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Safety and Infection Control Management Plan for Construction, Renovation, and Modernization Projects

Attachment 1: Sample Infection Prevention Blueprint Review for Clinical Areas

Project Title:_____ . P# :_____ Design Liaison:

Infection Prevention Reviewer:_____ Date of Review:

1	2	3	4	Comments
Hand washing sinks are appropriately placed. **Scrub sinks**, if used, have an automatic timer or clock with second hand available. Assure appropriate number and placement of hallway sinks if possible. Splashguards if counter space next to sink. Alcohol based hand rub stations appropriately placed	Yes___ Yes___ Yes___ Yes___ Yes___	No___ No___ No___ No___ No___	NA___ NA___ NA___ NA___ NA___	
Traffic flow appropriate (e.g., no dirty activities through clean areas.	Yes___	No___	NA___	
Ventilation-see comments last column.	Yes___	No___		**Please verify that the air exchanges per hour and pressure differential are as recommended by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)**
Isolation Room Needed: Isolation room must meet the CDC requirements for Airborne Isolation. Please contact ventilation engineer in Plant Engineering.	Yes___	No___	NA___	
Flooring appropriate (e.g., no carpet in OR, seamless floors in dialysis)	Yes___	No___	NA___	
Medicine preparation area designed to prevent contamination. Medication preparation should be accomplished at least 3 feet from sink and/or splashguard will be placed between the medicine prep area and sink.	Yes___	No___	NA___	
Ice machines are designed for single use dispensing.	Yes___	No___	NA___	
Solid waste, disposal of body fluids and environmental issues Soiled Utility Room is conveniently located.	Yes___	No___	NA___	

Solid Waste and linen disposal appropriate.	Yes___	No___	NA___	
Provisions for soiled holding of trash (e.g., regulated medical waste) and soiled linen must be considered. Door to this room should remain closed (e.g., automatic closure). Janitor's closet is conveniently located. Adequate storage space for housekeeping carts.	Yes___ Yes___ Yes___	No___ No___ No___	NA___ NA___ NA___	
Sharps Disposal – see comments last column				**Please verify the installation height for wall-mounted sharps disposal units is the recommended height (i.e., top is between 52 and 56 inches from floor which accommodates 95% of all adult female workers).**
Containment of dust and debris				**Please verify the barriers for containment of dust will adequately prevent migration of construction dust outside the construction site (e.g., minor renovation for brief period may only require sealed plastic,; major renovation will require sealed temporary walls). Walk-off mats are required. Debris carts must be covered and wheels free of dust before transport.**
Patient care in adjacent areas **Review of plans has determined that renovation/construction project will not affect patient flow in relationship to adjacent areas (e.g., near loading docks or soiled activities).**	Yes___	No___	NA___	

Plan approved: Yes___ No___

Plan approved with incorporation of recommendations: Yes___ No___

Risk Assessment reviewed and approved: Yes___ No___ If yes, Class_____ If no, contact Project Manager and hold this form until Risk Assessment is completed.

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Attachment 2: Preconstruction Risk Assessment

UNC Hospitals
Pre-Construction and Infection Control Risk Assessment

Location of Construction:	Project Start Date:
Project Coordinator:	Estimated Duration:
Contractor Performing Work:	Permit Expiration Date:
Supervisor:	Telephone:

Description of project:

Construction Activities

The following projects do not require completion of the pre-construction risk assessment form:

1. Paint and wallpaper in business offices and non-patient areas.
2. Paint in patient room if closed for painting and less than 3 sq.ft. of wall needs patched. Filter for room unit changed after painting.
3. Installation of soap dispenser/needle box/paper towel holder/etc. in patient room except in a Protective Isolation room or if the patient is out of the immediate area and clean-up can be accomplished before the patient returns.
4. Repair of window blind.
5. Ceiling tile replacement for areas less than 10 2 X 2 tiles, if in business offices and non-patient areas.
6. Ceiling tile replacement for area less than 5 2 X 2 tiles in a patient area if patient is out of the immediate area and clean up can be accomplished before patient returns.
7. Minimum repair of nurse call system/TV/Bed/Telephone.
8. Check or replace electric outlet.
9. Replace light bulb.
10. Unstop sink/commode with no water on floor.
11. Unstop commode when water on floor requires Plant Engineering to have Environmental Services clean area immediately.
12. Repair medical gas outlet. (Front Body)
13. Air balance readings.
14. Check air-conditioning if doesn't generate dust and debris.

General

Yes No

☐ ☐ Will there be noise generated that will impact a department adjacent to, above, or below the construction area?
   a. If so, these departments must be notified.
   b. How will noise be reduced to an acceptable level?

☐ ☐ Will there be vibration generated that will impact a department adjacent to, above, or below the construction area?
   a. If so, these departments must be notified each time this type of work will be performed.
   b. How will vibration be reduced to an acceptable level?

