriers are installed. Anything that cannot be relocated must be tightly covered with plastic or other impervious material that is cleanable or disposable.

C. Ensure that all exterior windows and building penetrations of worksite are sealed. All sewer lines must be capped with gasketed caps.

D. The **ICRA Authorization** will indicate if a temporary fire-retardant barrier is to be erected prior to the construction of the ICRA barrier. Use of temporary plastic barriers should be limited to a single work shift. Exceptions for extraordinary circumstances must be approved by the ICRA Team.

E. The **Contractor** will install the ICRA barrier using approved materials and following the requirements of the ICRA Authorization Form.

F. The anteroom, if present, will be constructed to maintain airflow from the clean side through the anteroom and into the work zone.

G. The ICRA Authorization Form will indicate if a negative pressure monitoring device is required. If required, The **Contractor** will arrange for its installation. Upon completion of the barrier, the Contactor will verify acceptable negative pressure.

H. The Responsible Person will coordinate with **Contractor**(s) or person(s) performing the Work to provide the manpower and equipment (including portable air scrubbers, ICRA barrier materials, etc.) for meeting the design and intent of the ICRA requirements. Equipment will be maintained per the manufacturer's instructions for use (IFU) including the replacement of the HEPA and other filters. Documentation of this maintenance must be readily available.

III. GENERAL MAINTENANCE AND OVERSIGHT OF INTERVENTIONS

The steps described in this section are required for general maintenance and oversight of the ICRA Authorization/Interventions.

A. Barrier Management:
   1. The Responsible Person and/or **Contractor** will ensure the barriers are maintained for the duration of the project to prevent dust and debris from escaping the work zone.
   2. Regular inspections of the barrier are performed during the course of the work shift; inspections will include, but will not be limited to:
      a. Doors are operating correctly, i.e. self-closing and latching
      b. All seams, joints and penetrations are sealed (pipe, conduit, cable, etc.)
      c. Temporary firestop systems are installed/maintained
   3. A record of these inspections will be included in the Daily Monitoring Log (Appendix B).

B. Negative Pressure/HEPA filtration:

   1. The required HEPA filtration and/or negative air must be maintained continuously until completion of all dust generation activities and pre-barrier removal cleaning. (See Section V. Demobilization). For recirculating options ONLY, the number of portable air scrubbers required for a Work Area should be calculated based on providing at least six air changes per hour (ACH).

C. When negative air pressure is required per the ICRA authorization, the pressure inside the site must be maintained negative to the surrounding spaces or areas. RPs will confirm negative pressure at all non-sealed openings into the Work site using appropriate means as described in Table 4, and will document negative pressure on the ICRA log. The priority of exhaust is as follows:
   1. Exhaust HEPA filtered air to outside of building
   2. Utilize MERV 8 filtered dedicated exhaust system, if available
   3. Utilize MERV 8 filtered single pass return system (only available in ORs and OR corridors)
   4. Exhaust HEPA filtered air into appropriate adjacent space. This option may not be permitted in restricted areas
   5. Utilize MERV 8 filtered return grills and recirculating air scrubbers (min 6 ACH)
   6. When the above conditions cannot be attained further risk assessment will need to be performed.

   After demolition is complete, it may be preferable to reduce HEPA filtered air that is being exhausted out of the building and redirect it to appropriate adjacent spaces in order to minimize makeup air coming from outside of the building.

D. Isolation of HVAC Systems:
   1. HVAC supply and return systems must be isolated, if possible, and grills within the construction area must be sealed unless alternate measures are specifically approved by the ICRA team (*ICRA team, see annotated list*). The method for sealing must be dust tight, must withstand the static air pressure, and

be appropriate for the wall/floor rating. Consideration should be given to impact on adjacent spaces when HVAC systems are isolated.

   i. If supply must remain active for space cooling, supply should be dampened down enough to maintain a minimum negative air pressure (-.01 wc) in the space.
   ii. Active return air ducts that extend through the construction site and serve other locations may be wrapped in plastic sheeting to prevent any leaks into the duct from the construction site.
   iii. Use of existing exhaust systems with additional measures to prevent contamination of the system may be approved by the ICRA team.

