

1 SUMMARY OF WORK

- 1.1 Provide staff, Subcontractor, Suppliers, and own forces with training in infection prevention and control procedures. Design and implement training seminar by an environmental consultant with healthcare experience and whose educational program has been approved by the Owner. Acceptable firms are but not necessary limited to the following:
 - .1 Maple Environmental (Kyle Prosser, 905-601-6301).
 - .2 Safetech Environmental Ltd. (Romeo Milano, Tel: 905-624-2722).
 - .3 Golder Associates (Jason McGonigle, Tel 905-723-2727 Ext. 256).
- 1.2 Directly engage and enter into a contract with the approved environmental consultant. Coordinate with the environmental consultant and include in the Contract Price the required number of training sessions to adequately cover the duration of the Project.
- 1.3 Prior to commencement and during the course of the Work, as required, promptly provide the Owner with written confirmation of such training by way of a certificate issued by the environmental consultant.
- 1.4 Owner's Infection Prevention Control Services (IPCS) will investigate and advise on the risks of organisms that exist in the Project area. The goal will be to determine any infectious risks where possible and eliminate infection risks associated with construction activities in order to protect patients and staff occupying this building.
- 1.5 During the course of the Work, IPCS will assess the risks related to the Project utilizing the Risk Assessment and Preventive Measures Checklist (Appendix I). The determination of risk will guide the need for barriers during the Project. The Owner will communicate the assessment to the Contractor and advise on any additional measures to protect functional areas of the hospital.
- 1.6 Inspection of on-going infection control procedures shall be undertaken on a regular basis by the Owner's infection control representative and the Contractor. The Owner's monitoring checklist is found in Appendix II.
- 1.7 IPCS may stipulate changes in protocols and barrier configurations if required to ensure the safety of the patients and the clinical environments. Barriers and hoarding are shown on the Drawings diagrammatically and as intent only. IPCS and Contractor to review on site barrier requirements. Construct barriers as per final instruction on site by the Owner at no additional cost to the Owner.
- 1.8 Definitions:
 - .1 Final cleaning is defined as; post construction cleaning as provided by the Owner's workforce or Owner's contracted cleaning service
- 1.9 Construction Personnel: Protective clothing is to be removed when exiting through patient areas or vacuumed when exiting through other areas as categorized by IPCS as specified in Appendix "I". Construction personnel will not pass through clinical areas of the hospital without approval from the IPCS or Owner.
 - .1 Daily outer garments must be clean and maintained at all times.
 - .2 Daily footwear will be maintained clean and dust free at all times.
 - .3 Daily protective headgear will be maintained clean and dust free at all times.
 - .4 Hospital identification will be worn and displayed in a manner visible to any individual or passer-by.

- 1.10 Transportation of Equipment/Supplies: Prior to commencement of the Work, IPCS and the Project team and the Contractor will establish paths and procedure for the transportation of clean/sterile supplies, equipment and construction materials, including the removal of construction debris. Additional information as indicated.
- 1.11 Surveillance: IPCS personnel will enhance surveillance as appropriate. Field review of the Work will be conducted on a regular basis with the Contractor as necessary.

2 REFERENCES

- 2.1 Canadian Standards Association (CSA Group):
 - .1 CAN/CSA-Z317.2-15, Special requirements for heating, ventilation, and air-conditioning (HVAC) systems in health care facilities.
 - .2 CAN/CSA-Z317.13-17, Infection control during construction, renovation, and maintenance of health care facilities.

3 WORK COVERED UNDER THIS CONTRACT

- 3.1 Any and all infection control procedures described in this Section and all such means, materials and methods that are required to contain and prevent Work environments from spreading infection to the adjacent Hospital environment.
- 3.2 Means, materials and methods include but are not limited to temporary hoardings and barriers, enclosures, containment capsules, vessels, and other air tight assemblies constructed to contain airborne particulate generated by the Work from/out of Hospital areas adjacent and outside the Work area. The employment of mobile HEPA filtered recirculation units will be required in Work areas such as inpatient areas, laboratories and other risk areas identified by the Owner or IPCS and also to maintain negative air pressure in general Work area(s) relative adjacent Hospital areas.