☐ ☐ Are Emergency Procedures in place for accidental events that could greatly impact Patient Care or Life Safety to the facility? Included in these procedures are such things as:
   - Emergency telephone numbers of key departments.
   - A plan that describes where main valves, switches, and controls are for the area in case of an emergency.
   - A plan for unexpected outages.

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Safety and Infection Control Management Plan for Construction, Renovation, and Modernization Projects

Environment

Yes No

- ☐ ☐ Will hazardous chemicals be used on this project? How will fumes and odors be controlled? Safety Data Sheets are required for all hazardous chemicals used on the project.
- ☐ ☐ Is hazardous material abatement required on this job? If so, notify Plant Engineering Safety Officer.
- ☐ ☐ Will there be hot work done on this project? If there is, then a hot work permit must be posted on the job site. All hot work requires an assessment and may require a fire watch pursuant to NFPA 51B.
- ☐ ☐ Will there be a Confined Space Entry required on this project? If so, the confined space entry program must be followed. Must notify Plant Engineering Safety Officer as well as UNC Medical Center Environmental Health and Safety prior to entry.

Utilities

Yes No

Will any of the following systems be out of service at any time during the project?

- ☐ ☐ Fire alarm (If out for more than 4 hours, Interim Life Safety Measures must be implemented.)
- ☐ ☐ Sprinkler (If out for more than 4 hours, Interim Life Safety Measures must be implemented.)
- ☐ ☐ Electrical
- ☐ ☐ Domestic water
- ☐ ☐ Medical Gases
- ☐ ☐ Sewage
- ☐ ☐ HVAC

Emergency Procedures and ILSM

Yes No

- ☐ ☐ Will there be any work that may require activation of the Interim Life Safety Measures during this project? If the answer to this question is yes, contact EH&S immediately to evaluate need for area training. Some things that may require ILSM's to be implemented are but not limited to:
  - ☐ Any construction that impacts an exit or stairs
  - ☐ Any construction that impacts major breaches in a fire or smoke wall
  - ☐ Taking the main fire protection system out of service (sprinkler)
  - ☐ Taking the main fire alarm system out of service
  - ☐ Taking the "area" fire or fire alarm systems out of service for more than 4 hours within a 24-hour period.

Implementation of the ILSM requires the ILSM form to be completed and may require a fire watch.

Additional Safety Concerns

Yes No

- ☐ ☐ Will construction affect exit routes from occupied areas adjacent to construction site?
- ☐ ☐ Will project affect traffic patterns in area? If yes, explain plan.

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Safety and Infection Control Management Plan for Construction, Renovation, and Modernization Projects

Air Quality and Infection Control

The construction activity types are defined by the amount of dust that is generated, the duration of the activity, and the amount of shared HVAC systems. Contact the Infection Prevention Department if any activity is questionable under these guidelines.

Yes	No	
☐	☐	Will dust be generated during this project? If yes, explain location of and plan for interim dust barriers or attach floor plan with barriers clearly marked.
☐	☐	Will debris removal be necessary? If yes, explain plan for debris removal and control.
☐	☐	Will work be done in a sterile area? If so, how will a sterile atmosphere be maintained in work area and access to and from work area?

Infection Control Classification

Step 1 – Identify the Construction Activity Type

Type A Inspection and non-invasive activities or small scale, short duration activities do not generate appreciable dust and do not require cutting of walls or access to ceilings other than for visual inspection, including, but not limited to:

Yes	No	
☐	☐	Removal of ceiling tiles for visual inspection limited to 1 tile per 50 square feet
☐	☐	Painting (but not sanding)
☐	☐	Wall covering
☐	☐	Electrical trim work
☐	☐	Minor plumbing
☐	☐	Installation of telephone and computer cabling in non-patient care areas

Type B Small scale, short duration activities that create minimal dust, including, but not limited to:

Yes	No	
☐	☐	Installation of telephone and computer cabling in patient care area
☐	☐	Access to chase spaces
☐	☐	Cutting of walls or ceiling where dust migration can be controlled

Type C Any work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies (e.g., countertops, cupboards, sinks), including but not limited to:.

Yes	No	
☐	☐	Sanding of walls--drywall finishing for painting or wall covering
☐	☐	Removal of floor coverings, ceiling tiles, or casework
☐	☐	Cutting of walls or ceiling
☐	☐	New wall construction
☐	☐	Minor ductwork or electrical work above ceilings
☐	☐	Major cabling activities
☐	☐	Any activity that cannot be completed within a single work shift

Type D Major demolition and construction projects, including, but not limited to:.