2. Use of dampers to isolate HVAC systems may be used but may not preclude the use of additional measures to ensure a proper seal.
3. Cover open ductwork/equipment/VAV boxes, etc. during storage and installation.
4. If/when the work needed is tying in a new piece of return duct into an active, existing return duct, please consult with ICRA team (*ICRA team, see annotated list*)

E. General Housekeeping:
   1. The **Responsible Person** and/or **Contractor**(s) shall provide appropriate manpower/equipment to facilitate ongoing and timely cleaning in the work zone, ante room, and adjacent areas to prevent the accumulation of dust and debris.
   2. **Contractor**(s) shall use appropriate measures to maintain a clean work site to prevent the migration of dust and debris outside of the work zone. Measures may include sweeping/mopping, vacuuming, increasing the number of negative pressure machines and/or filtration. When sweeping, use of a sweeping compound may be indicated in order to prevent dust from becoming airborne. Any dust/debris tracked outside of the work zone shall be cleaned-up immediately with damp mop or HEPA vacuum. All vacuuming in the anteroom or in areas adjacent to the work site shall be done using a HEPA vacuum.
   3. Anterooms, when present, shall be kept in a clean and tidy manner. Cleaning products and materials (bleach wipes, HEPA vac, mops, etc.) will be kept in the ante room to facilitate the cleaning of personnel, equipment and materials exiting the site.
   4. Debris removed from the work zone shall be in cleanable containers with tightly fitting hard covers. Transport receptacles, carts, toolboxes, equipment, etc. are to be free of dust/debris before exiting the site. Containers shall be transported following the designated route as identified in the ICRA Authorization.
   5. **Contractors** are required to be free of dust prior to exiting the work zone. Coveralls, if worn, are to be removed in the work zone just before entering the ante room. Vacuuming of clothing may be done in the work zone or the anteroom. Shoe covers worn in the work area are to be removed in the ante-room prior to exiting.
      i. The Owner may choose to monitor air quality throughout the project. If air quality monitoring is required, this requirement will be indicated on the **ICRA Authorization**.
   6. Walk-off mats must be kept clean and changed as needed to remain effective. Additional mats or other measures shall be employed as needed to address differing site conditions/activities.

IV. DEMOBILIZATION AND (RE) OCCUPANCY

Following is the typical sequence for the completion of the Infection Control Interventions.

A. For routine maintenance and emergency work, **RP** will coordinate with **EVS** management immediately following completion by calling EVS Dispatch at 2-1555.

B. For Class I/II Work

1. Construction clean.
2. Barrier cleaned
3. Discharge clean conducted for Type II work done without a mobile containment unit
4. RP Inspection

C. For Class III/IV Work

Develop timeline for re-occupancy working with IP&C including input from applicable teams such as EVS, IT, CE, HSPP. Larger projects may be coordinated by FP&CD, Project Management Office (PMO), etc. and detailed meeting(s) may be required. For all other Class III/IV work, the timeline will be discussed and documented during ICRA Authorization review or submitted by email to ICRA Team prior to removal of any ICRA interventions (e.g. barriers, filters, etc.) The typical timeline sequence is below:

1. **Construction Clean** complete following completion of dust generating activities including cleaning of ICRA Barrier HVAC covers, and outside of portable air scrubbers
    i. The HVAC supply and return covers may be removed temporarily to allow for testing and balancing only after an initial construction clean has been done.
    ii. If additional dust-generating activities are needed after **Construction Clean** has been completed, see C.3.i. below.
2. UBO **TCUO** inspection, if applicable. Project Team achieves substantial completion.
3. Project and ICRA team take particle count readings and huddle to see if ready for barrier removal and **Terminal Clean** and discuss the following items:
    i. Scope of remaining punchlist, CE, IT, HSPP dust generating work and potential requirement for additional ICRA authorizations.
    ii. Timing of **Terminal Clean** and **Discharge Clean** (consideration must be made for the timing of delivery/installation of large items that would hinder the thoroughness of the **Terminal Clean** and delivery of patient care items in areas that have remaining Work).
    iii. Timing of barrier cleaning/removal based on remaining punch list/IT/CE work and coordination with EVS for cleaning at former barrier location. Note: Plastic barrier should be placed prior to removal of drywall barrier to contain dust from the hard barrier removal.
    iv. Timing /coordination of Team Member training (not move in)
4. EVS/FP&CD re-occupancy inspection with IP&C approval as deemed necessary.
5. Preparation of space for patient occupancy - any items brought into the space after the final **Terminal Clean** must be removed from shipping boxes and/or cleaned (as applicable) prior to entering the space.
6. **Patient Occupancy**

V. INFECTION CONTROL RISK ASSESSMENT (ICRA) TRAINING/EDUCATION

A. **Mandatory Training** must be completed prior to the commencement of **Work**.

1. It is the responsibility of each person involved in the **Work** to maintain records of training received. The **ICRA Team** may request proof of required training from any team member at the initialization of an **ICRA Authorization** and again at any time during the **Work**.