4 PRE-CONSTRUCTION

- 4.1 At Contract start-up meeting, at meetings convened prior to the start of the Work, at pre-installation meetings, and at regular progress meetings, review infection prevention and control procedures. The Owner's infection control representative will attend such meetings. Subjects to be reviewed include, but are not limited to, the following:
 - .1 General information on infection prevention measures are articulated in accordance with CAN/CSA-Z317.13.
 - .2 Project and/or phases are subjected to preventative measures assessment and categorization in accordance with CAN/CSA-Z317.13.
 - .3 Schedule mandatory infection control training for all construction trade staff. Only those trade staff that have successfully completed mandatory infection control training are permitted to work at Sunnybrook Health Sciences. Trade staff without documented infection control training will be disqualified from the job site. Delays attributed to non-documented staff will be at the cost and responsibility of the Contractor.
 - .4 General information on infection prevention measures is articulated.
 - .5 Patient populations that may be at risk are identified.
 - .6 Prevention measures for essential services (e.g. water, ventilation systems, electricity) that may be disrupted are provided.
 - .7 Integrity of the facility's exterior structure, spatial separations, ventilation and water supplies for any penetrations and infection control problems are reviewed and assessed daily to ensure all services that supply clinical areas are provided.

- .8 Measures to control dust and routes to safely remove construction debris must be outlined and altered as necessary to protect all clinical areas and patients of the hospital. Traffic routes shall be in accordance with cited CSA standard or requirements of the Owner whichever is more stringent.
 - .9 Traffic patterns for construction workers and supply delivery routes for construction materials will be established to minimize risks to patients, staff and visitors per the Owner's requirements and as indicated.
 - .10 Identify all critical areas of the ventilation system to ensure protection of the system from construction dust and debris including the need for increased filter changes during construction.
 - .11 Properly seal penetrations to mitigate dust and moisture travel between clinical areas and construction site including the need to close down dampers temporarily to reduce circulation of contaminated air or fumes is assessed.
 - .12 The systems can provide the correct air exchange rates and pressure relationships in critical areas near construction activity.
 - .13 Properly adjust exhaust and supply air flow in the construction area to ensure "negative pressure" gradient between construction (negative) and clinical (positive) areas.
 - .14 Properly protect all exterior air intakes as necessary to ensure optimal incoming "fresh air".
 - .15 Criteria of inspections by Owner's infection control representative.
 - .16 Ceiling/Wall/Floor Access permits requirements prior to opening concealed spaces.
- 4.2 Vacuum cleaners:
- .1 Vacuums shall be commercial grade complete with HEPA filters.
 - .2 HEPA filter shall be changed as recommended by the manufacturer or required by use. Maintain a filter change log at the Place of the Work, available for review by the Consultant
- 5 **CONSTRUCTION**
- 5.1 Breaches in infection prevention containment measures, as outlined in Appendix I or as prescribed by CAN/CSA-Z317.13 or by the IPCS where negative outcome (s) that may place staff and/or patients of the Owner's facilities at risk will result in "stop" construction orders to the Contractor by IPCS.
 - 5.2 Construction area and all related traffic routes shall be maintained in an "acceptable" state of cleanliness as specified by the IPCS during the project without exception.
 - 5.3 Cleaning will be provided as categorized by IPCS as specified in Appendix I. The Place of the Work must also be cleaned prior to and at completion of work as follows:
 - .1 Undertaken by Contractor and included in the Contract Price:
 - .1 Construction cleaning prior to reopening a supply air duct during construction.
 - .2 Construction cleaning completed prior to the removal of any containment barriers.
 - .3 Construction cleaning completed after the removal of any barrier.
 - .4 Construction cleaning immediately after completion of minor work performed after the removal of barriers.