Yes	No	
☐	☐	Activities that require consecutive work shifts
☐	☐	Will require heavy demolition or removal of a complete ceiling system (Appendix 3 said cabling systems but I believe that ceiling system is correct)
☐	☐	New construction

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Safety and Infection Control Management Plan for Construction, Renovation, and Modernization Projects

STEP 1: Type: _____

Step 2 – Identify the Patient Risk Groups Affected by the Work

Using the following table, *identify* the Patient Risk Groups that will be affected by the work. For example, include areas that are adjacent to the site or are in areas where vibration may cause fallout on the rooms beneath the site. Note: This list is not all inclusive. It provides examples of types of patient care areas.

Low Risk	Medium Risk	High Risk	Highest Risk
• Office areas • Public areas (e.g., lobbies)	• Outpatient Clinics (except transplant and oncology) • Cafeterias (e.g., Terrace Cafe, Corner Café) • Public Corridors	• All inpatient nursing units that are not ICUs or Step-down units. • Emergency Room • Labor & Delivery • Laboratories • PACU • Food preparation/food service areas • Cardiology • Echocardiography • Endoscopy • Nuclear Medicine • Physical Therapy • Radiology/MRI • Respiratory Therapy	• **Any inpatient area housing immuno-compromised patients:** ○ BMTU, all ICUs, burn floor [5 East], solid organ transplant floors [CTSU, 5WST, ISCU], Oncology [4ONC], Pediatric Oncology [5CH]) • Step-down Units • Cardiac Cath Lab • VIR • Dialysis • Central Processing • Operating rooms, including C-section rooms and Outpatient Surgery • PACU • Transplant Clinic • BMTU Clinic • Oncology clinics and infusion areas • Apheresis • Pharmacies • Hematopoietic Progenitor Cell (HPC) Lab • Microbiology Labs • Cytogenetics Lab • Bloodbank • Linen assembly rooms • Clean supply rooms

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Safety and Infection Control Management Plan for Construction, Renovation, and Modernization Projects

***Step 3* – Complete the Infection Control Matrix to Determine the Class of Precautions. Class III and IV jobs lasting more than two weeks require solid, not plastic, barriers. Class II jobs may require a solid barrier, as recommended by Infection Prevention and Plant Engineering.**

***Match* the Patient Risk Group (Low, Medium, High, Highest) with the planned Construction Project Type (A, B, C, D) on the following matrix to find the Class of Precautions (I, II, III, or IV) or level of infection control activities required.**

	CONSTRUCTION ACTIVITY *Check type of activity*		**INFECTION CONTROL RISK GROUP** *Check risk group*
☐	TYPE A: Inspection, non-invasive activity	☐	GROUP 1: Low Risk
☐	TYPE B: Small scale, short duration, moderate to high levels of dust	☐	GROUP 2: Medium Risk
☐	TYPE C: Activity generates moderate to high levels of dust, requires greater than 1 work shift for completion	☐	GROUP 3: Medium/High Risk
☐	TYPE D: Major duration and construction activities requiring consecutive work shifts.	☐	GROUP 4: Highest Risk

Classification of Required Preventive Measures

	Construction Activity			
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**

Step 3: Required Preventive Measures Classification: _____

a) CLASS I	1. Execute work by methods to minimize raising dust from construction operations. 2. Replace any ceiling tile displaced for inspection immediately when unattended if outside construction barrier. 3. Construction workers should use elevators designated "for staff use."
b) CLASS II	**Follow all precautions for CLASS I, above. Follow these additional precautions:** 1. Obtain signed Risk Assessment from Infection Prevention before work begins. 2. Provide active means to prevent airborne dust from dispersing into air. Complete all critical barriers before construction begins. 3. Remove or isolate HVAC system in areas where work is being performed to prevent contamination of the duct system. Negative or neutral pressure in work site is preferred. 4. Block off and seal air vents. Seal unused doors with duct tape. 5. Water mist work surfaces to control dust while cutting. 6. Contain construction waste before transport in covered containers. 7. Keep dust and accumulated dirt in the work site to a minimum. Use disinfectant to wipe soiled or dusty surfaces. Keep area around the site clean. Wet mop with disinfectant to minimize dust and debris in and around work site. Use HEPA filtered vacuum cleaner when vacuuming. 8. Place dust control mat at entrance and exit of work site; cover sufficient area so both feet contact the mat. Replace or clean when no longer effective. 9. Remove barrier materials carefully to minimize spreading dirt or debris from construction area. Wipe casework and horizontal surfaces at completion of project. 10. Environmental Services performs final cleaning prior to job being turned over to owner.
c) CLASS III	**Follow all precautions for CLASS I and II above. Follow these additional precautions:** 1. Class III projects lasting more than two weeks require solid, not plastic, barriers. 2. Seal holes, pipes, conduits and punctures appropriately. 3. Maintain negative air pressure within the work site and utilize HEPA equipped air filtration units. 4. Cover construction supplies and materials during transport into the facility and work site.
d) CLASS IV	**Follow all precautions for CLASS I, II, and III above.** 1. Class IV projects lasting more than two weeks require solid (not plastic) barriers. 2. Class IV may require additional measures as determined by Infection Prevention and Plant Engineering For example, workers could be vacuumed with HEPA vacuum before leaving the worksite or could wear cloth or paper coveralls (e.g., bunny suits) and/or shoe covers when exiting the project site and traveling through neighboring clinical areas.