2. If it is found that a team member has not completed the **Mandatory Training** required for their role, or does not possess the necessary understanding of the ICRA process to perform in their assigned role, an interim will be appointed to the role until the team member receives appropriate training.

B. Persons involved in the ICRA process will complete a minimum level of ICRA training (**Mandatory Training**) to qualify them for their role in the process as outlined below:

1. **Responsible Person** includes completion of one of the following training programs:

   a. Initial training to qualify for **Responsible Person** Role:
      i. American Society for Healthcare Engineering (ASHE) Healthcare Constructors Certificate (HCC), Certified Healthcare Constructor (CHC), or Certified Healthcare Facility Manager (CHFM)
      ii. Construction Infection Control Training Institute (CICTI) Certified Healthcare Manager (CCHM)
      iii. Equivalent training program that has been approved by ICRA Team

   b. Annual Refresher Training:
      i. When initial training does NOT include requirements for regular continuing education, an annual refresher training developed by the ICRA Team will be required.

2. Maintenance Technician performing Type A and B maintenance Work includes completion of one of the following training programs:

   a. Initial training to qualify for Maintenance Technician Role:
      i. Any training considered acceptable for the RP Role
      ii. Construction Infection Control Training Institute (CICTI) Facilities Technician (CCFT)
      iii. Equivalent training program that has been approved by ICRA Team

   b. Annual Refresher Training developed by the ICRA team

3. **Contractor's Representative** performing level III and IV **Work** includes completion of one of the following training programs or equivalent (that has been approved by the ICRA Team) within a 3 year period prior to commencement of the **Work,** and ability to demonstrate a working knowledge of this policy.

   a. Any training considered acceptable for the **Responsible Person** role
   b. Construction Infection Control Training Institute (CICTI) Certified Healthcare Worker (CCHW)

c. ASHE Managing Infection Prevention During the Construction & Operation of Health Care Facilities™

4. All **Contractors** (persons performing work)

   a. UVa employees performing Work are required to complete basic ICRA training computer based learning module (CBL) annually.

   b. Non-UVa **Contractors** performing **Work** will complete a site/project specific orientation prior to performing any **Work**. Orientation may be provided by the **Responsible Person** or the **Contractor**'s **Representative**. If provided by the **Contractor Representative**, the general outline/agenda for this orientation should be submitted to the **Responsible Person** for approval prior to the commencement of any **Work** and should include, at minimum, the following:
      i. Review of the Interventions listed on the **ICRA Authorization** Form
      ii. Why dust control is important and types of work that will generate dust.
      iii. Access to and from the work site for personnel, material and equipment.
      iv. Use of Public Facilities (e.g. – restrooms, cafeteria, etc.) outside of the confines of the construction area.
      v. Appropriate method and persons to be notified if there is a need to schedule work with an impact outside of the work area.
      vi. **Contractor Representative**/**Responsible Persons** are responsible for tracking completion of **Mandatory Training** for all site personnel.
      vii. **Contractors** performing very short term or emergency work may be excused from the training requirement if the following conditions are met:
         a. These untrained **Contractors** shall be escorted by a person who has undergone **Mandatory Training**.
         b. The escort then assumes the responsibility that the untrained **Contractor** follows all provisions of the policy.
         c. Approval for using non-ICRA trained **Contractors** must be approved by the **Contractor Representative**

5. **Designated Contracted Vendor** acting on behalf of a **Responsible Person** will receive **mandatory training** equivalent to that required for an **RP**.

6. **Area Manager** (or designee) in the area of the **Work** will receive and review a copy of the **ICRA Authorization** for **Work** occurring in their area. The requirements of the **Authorization** will be explained by the **RP**, their **Designated Contracted Vendor** or the **Contractor Representative**, and the **Area Manager** will sign the **Authorization** form to acknowledge their understanding. To the extent possible, this education will coincide with the Authorization review meeting with the ICRA Team. **Area Manager** or designee is responsible for disseminating ICRA information to area Team Members.

VI. ENFORCEMENT

A. The **Responsible Person** and the **ICRA Team** will monitor compliance regularly as described below:

1. Any **Responsible Person** or member of the **ICRA Team** may note non-compliance concerns with any **Work** at any time. When the concern does not present an **imminent risk**, it will be reported to the **RP** for the **Work** and the **ICRA Team** for investigation and correction. If the **RP** and/or **Contractor Representative** cannot be reached, **Work** activity resulting in the concern may be stopped until the concern is resolved.

