

01.38 - Hospital Construction, Renovation, and Demolition

Purpose To provide infection control guidelines for hospital construction, renovation, and demolition.

- Infection Control Risk Assessment (ICRA)**
- A. An assessment of infection will be done prior to planning for any renovation, construction, or demolition project in or near any UTMB Healthcare facility.
 - B. The assessment will be performed by representatives from the Department of Healthcare Epidemiology and Business Operations and Facilities.
 - C. Risk Matrix

Risk Level A: Office areas in business occupancies, soiled/decontamination rooms, service areas (loading dock etc), mechanical and electrical rooms unless adjacent to high risk areas.

Risk Level B: Treatment rooms, recovery rooms, radiology waiting rooms, examination rooms, medication rooms, GI endoscopy procedure rooms, dispensing areas of pharmacies, labor and delivery, kitchen areas.

Risk Level C: Operating rooms, burn unit, triage, sterile processing, NICU, ICU, Inpatient areas, sterile storage, oncology, emergency department, isolation rooms, procedure rooms, patient rooms, tomography.

Level 1 Activity: Inspections above ceiling that create minimal to no dust, minor repair, painting, or minor patching, minor electrical work, plumbing, similar work with little or no drilling, cutting, or other dust-raising activity, opening into chases and concealed spaces. Normal maintenance activity.

Level 2 Activity: Installation of electrical and computer cabling, working in chases and concealed spaces, working above ceiling, replacing finishes, carpet removal, wall covering removal, cutting plaster and drywall, sanding and other dust making activity within a room or other controlled area, opening ceiling tiles (more than 16 ft² consecutive). Usually one to three shifts.

Level 3 Activity: Removing floor coverings, sanding plaster walls, wall demolition and construction, duct work, major ceiling work, major demolition of areas, particularly those open to patient care areas, work on HVAC systems that release dust. Usually more than three consecutive days work.

	Risk Level A	Risk Level B	Risk Level C
Level 1 Activity	A1	A2	A3
Level 2 Activity	B1	B2	B3
Level 3 Activity	C1	C2	C3

Level I Precautions
Level II Precautions
Level III Precaution

Class I Precautions (REQUIRED ON ALL JOB SITES):

- ICRA Permit posted at the job site.
- Use tightly covered container to remove debris along a path identified by Healthcare Epidemiology.
- Protect patient care areas from activity or close access to work area.
- If removing ceiling tiles, replace promptly.
- Minimize dust and dirt.
- Keep work area clean.
- HEPA vacuum or damp wipe and mop work areas when work is complete.
- Other precautions noted below.

Class II Precautions

- HEPA unit utilized to maintain negative pressure in work site until project is complete, if indicated by UTMB Healthcare Epidemiology. Must be exhausted outdoors (unless otherwise approved by UTMB Healthcare Epidemiology). HEPA units must be commissioned per hospital standards.
- Seal doors and/or enclose work area with approved fire retardant polyethylene, wall board, or mobile containment based on UTMB project requirements. Evaluate above ceiling to identify and fill any penetrations inside the work area.
- Work area may be required to have a vestibule or anteroom.
- Use water mist to minimize dust when applicable (ie; demolition or when cutting wall board).
- Isolate HVAC supply and exhaust with plastic or other solid material. Contact Property Services to evaluate air balance and temperature in adjacent spaces to correct issues caused from HVAC isolation.
- Use sticky walk off mats at the exit of the job site, being careful not to create a public trip hazard.
- If vacuum is used on site, it must be HEPA filtered and maintained per manufacturer's specifications.
- Upon completion of work, clean all surfaces with hospital approved disinfectant.
- Other precautions noted below.

Class III Precautions

- HEPA Unit utilized to maintain negative pressure in work site until project is complete and must be exhausted outdoors (unless otherwise approved by UTMB Healthcare Epidemiology personnel).
- HEPA Units commissioned per hospital standards.
- Seal doors and/or enclose work area with approved fire retardant polyethylene, wall board, or mobile containment based on UTMB project requirements. Evaluate above ceiling to identify and fill any penetrations inside the work area.
- Work area will be required to have a vestibule or anteroom, unless otherwise approved by Healthcare Epidemiology.
- Use water mist to minimize dust when applicable (ie; when cutting wall board).
- Isolate HVAC supply and exhaust with plastic or other solid material.