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Safety and Infection Control Management Plan for Construction, Renovation, and Modernization Projects

<table>
<tr><td colspan="3">Additional Requirements or Concerns:</td></tr>
<tr><td>Permit Requested By</td><td>Plant Engineering Safety Officer Approval</td><td>Infection Prevention Approval</td></tr>
<tr><td>Date:</td><td>Date:</td><td>Date:</td></tr>
<tr><td></td><td>UNC Medical Center Environmental Health and Safety Approval</td><td></td></tr>
<tr><td></td><td>Date:</td><td></td></tr>
</table>

Attachment 3: Quick Reference for Construction Barrier Specifications

Sheet Plastic

- Fire retardant polyethylene
- 6 mil thickness
- Must be completely sealed from top to bottom and continuously supported to prevent sagging (e.g. wrap plastic at top and bottom around wood or metal and pin to ceiling and floor with tension poles).
- Entry/exit must be double-layered plastic overlapping with weighted flap at least 2 feet in width at bottom **OR**
- Plastic with zipper that runs the full length of plastic door and with zippers at the bottom to completely seal during work activities
- **Plastic barriers may not be used on Class III or Class IV projects lasting more than two weeks. They may not be used on projects that include torch cutting, welding or burning.**

Dry Wall and Solid Core Door

- Metal studs/frame to secure to floor, ceiling, and sides as needed.
- When metal studs/frame not possible, use appropriate tape to seal.
- Door in frame with no gaps on top, bottom, or sides. Use appropriate tape to seal as necessary.
- **Class III and Class IV projects lasting more than two weeks require solid barriers.**
- **When project is considered as having a higher level of hazard than the occupied portion of the building, barrier shall have 1-hour fire resistance rating with 45-minute fire protection rating in openings pursuant to NFPA 241.**

Walk-Off Mats

- Minimum of 24 inches X 36 inches

Ventilation

- All construction zones should have negative airflow. The air movement should be from outside the construction zone into the construction zone.
- Portable HEPA units can be used for zones with low to neutral pressure.

NOTE:	**Class III and Class IV projects lasting more than two weeks require a solid (not plastic) barrier. Occasionally a Class II project may require a solid barrier as recommended by Infection Prevention and Plant Engineering.**

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Attachment 4: Contractor Employment Requirements

1. Each contractor must comply, and require each of its employees to comply, with OSHA regulations and CDC recommendations concerning "Occupational Exposure to Bloodborne Pathogens" by:
    a. Providing UNC Medical Center HEOHS Infection Control and General Safety Training manual with posttest which incorporates OSHA and CDC standards;
    b. Providing a devoted toll free line with qualified personnel for any interactive questions;
    c. Providing Hepatitis B Vaccination Series, if needed, at no cost, as required by OSHA Bloodborne Pathogen Rules for blood exposure;
    d. Maintaining and distributing an Exposure Determination and Control Plan;
    e. Maintaining required records;
    f. Ensuring proper follow-up evaluations resulting from an exposure incident;
    g. Providing authorization and reimbursement for post exposure medical evaluation and follow-up; and,
    h. Providing an explanation of the signs, labels and color-coding used to identify bio-hazardous materials.
2. Each contractor must conduct a criminal background check on each of its workers which will show any convictions of each such worker, other than traffic offenses, which have occurred over the preceding seven (7) years. A copy of the results of such checks shall be provided to UNC Medical Center upon request. UNC Medical Center reserves the right to refuse the services of any worker based upon the results of such check.
3. Each worker will have all immunization (i.e., immunity to COVID-19, mumps, measles, rubella; varicella; pertussis; along with a yearly influenza immunization) and health requirements met according to UNC Medical Center's Infection Control and Screening Program, Occupational Health Service (summarized on Appendix II). In addition, each contractor shall verify that each worker providing services at UNC Medical Center undergoes the same pre-employment/placement drug and health screening which is required of permanent staff of UNC Medical Center.
4. All workers shall be required to wear a badge appropriately identifying each such worker as an employee of the contractor, and/or any other badge required by UNC Medical Center.