2. The **RP** will ensure daily monitoring of compliance with ICRA Authorization requirements for ALL Level III and IV work being performed under Authorization(s) for which they are responsible. This may include work outside of the limits of construction being completed under separate ICRA Authorization. Record of daily monitoring should be provided on the Daily Monitoring Log (Appendix B) and the current week of daily logs should be posted at the **Work** site. Daily logs should be kept with the project files. The duty of daily monitoring and record keeping may be delegated to the Contractor Representative, but ultimate responsibility for oversight and quality belongs to the **RP**.

3. The **ICRA Team** will provide regular compliance monitoring via worksite visits known as ICRA rounds. ICRA rounds will generally be scheduled on a weekly basis for work meeting ICRA Level III and IV on the direct Medical Center Campus (University Hospital and adjoining buildings). In addition, ICRA rounds MAY be scheduled for facilities off campus as seen necessary based on risk and availability of staff, or at the request of the **RP** or the **Area Manager**. The **ICRA Team** will notify all **RP's** of the approximate day and time of rounds scheduled each week and both the **RP** and the **Contractor Representative** are encouraged to attend. A written record of any observations will be provided to the **RP** by email via the rounding report within 2 business days of rounding.

4. The **Responsible Person** will respond to the rounding report by email within 2 business days if any non-compliance issues are noted, indicating that the issues have been corrected or providing a schedule for their correction.

5. Monthly non-compliance rates are reported to Medical Center Quality Committee via the Infection Prevention and Control subcommittee.

B. **RP** and **ICRA Team** have the authority to stop work that is resulting in an **imminent risk** to patients, team members, or the public. If the **work** is stopped due to **imminent risk**, the **Contractor Representative** and **RP** will be notified immediately and will develop an appropriate mitigation plan. **Work** may resume only after **ICRA Team** approval of the plan.

C. Contractors who have not completed minimum **mandatory training** may be asked to leave the facility.

D. The Daily Monitoring Log (Appendix B) will be used to document inspections of the Work zone. The **Contractor Representative** is responsible for completion of the log and immediate corrective actions, when necessary.

E. The **RP** will review the daily monitoring logs and perform regular inspections of the Work zone for compliance with ICRA requirements.

F. Violations of this policy may result in additional oversight at the expense to the **Work**.

G. Non-compliance notification will be provided via verbal communication with the on-site Contractor and followed up with written documentation to the **RP** and **Contractor Representative**. Repeat infractions will cause a review of the ICRA Authorization with the **Contractor/Contractor Representative, Responsible Person, ICRA Team** and appropriate representatives from **Facilities Management**, and may result in requirements of additional oversight, training, and reporting.

VII. ADDITIONAL RESOURCES

Association for Professionals in Infection Control and Epidemiology (APIC) online resources available at www.APIC.org.

Centers for Disease Prevention & Control (CDC) Guidelines for Environmental Infection Control in Health-Care Facilities, 2003. Retrieved December 5, 2016 from http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_HCF_03.pdf

Facilities Guidelines Institute (FGI) 2014. *Guidelines for Design and Construction of Health Care Facilities*. Chicago, IL: ASHE (American Society for Healthcare Engineering of the American Hospital Association. Section - Planning, Design, and Construction/Commissioning.

APPENDIX A
CONSTRUCTION, RENOVATION, AND MAINTENANCE INFECTION CONTROL RISK ASSESSMENT

INFECTION CONTROL RISK ASSESSMENT AUTHORIZATION			
Project:			**Class:**
WO#:		Location of Construction (BLD#):	
Project Description/Scope of Work:			
Project Start Date:		Project Duration/Project End Date:	
UVa Project Manager Contact Info (Cell # & email)		UVa Construction Adm. Manager Contact Info (Cell # & email)	
Contracted Company Performing Work:		Contractor PM or Superintendent Contact Info (Cell # & Email):	
FP&CD Representative Contact Info (Cell # & email)		Responsible Person (if not already listed above)	

Check highest	**Risk Group**	Check 1	**Construction Activity TYPE**
	Low Risk Area		TYPE A: Inspection, non-invasive activity
	Medium Risk Area		TYPE B: Small scale, short duration, minimal levels of dust
	High Risk Area		TYPE C: Activity generates moderate to high levels of dust.
	Highest Risk Area		TYPE D: Major duration and construction activities.

