PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies minimum administrative and procedural requirements that the Contractor shall implement for "infection control" as extensions of other provisions in the Contract Documents.

1. All construction work at a medical center or in locations noted by the Owner's representative is a potential health risk in that mold spores and other microbial organisms that result from the disturbance of dust can become exposed and airborne which may cause disease in sensitive patients. The Contractor shall:

a. Not allow any dust to escape the work area within the medical center;
b. Control any dust, due to construction Work, from entering the medical center; and
c. Minimize dust and debris from construction operations.

1.2 DEFINITIONS OF CONSTRUCTION ACTIVITIES

A. "Inspection and Non-Invasive Activities" (**Applies to Low Risk, Medium Risk and High Risk Patient Groups**): Lifting of ceiling tiles or opening of hard ceiling access panels for visual inspection only; painting (but not sanding); application of wall coverings; and other Owner approved activities which do not move or mobilize uncontrolled dust or require cutting of walls or floor coverings, such as electrical trim work and minor plumbing. (Inspection and Non-Invasive Activities do not include opening access doors in HVAC ductwork.)

1. Uncontrolled and uncontained Inspection and Non-Invasive Activities are not permitted in "highest risk" patient areas.

B. "Standard Risk Activities" (**Applies to Low Risk, Medium Risk and High Risk Patient Groups**): Small scale, short duration activities that are completed in a single work shift and/or that create minimal dust where dust migration is completely contained and controlled from dispersing into the atmosphere, such as installation of energy limited cabling (e.g., telephone, computers), access to chase spaces, cutting of walls or ceilings, and the performance of Inspection and Non-Invasive Activities in "highest risk" patient areas.

1. Standard Risk Activities are not permitted in "highest risk" patient areas without proper infection control practices to contain dust and debris.

2. During construction, the Contractor shall ensure:

a. There is an active means to prevent airborne dust from dispersing into the atmosphere.
b. Unused enclosure doors are sealed with painter's tape.
c. HVAC system air vents (supply and exhaust) within enclosures are sealed shut.

d. Dust containment (sticky) mats are located at entrance and exit to work area enclosure doors.

3. Upon completion of the Project, the Contractor shall ensure:

a. Work surfaces are cleaned and wiped with approved disinfectants.
b. The work area is damp mopped and/or vacuumed with a HEPA filtered vacuum.
c. HVAC system isolation is removed and functioning within original conditions or new design standards.

C. "High Risk Activities" (**Applies to all Patient Risk Groups**): All requirements specified herein apply to any Work that generates or disturbs a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies, such as sanding of walls for painting or wall coverings, removal of floor coverings, ceiling tiles and/or casework, and new wall construction. Also, includes HVAC ductwork and electrical work above ceilings, major cabling work, and any activity that cannot be completed within a single work shift.

1.3 TYPES OF PATIENT "RISK GROUP" AREAS

A. Low Risk Areas

B. Medium Risk Areas

C. High Risk Areas

D. Highest Risk Areas

1.4 PROJECT RISK GROUP

A. The Risk Group(s) for this Project will be determined for each Work Order.

1.5 DESCRIPTION OF GENERAL REQUIREMENTS

A. The Contractor shall identify a competent person responsible for establishing, coordinating and maintaining infection control interventions and safety training for the Project who shall be on-site at all times during the Work.

B. The Contractor shall submit a written "Infection Control and Monitoring Plan" for Owner's review and approval prior to performing Work within the medical center. The plan shall include, but not be limited to, locating dust proof enclosures, HEPA equipment locations and negative air routing, fire safety and security, noise and vibration control, construction access and exit path routing, temporary signage design and locations, odor control, waste management, and proposed cleaning equipment.

1. Submit temporary facilities drawings showing the locations of dust proof enclosures and negative air machines, with ductwork routing, required for performance of the Work.

a. For relocations required by the Work, revise and resubmit.

2. Submit a water control plan for concrete core drilling and saw cutting.

3. When requested by Owner, the Contractor shall assist in completing the Owner's "Infection Control Risk Assessment" forms to identify the appropriate interim life safety measures required for the Work.

C. Daily Reports: Contractor shall submit daily infection control reports that document:

1. A general description of the activities completed during the shift ;
2. Infection Control enclosure checks and modifications, if necessary;
3. Manometer readings; and
4. Next-day work plans.

D. Infection Control Training: The Contractor shall provide jobsite orientation for all construction personnel and suppliers of materials to the Project site to become familiar with the Project specific infection control requirements prior to performing any on-site construction activities.

1. For Projects at the UW Medical Center only: All construction personnel involved in construction activities shall observe a training video "Dust Containment in a Medical Setting" on construction risks in health care facilities as part of their safety training.