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Attachment 5: Health Screening Criteria

COMMUNICABLE DISEASE SCREEN

1. Tuberculosis screening
   a. An appropriate test (i.e., TST or IGRA) and screen for symptoms of TB upon employment and should be offered annually as per the NC TB Manual, NC Health Department
   b. If the TST or IGRA test is positive, or symptoms suggestive of TB, must have chest x-ray, if chest x-ray negative, interview for symptoms annually
   c. Proof of negative screen must be verified by agency
   d. If positive test, but negative x-ray, must have proof of follow-up with county health department, in which diagnosis confirmed, or private MD
   e. If symptoms suggest active pulmonary TB, must have proof of follow-up and treatment with the county health department or private MD in which diagnosis and treatment are confirmed.
2. Influenza
   a. Proof of immunity required at employment. Proof of a yearly influenza vaccine dose (during Flu season). Seasonal: October 1 – March 31
3. COVID-19
   a. Proof of vaccination is required. Follow the Vendor Vaccine Policy as described in Exhibit A of the COVID-19 policy: Immunization of Healthcare Personnel.
4. Rubella
   a. Proof of immunity required at employment (unless birth before 1957 except for a female of childbearing potential) - one vaccine, serological evidence of immunity
5. Rubeola (Red Measles)
   a. Proof of immunity required at employment (unless birth before 1957) – two vaccine doses, serological evidence of immunity, or physician diagnoses disease with laboratory confirmation
6. Mumps
   a. Proof of immunity required unless birth before 1957) - two vaccine doses, serological evidence of immunity, or physician diagnoses disease with laboratory
7. Varicella
   a. Proof of immunity by clinical history or serological testing (positive Varicella titer), two vaccine doses, or physician diagnosed disease
8. Pertussis
   a. Proof of one dose of Tdap

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9. Hepatitis B, HIV and Other Disorders

    a. Employees coming in contact with human blood, potentially infectious body fluids, or potentially infectious materials must have the appropriate protective measures provided by his or her employer. This Federal Regulation is to prevent possible exposure to Hepatitis B, HIV and hepatitis C. All temporary service providers shall ensure that personnel placed by his or her firm are trained by UNC Medical Center regarding bloodborne pathogens. Such training must be conducted within ten (10) days of temporary personnel placement, if this person is to come in contact with patients.

Attachment 6: Weekly Monitoring Checklist: ILSM-PCRA Precautions

Date of assessment/survey:	Assessment completed by:			
Area assessed/surveyed:				
Project Number (if applicable):	Project name:			
	Yes	**No**	**NA**	**List time, documentation or action/follow-up as needed**
A. EXITS				
1. Exits provide free and unobstructed egress through construction.				
2. Alternative exits are clearly identified.				
3. Means of egress in construction area inspected daily.				
B. FIRE EQUIPMENT AND SAFETY				
4. Fire alarms, detection, and suppression systems are in an operational function.				
5. Fire alarms, detection, and suppression systems are impaired.				
6. Temporary fire alarm, detection, and suppression systems are being inspected and tested monthly.				**Date:**
7. Training and additional fire equipment are being provided for personnel.				
8. Power has been properly secured at the end of each workday.				
9. No smoking policy been implemented in and adjacent to the construction areas.				
10. Construction areas are free of storage and housekeeping materials, food waste, and debris from daily operations to reduce flammable and combustible fire load of the building; floor area leading to/from construction site cleaned daily.				

	Yes	No	NA	List time, documentation or action/follow-up as needed
11. Are there the appropriate number of functional fire extinguishers present on the job site in compliance with 1926.150: A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the protected building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.				
12. Number of hazard surveillance inspections in construction area has increased.				**Last date or time:**
13. Safety education programs have been conducted to ensure awareness of any ILSM deficiencies and construction hazards, as needed.				**Date:**
C. HAZARD SURVEILLANCE and INFECTION PREVENTION SAFETY				
14. Hand and safety rails are in place and in good condition.				
15. Extension cords are grounded and in good condition.				
16. Power tools are in good condition.				
17. Workers wearing required identification and hard hats are used as required.				
18. Hot work permits have been obtained for any work producing heat or sparks (grinding, removing floor tile with a propane torch, soldering pipe, etc.), and are conducted utilizing the appropriate safeguards and PPE.				
19. Documentation of worker instruction in Right-To-Know, Infection Control, and Fall hazards is available if requested.				**Date of request:**

	Yes	No	NA	List time, documentation or action/follow-up as needed
20. All compressed gases (acetylene, oxygen, etc.) are stored in an up-right manner and are appropriately (secured in cart or chained to stable surface).				
21. All scaffolding complies with OSHA requirements (1926.451) and workers are using appropriate harnessing (1926.104).				
22. Construction site secure and properly isolated from fresh air intakes.				
23. Lock out / tag out procedures are used as appropriate				
24. Materials used (i.e., fire retardants) comply with necessary safety regulations.				
25. Construction barriers are appropriate (fire retardant poly or dry wall) intact and maintain negative pressure relationships.				
26. Workers demonstrate compliance with traffic patterns.				
27. Workers comply with use of PPE (Hard hats, eye protection etc.) as needed.				
28. HEPA filtration units, HEPA vacuum equipment, &/or continuous use of exhaust fans demonstrate they are functioning appropriately. When applicable, verification that negative pressure is being maintained.				
29. Exhaust ducts sealed/capped as agreed by PCRA.				
30. Construction area doors are closed and gaskets & hardware are intact.				