Risk Group↓ / **CONSTRUCTION ACTIVITY→**	**TYPE A**	**TYPE B**	**TYPE C**	**TYPE D**
Low Risk	**I**	**I**	**II**	**III**
Medium Risk	**I**	**II**	**III**	**IV**
High Risk	**I**	**II**	**III or IV[2]**	**IV**
Highest Risk	**II**	**II or III[1]**	**III or IV[2]**	**IV**

[1]Higher class when working above ceiling
[2]Higher class may be required dependent on duration, location and potential impact of work
Check here ☐ if: Plenum Ceilings exist (complete negative pressure cannot be obtained) or negative pressure rooms will be affected

Note: Infection Prevention & Control approval of the ICRA Authorization Form will be required for Class III or Class IV projects.

Complete the following for Class III and Class IV projects.

Identify the areas surrounding the project area and the risk group for those locations. If more than one risk group is identified, select the higher risk group.

Unit Below	**Unit Above**	**Lateral**	**Lateral**	**Behind**	**Front**
Risk Group	**Risk Group**	**Risk Group**	**Risk Group**	**Risk Group**	**Risk Group**

Has IP&C been consulted on the design (e.g. clean/soiled rooms, handwashing sinks, isolation rooms, etc.)?

Specific site of activity (patient room, corridor, medication room, storage room, etc.). Specify room numbers.

How will unit based equipment be protected? If equipment is to be moved, provide specifics:

Possible HVAC, plumbing, and electrical issues and the probability of unplanned outages that will impact patient care:
Is there a risk for water damage or will water be aerosolized during this work?
HVAC: Describe local or system isolation of work site (will supply or return be active?):
Indicate type of work to be done during patient care hours:
Describe patient, staff and construction traffic flow patterns during construction.
ICRA containment: Barrier/Door type: ☐ **Plastic containment required for construction of barrier** ☐ **Inspection prior to start of construction required** ☐ **Need elevator lockout or appropriate measures if elevators are within work area?**
Ante-room (yes/no):
How will negative pressure be maintained? Indicate on floor plan. Reference Section III.C.
Can supply air be completely isolated vs damped down? **Have you coordinated with HSPP?**
How will negative pressure be monitored? If required, must be between -0.01 and -0.05 ☐ **Continuous read negative air pressure monitor** ☐ **Smoke test with daily log** ☐ **Handheld manometer with daily log**
Briefly describe demobilization/re-occupancy plan.
IP&C to complete: Need for final IP&C approval before re-occupancy? YES / NO

Infection Control Interventions for the assigned classification include interventions for all lower classes (i.e. Class IV includes Classes I, II, & III)	
Class I	1. Patients must be removed from the Work area while the Work is being performed. 2. Execute work by methods to minimize raising dust from construction operations. 3. Immediately replace ceiling tile if displaced. 4. Contractor is educated before the start of the project about the importance of adhering to Infection Prevention & Control measures. 5. Clean (wipe down or HEPA vacuum) work area upon completion of task
Class II	1. All Class I interventions 2. High Risk Patients must remain out of room for one hour after completion of work. 3. Provide active means to prevent air-borne dust from dispersing. 4. Contain work area with an approved ICRA containment barrier (section H on page 4). 5. Clean/sterile patient care items must be removed from within ICRA barrier. Contractor to notify RP if not removed. 6. Take appropriate measures at the source (e.g. HEPA vac, water mist, etc.) to control dust while cutting. 7. Seal unused doors with painters tape. 8. For Type C Work, take appropriate measures to isolate HVAC system as specified in ICRA authorization 9. Doors and windows within the work zone to remain closed at all times except during ingress/egress. Use appropriate cleaning measures to minimize all visible debris throughout the site. 10. Maintain dust control mats (carpet and/or adhesive walk off mat) at site access points as necessary. Any dust or construction debris tracked outside of the work area will be promptly cleaned. 11. All renovation, construction, maintenance & tool carts entering/leaving area must be tightly covered and wiped and/or vacuumed so they are of free of dust and debris 12. Cover construction waste before transport using clean, hard-covered containers.