E. All infection control requirements shall be in place before commencing Work and shall remain in place and be maintained in good working order until the Work is complete, including but not limited to completing the following work:

1. Punch List work is fully and finally complete;
2. Door locks/keys are changed over;
3. Owner's air sampling has met infection control completion criteria, and;
4. Contractor's final cleaning and/or Owner's transplant cleaning and disinfection is complete.

a. Contractor's final cleaning shall occur after Punch List work is complete to the satisfaction of the Owner.

F. Contractor shall not permit its employees, the employees of its Subcontractors of any tier, or delivery personnel to expectorate (spit) inside Owner's facilities.

1.6 INFECTION CONTROL REQUIREMENTS

A. Dust Proof Enclosures: The Contractor shall provide dust proof enclosures for all Work (except for Owner approved "Inspection and Non-invasive Activities"). Dust proof enclosures shall be constructed per the requirements of Section 01 50 00 "Temporary Facilities and Controls" prior to start of Work. Dust proof enclosures must: enclose the entire work area to completely isolate it from all surrounding areas; cut off any flow of

particles from work areas to patient areas; and be functioning continuously. Doors shall remain closed and penetrations or openings to dust proof enclosures shall be tightly sealed at the end of each work shift.

1. All dust proof enclosures shall be maintained on a daily basis to ensure proper airflow, appearance, and workplace security. Enclosure failure requires immediate corrective action by the Contractor.

    a. Enclosures which are not immediately repaired by the Contractor may be repaired by the Owner and all Owner costs required to repair the failure may, at the Owner's sole discretion, be back-charged to the Contractor.

2. When performing construction activities of a "high risk" classification, in highest risk patient areas, an anteroom to the enclosure entrance shall be required.

3. Portable mini enclosures shall be equipped with a HEPA vacuum for vacuuming the work area prior to removing the enclosure.

4. On phased projects, where dust proof enclosures are to be relocated as a part of the phasing of the work area, the work area shall be fully cleaned prior to the relocation of any dust proof enclosures to prevent dust from leaving the work area.

B. Work Area Air Pressure Requirements: The Contractor shall use negative air machine equipment to maintain a negative air pressure relationship of the work area from surrounding areas. Negative air pressurization of the work area is required at all times, and constant maintenance of that pressure differential is the responsibility of Contractor, unless exempted in writing by the Owner. A minimum negative pressure relationship of .03" water column must be maintained between areas under construction and surrounding areas.

1. Appropriate equipment shall be used to constantly monitor the negative air pressure relationship. Acceptable options to visually assure negative air pressure is maintained are: for rigid wall containment (usually in longer duration projects) manometer units shall be employed; for plastic or polypropylene dust proof enclosures (in longer duration projects) flutter strips of light weight ribbons or "survey tape" shall be employed; and for short duration projects involving single shifts the actual visual movement of the plastic or polypropylene dust proof enclosure wall into the construction space is acceptable.

    a. For projects utilizing manometers: The Contractor shall record manometer readings at the beginning and the end of each work shift and shall maintain a log of readings, and any corrective actions taken, to be included in the daily report.

2. Work area ventilation must be exhausted 100% to the exterior of the building and directed away from building air intakes to an approved location, unless otherwise approved in writing by the Owner.

    a. If the Owner agrees exhausting to the exterior of the building is not feasible, HEPA filtered air may be exhausted to adjacent areas provided existing air

relationships remain unchanged and the Contractor provides confirmation with an air balancing report. The air balancing report shall be provided to the Owner prior to the Contractor performing construction work.

1) When exhausting indoors, exhaust near the ceiling through a velocity reducing pre-filter material approved by the Owner. Never exhaust into existing air ducts.
2) When exhausting indoors at Harborview Medical Center projects, exhaust near the ceiling through a velocity reducing pre-filter material approved by the Owner.

C. Negative Air Machines: The Contractor shall provide Owner approved HEPA equipped air filtration ”negative air” machines and heavy duty flexible steel reinforced exhaust hoses.

1. HEPA equipped air filtration machines shall be connected to normal power and ganged to a single switch for emergency shut-off.

2. Exhaust hoses shall be of adequate size to ensure necessary air flow and be in place and intact at all times.

3. The Contractor is to take care in maintaining the negative air machines in accordance with the manufacturer’s written instructions, including but not limited to, monitoring and changing all filters and seals as needed to ensure adequate airflow and complete filtering.

4. The Contractor shall provide all necessary HEPA filters for the negative air machines.

D. Materials and Material Handling: The Contractor shall ensure that all materials, including new materials, construction debris, and tools, are transported clean and contained or wrapped in “dust impermeable” enclosures when transported within the medical center. Containers and/or carts shall be tightly covered and their open surfaces shall be wrapped and taped closed unless there is a solid lid. Wrappings and/or bags shall be hermetically sealed.

1. Wheels of containers and/or carts shall be wiped clean prior to entering the medical center and entering or leaving the work area.