31. Construction carts transporting debris are covered and consistent with agreement designed to minimize airborne particulate matter from debris.				
	Yes	**No**	**NA**	**List time, documentation or action/follow-up as needed**
32. All windows and doors remain closed to prevent circulation of dust/debris.				
33. Walk-off mats, adhesive strips are clean and changed sufficiently, or construction exit cleaned sufficiently to maintain clean entry/exits.				
34. No signs of water leakage or pests.				
35. All fluorescent light bulbs and ballast removed during construction are appropriately boxed and recycled.				
36. No waste paint or other potentially hazardous waste is rinsed down the storm drains.				
37. Ceiling tiles replaced when space not being accessed.				

Additional comments _____

Project Manager _____ Date _____

Contractor _____ Date _____

Attachment 7: Interim Life Safety Measures Construction Project Assessment

UNC Hospitals Plant Engineering
Interim Life Safety Measures Construction Project Assessment

ILSM Data Collection

Project Name:	
Project Description:	
Estimated Start Date:	Estimated Completion Date:
Contractor:	
Contractor Representative:	
Project Manager:	

Life Safety Project Data (check applicable box)

Will the project include general construction, renovation or significant repairs within or immediately adjacent (connected) to an occupied building?		**Yes**		**No**
If yes, document assessment of ILSM # 1, 5, & 7				
Does the project involve the major renovation of an occupied floor or department?		**Yes**		**No**
If yes, document assessment of ILSM # 1, 2, 5, 6 & 7				
Will the project result in the total or partial obstruction of approved exit or egress path?		**Yes**		**No**
If yes, document assessment of ILSM # 1, 2, 5, 6, & 7				
Will the project result in obstructed access to the hospital by emergency services?		**Yes**		**No**
If yes, document assessment of ILSM # 2 & 4				
Will the project result in the rerouting of emergency vehicles to the Emergency Department?		**Yes**		**No**
If yes, document assessment of ILSM # 2 & 4				
Does the project involve significant modification of a smoke and/or fire barrier wall?		**Yes**		**No**
If yes, document assessment of ILSM # 1, 5, & 7				
Does the project involve an addition to an existing structure?		**Yes**		**No**
If yes, document assessment of ILSM # 2, 4, & 7				
Does the project involve the replacement or impairment of the fire alarm, detection, or suppression system?		**Yes**		**No**
Which Systems?	Alarm	Detection	Suppression	
If yes, document assessment of ILSM # 1, 3, 4, 6, & 7				
Will the project require implementation of temporary construction partitions for any reason (security, infection control, etc.)?		**Yes**		**No**
If yes, document assessment of ILSM # 1, 3, 4, 6, & 7				
Will the project result in any of the following?				
Excavation		**Yes**		**No**
Construction Storage		**Yes**		**No**
Construction Area(s)		**Yes**		**No**
Field Offices		**Yes**		**No**
If yes, document assessment of ILSM # 1, 5, & 7				
Will the project require disruption of the sprinkler system for more than 4 hours in a 24 hours?		**Yes**		**No**
If yes, document assessment of ILSM # 1, 3, 4, 5, 6, & 7 (ILSM #4 is mandatory)				
Will the project result in any other Life Safety Code deficiencies? (Describe below)		**Yes**		**No**

Other Life Safety Code Deficiencies:
If yes document assessment of ILSM #
A "yes" response to any of these questions automatically triggers an assessment for the implementation of Interim Life Safety Measures. Note: Deficient conditions noted while project is under way may trigger an additional review of the project, including a reassessment for ILSM implementation.

Place a check mark in each applicable ILSM activity as determined by an assessment of the risks identified.

# 1	**Inspections / Surveillance**							
	Increase surveillance of buildings, grounds, and equipment:		Shift		Daily		Other	
	Means of exiting construction areas inspected daily							
	Implementation of Fire Watch - Note required frequency of fire watch:							
	Not Applicable							
# 2	**Accessibility**							
	Maintenance of escape/egress routes from the construction area							
	Maintenance of access to emergency services for emergency equipment, fire alarm pull stations, fire department connections (internal and external)							
	Notify EH&S of any exit closure so that they can train the respective department on the revised exiting							
	Not Applicable							
# 3	**Equipment - Life Safety**							
	Temporary fire alarm, detection, suppression system in place							
	Monthly testing and inspection of temporary equipment							
	Provide additional firefighting equipment in project area							
	Provide additional firefighting equipment in adjacent area							
	Not Applicable							
# 4	**Communications**							
	Notification of the appropriate fire department							
	Notification of Department of Insurance							
	Notify Hospital Police							
	Not Applicable							
# 5	**Construction Materials and Practices**							
	Partitions smoke tight and constructed of noncombustible or limited combustible materials							
	Implement appropriate storage practices							
	Implement appropriate housekeeping practices							
	Implement appropriate debris removal practices							
	Not Applicable							
# 6	**Fire Drills**							
	2 fire drills per shift per quarter throughout hospital							
	2 fire drills per shift per quarter in areas adjacent to project							
	>2 fire drills per shift per quarter throughout Hospital. If yes, how many:							
	>2 fire drills per shift per quarter in areas adjacent to project. If yes, how many:							
	Not applicable							
# 7	**Training**							
	Additional training for staff in the immediate area							