	13. Use designated travel route/elevators for all construction related activities. 14. Area to be free of dust and or debris at end of job or end of work shift. RP to Coordinate with EVS for Discharge Clean if work done outside of mobile dust containment booth.
Class III	1. All Class I and II interventions 2. Isolate HVAC system in areas where work is being performed to prevent contamination of duct system. Maintain until barrier is removed at completion of project. 3. Designate entry and exit traffic pattern, unauthorized personnel are not permitted to enter work zone, place traffic control signs. 4. Complete all barriers (or implement portable containment with HEPA vacuum) before construction begins. When working above ceiling, barriers must go to deck unless exception approved on ICRA authorization. Barriers will stay in place until PM authorizes removal 5. Seal all holes, pipes and conduit penetrations in critical barriers. 6. Maintain negative pressure within work site and utilize HEPA equipped air machines. Both will be maintained until finishes are complete, the HVAC system is operational and PM authorizes removal. Air from work zone within Operating room theatre must not be exhausted into adjacent corridors. 7. Air pressure to be monitored & documented at least daily (range -0.01 to -0.05 wc or smoke test). 8. The contractor will maintain the construction zone in a clean manner. a. Vacuum debris from clothing and shoes prior to exiting barriers (including containment booth) b. The area will be HEPA-vacuumed or damp mopped daily or more often as necessary to minimize dust. c. Daily cleanup of debris, material and waste shall be completed. Walk off mats monitored & changed on a regular basis so that they remain effective. d. Any dust or construction debris tracked outside of the work area will be promptly cleaned. 9. Do not open previously sealed HVAC registers and grills until finishes are in place and site is clean. 10. Barriers will be removed carefully to minimize spreading of construction dust and debris. 11. RP to Coordinate with EVS for a Terminal Clean. 12. For Type C and D work, additional steps for re-occupancy may be required as outlined in Section IV of this document. 13. **For adjacent outdoor work, many of the above interventions may not apply, however, additional interventions may be required to isolate construction from building entrances and mitigate construction impact to patient care (e.g. re-route patient traffic, wet down excavation areas, charcoal filters on air intakes, additional physical barriers at entrance/windows).
Class IV	1. All Class I, II, and III interventions 2. Continuous air pressure monitoring may be required (range -0.01 to -0.05 wc). For all Class IV work in highest risk areas, continuous pressure and daily particle count monitoring outside of construction entrance is required. 3. When exhausting into adjacent space, daily particle count monitoring of the HEPA exhaust efficiency in highest risk areas is also required. 4. Utilize anteroom and require all personnel to pass through this room so that they can be vacuumed using a HEPA vacuum cleaner before leaving work site. a. In certain situations wearing coveralls and/or shoe covers upon leaving the worksite may also be required. 5. To erect a barrier in Highest Risk areas a temporary plastic barrier must be first established using extension poles and fire retardant poly. To remove barriers upon completion of work a temporary barrier must again be established and the permanent barrier removed within the temporary barrier. 6. Portable air scrubbers used in Class IV interventions should be connected to emergency power, if available

ADDITIONAL COMMENTS OR REQUIREMENTS:

Required Signatures	Date
UVa Project Manager/CAM/Responsible Person – Class I - IV	
Contractor PM/Superintendent (unless TBD at time of signing)	
Infection Preventionist – Class III/IV only	
Clinical Area Manager or Designee – Class III/IV only	

APPENDIX B
INFECTION CONTROL RISK ASSESSMENT

DAILY MONITORING LOG

DATE: _____TIME: _____ PROJECT: _____

Responsible Person: _____ CONTRACTOR: _____

OBSERVATIONS BY: _____

INFECTION CONTROL INTERVENTION (as indicated on ICRA authorization)	Yes	No	N/A	Verbal Notification Given To, Corrective Action Taken, Other Comments.
HEPA Vacuum, personnel & cart cleaning supplies available at the work zone entrance.				
Construction barriers intact, no visual evidence of dust escaping the work zone				
Traffic restricted to construction personnel and traffic control signs posted and intact				
Construction personnel using designated entrances/exits and are following designated travel routes				
Walk off/adhesive mats clean & adequate to contain construction dust				
Portable air scrubber working properly ducting intact, filters certified as necessary. No dust accumulation at exhaust location.				Class IV in highest risk areas only: Particle count outside of site: _____ and % reduction of particles at HEPA exhaust (if exhausting to adjacent space): _____
Negative air pressure maintained & documented in comments				Pressure differential: _____
All windows closed behind barrier. Debris chute (if applicable) closed if not in use				
HVAC vents remain isolated/filtered				
Daily cleaning of the work zone. Ante Room clean. Entrance/exit & adjacent areas free of dust & debris				
Carts appropriately covered during transport of debris and materials				
No food trash found in work zone, or cavities in the work zone; no visible signs of vermin				
New contractors instructed in all ICRA requirements.				
Additional Comments:				

APPENDIX C
INFECTION CONTROL RISK ASSESSMENT

SUPPLEMENTAL INFECTION CONTROL INTERVENTIONS

Dust disturbances during renovation activity, increased traffic and contractor staff in the restricted areas may increase bacterial and other fungal content in the air. If not contained this disturbance could possibly increase the infection risk.