2. Debris removal shall occur through approved routes and only at times approved by Owner.

E. Owner Air Monitoring: The Owner will perform periodic field inspections and air quality testing inside and outside the work area and will approve removal of dust proof enclosures based upon air quality testing results. If Owner’s air monitoring indicates failure of negative pressurization of the work area enclosure, or Owner’s measurements and/or observations indicate the construction work is releasing particulates, dust, or vapors outside the work area, upon Owner’s notification to Contractor, Contractor shall implement immediate corrective actions to stop such emissions and to prevent future emissions.

1. Air sample results require approximately five (5) days. Areas that “fail” air sampling at the end of the Project will require additional visual inspection, assessment and

remediation, with possible repeat cleaning. Retesting will be performed until the work area meets "passing" criteria.

F. Housekeeping:

1. Infection Control Cleaning: The Contractor shall provide infection control cleaning during all construction activities within the medical center.

   a. Construction work areas and access routes shall be clean within the medical center. Contractor shall continuously clean all work areas within the Project site and those work areas outside enclosure containment, including construction access routes, free from dust, debris, and construction materials. Clean and disinfect all existing surfaces and materials outside containment that are impacted by construction immediately upon completion of an activity.

   b. Damp mop, electrostatic cloth sweep, and/or vacuum with HEPA filtration the construction site and construction access routes during the work and before leaving work areas at the end of a shift to eliminate tracking and dust migration. Prior to the removal of any dust proof enclosures the Project site must be damp mopped and/or vacuumed and all surfaces wiped down with disinfectant. Submit disinfectant for Owner's review and approval.

      1) Quaternary ammonium compounds are required for damp mopping.

2. Maintain sufficient supplies of cleaning equipment on-site including but not limited to: HEPA filtered vacuum cleaners; dust attracting mops; wet mops; brooms; buckets; and clean wiping rags.

3. Any materials capable of absorbing moisture must be fully dried within 48 hours of becoming wet. If material, either new or existing, inside or outside the work area, becomes wet as a result of the Contractor's actions and is unable to be dried to an "as-new" condition within 48 hours, the Contractor shall remove the materials within the same 48 hour period. Any visible mold growth caused by or observed by Contractor inside the work area must be reported to Owner immediately. Owner will determine corrective actions to be taken in consultation with Contractor.

   a. Materials removed from the work area for this reason shall be replaced with new materials at Contractor's expense.

4. Contractor shall take measures to control vermin and other pest infestations within the Project site. Food waste is to be removed daily and all food is to be stored in tightly sealed containers that are clearly labeled.

   a. Any visible bird or rodent droppings observed by the Contractor inside the work area must be reported to Owner immediately. Owner will determine corrective actions to be taken in consultation with Contractor.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 PERFORMANCE REQUIREMENTS

A. The Contractor shall implement the following, but not limited to, work procedures for Work in the medical center:

1. Construction materials stored on-site shall be kept dry.

2. Immediately remove spills or excess applications of solvent containing products.

3. Existing supply and exhaust air grills serving the building HVAC system within dust proof enclosures shall be covered and sealed to prevent airflow and contamination of the duct system at all times.

4. At the end of the work day, all openings in pipes and ductwork shall be covered or sealed.

5. Work surfaces are misted with wetting agents to control dust during demolition and while cutting.

6. Vacuum subfloor surfaces prior to the application of resilient flooring materials.

7. Concealed spaces shall be vacuumed clean before covering or enclosing, including but not limited to: chases; stud tracks; above ceilings (including top surfaces of ductwork and cable trays); and surfaces covered by resilient flooring materials, casework, and accessories.

8. Immediately replace any ceiling tile briefly lifted for visual inspection outside of dust proof enclosures. Removed tiles shall not be left open and unattended. Limit tile removal to 1 tile per 50 square feet of area, unless otherwise approved by Owner.

9. Work shall be performed in rooms where patients are not present, and at least five (5) feet from patients or visitors in ambulatory or general public settings, when approved by Owner.

10. When an anteroom is required for a dust proof enclosure, all personnel must pass thru the anteroom before leaving the work site and they shall vacuum debris from their person using a HEPA vacuum cleaner or they shall wear cloth or paper coveralls that are removed within the anteroom each time they leave the work site. Anterooms shall be negatively pressurized the same as the associated dust proof enclosures.

11. All construction personnel and material suppliers entering a dust proof enclosure at a “High Risk Activity” work site in a “Highest Risk Area” shall wear shoe covers. Shoe covers must be changed each time the person exits the work site.

12. Dust proof enclosures shall be removed only after receiving Owner's written approval of the Project site air quality. Remove dust proof enclosure materials carefully to minimize spreading of dirt and debris associated with the Work.

    a. Mini-enclosures shall be cleaned inside prior to dismantling, to prevent dust from escaping into occupied areas.

END OF SECTION