	Additional training for staff throughout hospital
	Additional training for emergency response teams
	Training to promote awareness of fire-safety building deficiencies, construction hazards, ILSM
	Training on changes in the physical environment (egress routes)
	Training on firefighting equipment
	Training on compensation for structural or compartmentalization features of fire safety
	Not Applicable

UNC Hospitals Plant Engineering
Interim Life Safety Measures Construction Project Assessment Summary

Date:					
Project:					
Building:		Floor:		Room(s):	
Project Safety Coordinator:					
General Contractor:					
Estimated Construction Start Date:					
Estimated Construction Completion Date:					

Implementation Checklist

	Review the scope of construction or renovation project for actions required by the ILSM assessment.
	Notify the general contractor of his or her responsibilities regarding ILSMs.
	Notify the necessary departments about potential shutdowns of fire alarms, sprinkler systems, smoke detection systems, etc. Prior to modifications that necessitate shutdowns, implement the necessary ILSMs to provide equivalent system protection. Coordinate with EH&S the scheduling of fire drills as appropriate.
	Develop a plan to train appropriate hospital staff and construction personnel on ILSMs.
	Regularly inspect and report on the construction site regarding ILSMs.

NOTE: If the above construction project does not warrant implementation of Interim Life Safety Measures, indicate the reason(s) below:

Construction Superintendent:	
Project Manager:	

Attachment 8: Open Ceiling Permit

To be completed by Plant Engineering				
Open Ceiling Permit #:	Date Issued:		Date Returned:	
Project Number (if applicable):		Project Name:		
Request Data (To be completed by Requester)				
Name/Department:		Request Date:		
Firm Performing Work (Note here if Self-Performing):				
Contact Information (Cell Phone):				
Reason for Request:				
When Needed (Start Date):		Planned Completion Date:		
Specific Location(s) (Bldg/Floor/Area):				
Approval				

	Yes	**No**	**Un-known**	**Include documentation or action/follow-up as needed**
Asbestos located in area:				
Location is in a Patient Care/Treatment Area (Inpatient/Outpatient)				If yes, note the date that Infection Prevention (epiuser@unchealth.unc.edu or 984-974-7500) was notified:_____. Note: This date must precede the date by 24 hours. Email address is to record archive purposes only.
Fire/Smoke Barrier Penetration Permit Required:				If yes, then explain requirements to track penetration locations:

Permission Granted:	Permission Denied:	Date:
Reason, if Denied:		By:
Close-Out Inspection		
Inspected By (Department Initiating the Request):		**Date:**

	Yes	**No**	**Un-known**	**Include documentation or action/follow-up as needed**

Is Ceiling in an acceptable condition and the area suitable for intended use?				If no, describe discrepancies and notify Infection Prevention, if applicable.
If applicable, is the Fire/Smoke Barrier Penetration Permit and associated data being returned with this Permit?				If no, explain reason:
Follow-Up Inspection by Plant Engineering (as deemed necessary within one year of permit being closed):				
By:	**Title:**			**Date:**
Notes:				

This policy has been adopted by UNC Hospitals for its use in infection control. It is provided to you as information only.

Attachment 9: Rated Assembly Permit

Permit #:	Date Issued:	Date Returned:
This permit is required for penetrations to any rated assembly throughout the facility. A description of the nature of the penetration must be completed for EVERY penetration.		
Project Number (if applicable):	Project Name:	
Request Data		
Name/Department:	Request Date:	
Firm Performing Work (Note Here is Self-Performing):		
Contact Information (Cell Phone):		
Nature of Work Being Performed:		
When Needed (Start Date):	Planned Completion Date:	
Specific Location(s)/Bldg/Floor/Area:		
Approval		
Permission Granted:	Permission Denied:	Date:
Reason, if Denied:		By:
Close-Out Inspection Performed at Completion of Work		
Inspected By:	**Title:**	**Date:**
Follow-Up Inspection by Plant Engineering (as deemed necessary within one year of permit being closed):		
By:	**Title:**	**Date:**
Notes:		