- Contact Property Services to evaluate air balance and temperature in adjacent spaces to correct issues caused from HVAC isolation.
- Use sticky walk off mats at the exit of the job site, being careful not to create a public trip hazard.
 - All penetrations in the construction area must be sealed to prevent migration of dust (if fire rated separation, must be sealed with equivalent material).
 - If vacuum is used on site, it must be HEPA filtered and maintained per manufacturer's specifications.
 - Upon completion of work, clean all surfaces with hospital approved disinfectant.
 - Healthcare Epidemiology must be notified a minimum of 5 business days before the area is to be released in order to collect clearance samples. The area must be cleaned and disinfected prior to sample collection.
 - Other precautions noted below.
- D. Patients should be transported to areas in the hospital where they have diagnostic or therapeutic procedures by routes that minimize their exposure to construction sites.
- E. Education of construction workers about infectious diseases.
1. Facility and contractor workers should be educated about infectious hazards they may encounter during the renovation/construction at the pre-construction conference.
 2. Individual worker education will be provided by the contractor.
- F. Health protection for patients from construction workers.
- G. Immunocompromised patients
1. Prior to any construction/renovation or cable pulls the Nurse Manager of the unit will be notified by the construction manager
 2. Prior to the initiation of the work the patients on the unit will be assessed by the Nurse Manager.
 3. Patients who have ever had a lung transplant or have an absolute neutrophil count of <500 in the last 24 hours must be moved to the opposite wing of the hospital or another floor prior to the initiation of the work.
 4. If the patients cannot be moved because of bed capacity or illness, the renovations will be postponed.
- A. Elevator Shafts
1. Elevator shaft access shall be sealed if located in areas undergoing construction/renovation.
- B. Pneumatic tube system
1. Pneumatic tube system ports will be sealed in areas undergoing construction/renovation.
- C. Decontamination of construction workers prior to their exiting the worksite.
1. Workers' clothing must be free of loose soil and debris before they leave the construction area.
 2. When construction workers wear no protective apparel, their clothing

Design of
measures for
protection

must be cleaned with a HEPA-filtered vacuum prior to leaving the worksite.

- D. Only authorized persons will be allowed to enter the construction zone.
- E. Signage must direct pedestrian traffic away from construction areas.
- F. Water distribution systems
 - 1. When there are alterations in the water distribution system within an area under construction/renovation, no “dead legs” will be created, and any “dead legs” found will be removed.
 - 2. After completion of renovation/construction, all water pipes in the area of renovation/construction will be adequately flushed.

Monitoring for Contamination

Monitoring for contamination/infection during and after renovation/construction.

- A. Air samples may be taken for culture before, during, and after renovation/construction projects as deemed appropriate by the Department of Healthcare Epidemiology.
- B. Water samples may be taken for culture before and after renovation/construction projects as deemed appropriate by the Department of Healthcare Epidemiology.
- C. Continuous surveillance for infections related to renovation/construction will be done as deemed appropriate by the Department of Healthcare Epidemiology. Criteria for acceptable air quality in different types of patient care units are as follows:
 - 1. Medical/Surgical patient care units
 - a. Total spore counts \leq 15 spores per cubic meter of air.
 - b. Total pathogenic spore counts \leq 3 spores per cubic meter of air.
 - 1) *Aspergillus* species
 - 2) Zygomycete species
 - 3) *Fusarium* species
 - 2. Intensive care units, transplant units, oncology units
 - a. Total spore counts \leq 15 spores per cubic meter of air.
 - b. No spores of pathogenic fungal species
 - 3. Operating rooms
 - a. Total spore counts \leq 3 spores per cubic meter of air.
 - b. No spores of pathogenic fungal species

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- Reference
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