1. Adhere to signage in restricted areas regarding the requirement for Surgical Attire. Specific requirements will be reviewed and recorded in the ICRA Authorization.
    a. Coveralls must be worn in all **Restricted Areas**
        i. **Coveralls are available at the entrance to the restricted area for one-time visitors. Contractors are responsible to provide coveralls for ongoing work**
    b. Shoe covers may be required.
        i. Contractors are responsible for providing shoe covers if needed.
    c. All hair must be covered with a cap or hood in case of facial hair.
    d. Identification badges must be visible and clean.
    e. The coveralls, etc. must be removed and discarded when leaving the restricted area.
2. Large bags, backpacks, suitcases, or other personal clothing, etc. that are not wipeable (i.e. of porous materials) are **not** to be carried into the restricted areas. All equipment brought into the Restricted Areas must be clean and wiped with disinfectant before entering area. At no time should dirty equipment or carts be moved through the Restricted Areas or in/out of the work zone.
3. Any work done within the Restricted Areas that will create vibration must be prearranged by the RP.
4. Contractors should minimize the number of times they must enter and exit the Work area and travel through the Restricted Areas.
5. Coveralls (and shoe covers, when required) will be put on to enter Restricted Areas and removed in work area. Prior to leaving work area clean coveralls/shoe covers will need to be put on to re-enter the Restricted Areas. A clean supply must be available at entrance to each work area.
6. Mobile Containment Units will not be set up adjacent to carts containing clean supplies/equipment or OR case carts. These items will need to be relocated by Nursing Personnel. Floors within a 5 foot radius of the Mobile Containment Unit discharge must be cleaned and disinfected immediately prior to activation of booth. Booths should not be used within 15 feet of a room in which there is an active procedure.

I have read and understand the above Supplemental Infection Control Interventions. I will be responsible to see that all of our workers and subcontract workers will follow these precautions.

_____

Contractor, site supervisor

APPENDIX D

MOBILE DUST CONTAINMENT UNIT (MCU) USAGE CHECKLIST

Before using the MCU, check the following:		YES	NO
1	Before entering the clean space, have you raised the top extension and cleaned the entire MCU, all surfaces, inside and outside, along with the wheels?		
2	Is the HEPA vacuum in good working order with a clean filter and bag?		
3	Enter date of most recent annual evaluation (within last 12 months) to document the integrity of the unit and HEPA filter efficiency	Date:	
4	Are all of the door and top seals in place, with no gaps and in good condition?		
5	Are the power cords and GFCI clean and in good condition?		
6	Are your cords elevated off the floor, or taped to the floor to prevent trip hazards?		
7	Do you clean sticky mats on the floor inside the MCU to clean the soles of your shoes before exiting it?		

* **If there are any NO answers to questions #1 through #6, please correct the condition before proceeding**

With the MCU in place, and before usage:		YES	NO
7	Will the ceiling tiles you are going to remove be fully covered by the MCU		
8	Are all the tiles on the perimeter of the MCU flat and with no penetrations that will affect the sealing of the MCU to the ceiling?		
9	Are there any hospital carts or equipment in the way of setting up the MCU correctly?		
10	Are there any objects on the walls that will affect the MCU placement?		

* **If there are any YES answers to questions #7 through #10, have you addressed it?**

* **If there are any YES answers to questions #7 through #10 that cannot be corrected,**
DO NOT PROCEED. NOTIFY CONTRACTOR AND/OR CONTRACTOR'S REP IMMEDIATELY

With the MCU in use:

11	Ensure the HEPA vacuum is always running while using the MCU
12	Only open the door of the MCU if the HEPA vacuum is running. Minimize opening and closing the door of the MCU in the clean work area
13	If you need to relocate the MCU to a new work location, first move the MCU to a safe area and clean the MCU before proceeding with work in the new work location
14	Wear a coverall when in the MCU. Remove it while in the MCU after your work is done and leave the dirty coverall in the MCU
15	Keep all demolished material in the MCU until the MCU has been moved to a safe working location
16	If asked, immediately shut down and close up all work activity, move the MCU to a safe environment and notify contractor and/or contractor's rep

Responsible Person or Contractor's Representative – contact information:

_____

APPENDIX E

INFECTION CONTROL RISK ASSESSMENT

ICRA PRE DUST GENERATING ACTIVITY CHECKLIST

Keep this checklist with ICRA posted at site

DATE: _____TIME: _____ PROJECT: _____

Responsible Person: _____ CONTRACTOR: _____

OBSERVATIONS BY: _____

INFECTION CONTROL INTERVENTION (as indicated on ICRA authorization)	**Yes**	**No**	**N/A**	**Verbal Notification Given To, Corrective Action Taken, Other Comments.**
HEPA Vacuum, personnel & cart cleaning supplies, cart covers available at the work zone entrance.				
Construction barriers intact, including above ceiling barriers where required. Unused doors taped.				
Traffic restricted to construction personnel and traffic control signs posted and intact				
ICRA Authorization Form, emergency contacts, and sleeve for daily logs posted.				
Construction personnel trained on designated entrances/exits				
Walk off/adhesive mats adequate to contain construction dust				
Air scrubber machine(s) cleaned, new filters, ducting cleaned and intact, and required speed setting indicated prior to activation.				
Baseline particle concentration tests conducted and recorded in notes. Take as a percent reduction from outside building entrance particle count. Test at discharge only required if discharging into adjacent spaces or near pedestrian pathways. Outdoor air (building entrance) particle count: _____				Percent reduction: Outside of barrier: HEPA OFF: ON: Inside of barrier - HEPA OFF: ON: Supply grill outside of barrier - At HEPA Discharge -
Negative air pressure established and documented in notes column. (-0.01 minimum required)				Pressure differential: _____
Check adjacent pressure sensitive areas (i.e. soiled utility rooms) outside barrier for changes in pressure.				
HVAC supply turned down, returns covered per ICRA Authorization Form				
Patients removed and supplies/equipment removed or covered				
Contractors instructed in all ICRA requirements.				

APPENDIX F

GUIDE FOR MEASURING AND ASSESSING PARTICLE COUNTS

What is particle count measurement?
Particle count monitoring uses particle counters to measure dust concentrations in the air. These measurements can be used to evaluate relative indoor air quality or validate infection control protocols.

What's the reason for conducting particle count monitoring?
Particle count monitoring offers healthcare facilities several infection control benefits:

- It identifies existing infection control issues that need to be considered.
- It helps assess the effectiveness of hospital protocols for infection control during healthcare construction.
- It ensures that dust control measures surrounding construction and maintenance projects are working.
- It demonstrates that the hospital is protecting patients.

This appendix is to be used as a guide for assessing particle count measurement. Since the particle counts in the air outside of the building can vary from day to day due to weather, season and time of day, and since the air handlers and air scrubbing machines are effective at reducing a percentage of particles, the particle count in any given area can vary from day to day. What should not vary significantly is the percent difference of particles from the outside of the building baseline, as long as that reading is taken at the same location, at relatively the same time each day.

Outdoor Baseline – Anytime a percent difference is assessed, the first measurement that should be taken is the particle count outside of the building, approximately 10ft from the entrance door. The particle counter should be on averaging mode and you should record the particles per liter that are ≥ 0.3microns. The counter should be allowed to run for a minimum of 1 minute.

Indoor Points of Measurement

1. Get a reading at the supply air discharge closest to the project site entrance. This is to let you know how well the air handler serving that area is performing.
2. A reading should be taken at waist level 3 feet in front of the construction barrier.
3. A reading should be taken inside of the construction barrier.
4. If you are discharging HEPA scrubbed air into an occupied space, a reading should be taken at the discharge of the HEPA air scrubber.

Percent Difference – Percent difference is calculated by:

% Difference = ([Outdoor Concentration – Indoor Concentration] / Outdoor Concentration) x 100.

- According to ASHRAE, MERV 8 is designed to filter 0% of particles smaller than 1 micron, 20% of particles 1-3 microns, and 70% of particles 3-10 microns.
- MERV 14 filters remove 75% of 0.3 to 1 micron, 90% of 1-3 micron, and 95% of 3-10 micron particles. HEPA filtration must remove 99.97% of particles 0.3 microns or larger.

- HSPP staff can let you know what level of filtration treats the air in the project area. The University Hospital is switching over to mostly MERV 14 or HEPA and most of the Medical Center's buildings have at a minimum MERV 8 filtration.

The above percent reductions are achieved directly post filter; there will be some contamination while the air travels down the ductwork and mixes with the air past the discharge. The further away from the discharge you hold the particle counter, the more particles you will count. This is why it so important to get a pre-construction baseline using appendix E and then take weekly (or daily, if required) readings.

For 0.3 microns or greater, the goal is to have 90% (+/-10%) reduction from the outdoor air. A percent reduction of less than 80% outside of the barrier could indicate that dust is escaping from the containment area. Percent reduction less than 80% should be investigated further with documentation of corrective action. A less than 90% reduction for HEPA filtered exhaust could indicate that HEPA is not functioning properly and should be investigated further with documentation of corrective action.