Attachment 10: Fire/Smoke Barrier Penetration Log

All fire/smoke penetrations must be documented individually. Attach this log to the Fire/Smoke Barrier Penetration Permit after completion of work.			
Permit #:		Date:	
Building:	Floor:	Area:	
Time Started:		Time Completed:	
Type of Barrier Affected by Work			
Smoke Partition:	Smoke Barrier:	Fire Partition:	Fire Barrier:
Penetration Corrected as Part of the Work:	**Yes**	**No**	**If Yes, UL System Utilized/Notes:**
New Penetration			
Building:	Floor:	Area:	
Time Started:		Time Completed:	
Type of Barrier Affected by Work:			
Smoke Partition:	Smoke Barrier:	Fire Partition:	Fire Barrier:
Penetration Corrected as Part of the Work:	**Yes**	**No**	**If Yes, UL System Utilized/Notes:**
New Penetration			
Building:	Floor:	Area:	
Time Started:		Time Completed:	
Type of Barrier Affected by Work:			
Smoke Partition:	Smoke Barrier:	Fire Partition:	Fire Barrier:
Penetration Corrected as Part of the Work:	**Yes**	**No**	**If Yes, UL System Utilized/Notes:**
New Penetration			
Building:	Floor:	Area:	
Time Started:		Time Completed:	
Type of Barrier Affected by Work:			
Smoke Partition:	Smoke Barrier:	Fire Partition:	Fire Barrier:
Penetration Corrected as Part of the Work:	**Yes**	**No**	**If Yes, UL System Utilized/Notes:**

Attachment 3: Precautions for Patients in Clinical Areas Where Ceiling Work is Planned

Plant Engineering/Maintenance Department occasionally must enter ceilings to perform repairs or maintenance. This process involves removal of ceiling tiles, opening access hatches, or cutting of dry wall to gain access to above ceiling spaces. The removal of such tiles has been documented as a risk factor for the acquisition of infection with fungal spores (i.e., *Aspergillus* sp., etc.) by immunocompromised patients. Such acquisition may lead to serious lung and bloodstream infections. Health Care Personnel, unless on immunosuppressive medication, are at no increased risk. Investigations at UNC Hospitals have shown that removing ceiling tiles leads to an increased number of fungal spores in the immediate environment. All individuals opening a ceiling must do so in accordance with Infection Prevention guidelines and Environmental Health and Safety policy: Safety and Infection Control Management Plan for Construction, Renovation, and Modernization Projects. The Infection Prevention guidelines and list of highest risk areas are summarized below:

- ♦ A barrier or mobile containment cart along with a HEPA machine and HEPA vacuum must be used within any area deemed Highest Risk* by Infection Prevention.
- ♦ Immediately prior to beginning above ceiling work in a patient care area, PE staff should consult the charge nurse, so she/he can assess if additional precautions are needed for immune-compromised patients such as ensuring that patients are in their rooms and doors are closed.
- ♦ No patients should be housed in rooms where ceiling work is being done or where ceiling tiles are missing.
- ♦ In areas other than Highest Risk and during the period in which tiles have been removed and work is being done, all immunocompromised patients should wear a tight-fitting surgical mask that covers the mouth and nose *when in the area of the ceiling opening.*
- ♦ Thorough cleaning following all work should be done by Environmental Services before patients are allowed to remove their masks or occupy an inpatient, exam or procedural room.

Highest risk areas:

- **Oncology units** *(BMTU, 4ONC, 5CH)*
- **Intensive Care Units** *(BICU, CTICU, CICU, MICU, NSICU, NCCC, PICU, SICU, HBH CCU)*
- **Step-down units** *(CTSU, ICCU, ISCU, MPCU)*
- **Solid organ transplant units** *(5 EST, 5 WST)*
- **Procedural and procedural support areas** *(ORs, VIR, Adult Cardiac Catheterization Lab, Pediatric Catheterization Lab, Central Processing)*
- **Pharmacies**
- **Oncology Infusion and Dialysis areas** *(3EST/Hemodialysis, Apheresis, Adult Oncology Infusion Clinic, Pediatric Oncology Infusion Clinic, Oncology Infusion HMOB)*
- **Clinics treating immune-compromised and oncology patients** *(Transplant Clinic, Infectious Disease Clinic, Pediatric/Hematology Oncology Clinic, Bone Marrow Transplant Clinic, Multi-Disciplinary Clinic, Surgical Oncology Clinic, ENT Oncology Clinic, Oncology Clinic HMOB)*
- **Specialized Labs areas** *(HPC Lab, Cytogenetics, Bloodbank, and Microbiology lab)*
- **Linen assembly rooms**
- **Clean Supply rooms**

Reference:
Review of fungal outbreaks and infection prevention in healthcare settings during construction and renovation. Kanamori H, Rutala WA, Sickbert-Bennett EE, Weber DJ. Clin Infect Dis. 2015 Aug 1;61(3):433-44. doi: 10.1093/cid/civ297.