- .2 Undertaken by Owner and not included in Contract Price:
 - .1 Final cleaning by Environmental Services must be completed prior to occupancy.
- 5.4 Construction Cleaning is defined as the complete removal of "daily" construction debris, dust containment and mitigation measures during construction activities. Measures to contain and mitigate dust during construction activities include but are not limited to, daily vacuuming of the work area with a HEPA filtered vacuum device, wet mopping, wrapping and/or bagging of debris, using vacuum equipped tools, etc. Area is to be inspected and approved as clean by IPCS.
- 5.5 Transportation of Equipment and Supplies: Prior to construction, IPCS, the Consultants, and the Contractor will establish delivery paths, time and procedures for the transportation of trade carts, equipment, materials, and "clean" install equipment. Movements and storage of equipment and supplies through the hospital may include but is not limited to:
 - .1 Daily maintenance of all trade carts so that they are kept in a clean and dust free condition.
 - .2 Daily wipe down of all trade carts with an approved "hospital disinfectant".
 - .3 Trade or supply carts of raw wood are NOT permitted. Exterior wood must be sealed to sustained daily cleaning and disinfection.
 - .4 Washdown of all waste carts after the disposal of any wastes and before the cart returns to the hospital.
 - .5 Removal of all packaging material from "final install" equipment prior to delivery through the hospital. Contractor shall consult with the IPCS or designate on packaging necessary to protect devices prior to final install
 - .6 Packaging materials permitted onto the construction site must be removed daily or as generated, whichever is more frequent.
 - .7 Transportation of equipment, materials/supplies and wastes is NOT permitted between the hours of 07:00 and 21:00 hrs. Owner or designate may grant limited exceptions in writing.
 - .1 For Project- specific delivery hours refer to Section 01 00 00, General Requirements.
 - .8 Incoming construction material must be handled in accordance with CAN/CSA-Z317.13. Materials must be protected from moisture and dirt.
 - .9 Oversized "new install" equipment must be delivered in accordance with measures outlined by the IPCS or designate. Procedures may include but is not limited to additional cleaning of "new equipment", cleaning of the hoarding to permit clear passage into the work area followed by immediate reinstatement of the hoarding.
- 5.6 Surveillance: IPCS or designate will determine frequency of site reviews of the construction area. Site review may include but is not limited to assessing the area for cleanliness and dust mitigation, worker compliance with measures as outlined, hospital approved workers/trades, etc.
 - .1 Security - site will have controlled access with appropriate signage to identify the area as a construction area and danger within.
 - .2 Security - access to site will be through a self-closing door that is locked at the conclusion of each day's activity. Keys to the site will be provided to the IPCS or the Owner.
 - .3 Contractor will conduct daily site reviews and document daily findings in a log book as specified by the IPCS or designate.

- .4 Site cleaner will document frequency of cleaning as specified by the IPCS or designate.
 - 5.7 Ventilation System and Negative Pressure Differential:
 - .1 Areas where work is being undertaken shall be isolated from occupied areas of the hospital using dust tight partitions and enclosures as described above.
 - .2 The Place of the Work will be maintained under negative pressure at all times in relation to the occupied areas of the existing building to prevent dust and airborne pathogens from entering the occupied areas of the existing building.
 - .3 Negative pressure shall be achieved through the use of dedicated (window or otherwise) exhaust units or, if direct access cannot be achieved, by HEPA filtered recirculation units that transfer filtered air from the Place of the Work into the occupied areas. Exhaust points will be reviewed with the Owner and the Consultant to ensure that the exhaust air from the Place of the Work is not affecting pedestrian routes and is not re-entrained back into the existing building through fresh air intakes.
 - .4 Provide construction exhaust/HEPA units and remove at the completion of the Work.
 - .5 Air systems serving only the Place of the Work will be shut down and all supply, return and exhaust openings shall be sealed to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the Work to determine if cleaning is required.
 - .6 Supply and return air ducts entering the Place of the Work are to be fitted with a pre-filter unit and sealed within the Place of the Work near point of entry or exit prior to the start of disruptive activity to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the Work to determine if cleaning is required.
 - .7 During construction, the seal only on the supply air duct may be removed after demolition and clean-up to permit ventilation within the construction area provided no other means is available.
 - .8 Areas adversely affected by changes in air flows outside the construction areas are to be re-balanced to comfortable levels as advised by the Consultant.
 - .9 Main HVAC infrastructure shall be protected from contamination in accordance with CAN/CSA-Z317.2 and CAN/CSA-Z317.13.
 - 5.8 Contractor shall:
 - .1 When constructing the hoarding, install an electronic magnehelic gauge complete with recording capability and local audible alarm.
 - .2 Maintain a daily log for full duration of the construction and provide the data to the Consultant and Owner upon request.
 - 5.9 Ensure that mandatory vacuuming and cleaning of Contractors and Subcontractors clothes is done, prior to leaving areas of the Work to prevent dispersion of dust.
 - 5.10 Contractor to Provide their own mobile negative pressure enclosures in adequate numbers to align with the project schedule to do localized ceiling work. Use of Owner's mobile negative pressure enclosures is not permitted.
- End of Section