

1 SUMMARY OF WORK

1.1 Work covered under this Contract

- .1 Work of this Contract includes labour, materials, equipment, services and other related expenses to execute complete construction of facility specified under Contract Documents.
- .2 It is the Contractor's sole responsibility to examine the Construction Documents, Specifications and Drawings issued to establish/determine total scope of work.
- .3 In accepting award of this Contract, Contractor hereby reaffirms that it is fully informed regarding all conditions affecting Work including its company's provincial taxes are in good standing and further accepts to complete Work for purpose intended in accordance with Contract Documents. Contractor hereby reaffirms that it does not and will not have any conflict of interest in executing work of this Contract.

1.2 Comply with Section 01 35 33 Infection Control Procedures.

1.3 Read specifications and Architectural, Mechanical and Electrical drawings in conjunction to understand the scope of work of the phasing sequencing for the project.

1.4 Work Provided by Owner or Performed Under Separate Contracts

- .1 The term "NIC" means that work of this Project which is not being performed or provided by the Contract; the term means "Not in This Contract" or "Not a Part of The Work to be Performed or Provided by The Contractor".
- .2 "NIC" work is specified and/or indicated on the Drawings as an aid to the Contractor in scheduling the amount of time and materials necessary for the completion of the Contract.

2 SPECIFICATIONS

2.1 Specifications are not intended as detailed description of installation methods but serve to indicate particular requirements in completed Work.

2.2 Where Contract Documents do not provide sufficient information for complete installation of item, then as supplement, comply with manufacturer's written instructions for quality of work.

2.3 Portions of Specifications are written in short form. Therefore, it shall be understood that where item of Work is stated in heading followed by material, equipment, component, or operation, words "shall be", "shall consist of" or similar words or phrases are implied which denote supply, fabricate and supply, install, provide or commission of such materials, equipment or operations for component of Work designated by heading.

2.4 Where the Contract Documents refer to the singular, provide as many as required to complete Work. Words used in one gender only shall mean females and as well as males and conversely.

2.5 Drawings, Lists or Schedules of Items are intended to show scope and arrangement of work. For location of item described refer to such Drawings, Lists or Schedules unless location stipulated in Specifications.

2.6 Wherever words "acceptable", "approved", "reviewed", "satisfactory", "selected", "directed", "designated", "permitted", "inspected", "instructed", "clarification", "required", "report", "submit", "obtain", "consult", "advise", or similar words or phrases are used in Standards or in Contract Documents, it shall be understood that, unless context provides otherwise words "by/to/with/from the Consultant" shall follow them as applicable.

3 **DIVISION OF WORK**

3.1 Work specified in the Specifications is divided into Sections for reference purposes only. Division of work between Contractor and Subcontractors is the Contractor's responsibility. The Owner and Consultant assume no responsibility to act as an arbitrator to establish subcontract limits between Sections or Divisions of the Work.

4 **REFERENCE STANDARDS**

4.1 Conform to latest date of issue of referenced standards in effect on date of submission of bids, except where a specific date or issue is specifically noted.

5 **WORK RESTRICTIONS**

5.1 Owner's Policy and Procedural Requirements

.1 Comply with the Owner's policies and procedural requirements prescribed in Sunnybrook Health and Sciences Centre Owner's Rules and Regulations" and "Construction Policy", appended to these specifications, including, but not limited to, personal conduct and behaviour, patient privacy, facility security, infection prevention and control, mechanical system interruptions, and work scheduling.

.2 Conduct all work in accordance with the most current version of CAN/CSA-Z317.13.

.3 All building materials and supplies must be in compliance with CSA Z8000, governing IPAC measures incorporated into the design and construction of a health care facility or any part thereof.

.4 As determined by the Owner's policies, immediately correct all unsafe conditions that are identified within the active facility that are a result of, or related to, the construction work activities.

5.2 Occupancy

.1 Existing premises outside of the Area of Work will remain occupied during Work. Execute Work to cause minimum interference with activities in existing premises and maintain maximum safety to occupants. Take reasonable measures to minimize and control noise, dirt and dust during Work.

.1 Provide a methodology for phasing and staging of the Work, and indicating safety and fire escape routes for the occupants of the building during construction.

.2 All areas that are only available for demolition and construction activity after hospital operational hours are to be vacuumed and mopped at the end of each construction day for terminal clean by hospital to enable the hospital to resume regular business operations unimpeded each day.

- .2 Access:
 - .1 Different areas of work within the hospital will be restricted to time frames indicated on Construction Phasing and Hoarding drawings.
 - .2 Before entering existing premises outside of the Area of Work to carry out Work or to obstruct or take out of use any area of existing premises, or to cause any other interference, request meeting with Consultant and Owner in order to reach agreement as to time and length of time Contractor may interfere, possess, obstruct or remove from use any such area or services.
- 5.3 Access to Area of Work
 - .1 Work shall be confined to Area of Work limits indicated on Drawings and/or within area defined by property lines.
 - .2 Assume responsibility for care, custody and control of Area of Work and perform work to extent covered in Contract Documents. Make good damage to existing Area of Work and existing building due to Work of this Contract.
 - .3 Maintain temporary entrances to areas of Work and provide enclosed hoardings as required. Maintain access to existing building service entrance(s) at all times.
 - .4 Work on Municipal property shall be carried out under regulations of respective Municipality and authorities having jurisdiction including without any limitations any associated fees, permits, insurance or bonding required.
 - .5 Access to the existing buildings, and access to the neighbouring properties, cannot be blocked or otherwise compromised. Provide a minimum of 14 days' notice to Owner and coordinate with Owner for any major disruptions that may impact access to hospital or surrounding community.
 - .6 Comply with the time frames/schedule of the hospital loading dock supervisor for all materials delivery to site and ensure loading bays are clear of materials/equipment.
- 5.4 Commencement of Work
 - .1 Make all required submittals, receive all reviewed submittals, and marshal all required materials off-site prior to commencing Work on-site.
 - .2 The first on-site Work shall be the construction of the hoarding.
- 5.5 No Smoking Policy
 - .1 Cooperate, respect and comply with the Owner's no smoking policy requirements.
 - .2 Ensure that Contractor's employees, sub-contractors and suppliers, performing work on Site on Contractor's behalf, are instructed to comply with the Owner's no smoking policy requirements.
 - .3 Comply with local By-Law and regulations or any authorities having jurisdiction.
- 6 **CASH ALLOWANCES**
 - 6.1 Cash allowances, unless otherwise specified, cover net cost to Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation and other authorized expenses incurred in performing the Work.

- 6.2 The Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.
- 6.3 The Owner reserves the right to call competitive tenders for portions of the work to be paid for out of any or all cash allowances. The relationship of the Contractor and the trades performing portions of the work to be paid out of cash allowances shall be such as between the Contractor and his Subcontractors.
- 6.4 Make expenditures out of the cash allowance at the sole discretion of the Owner and only on receipt of a Change Order signed by the Owner and Consultant.
- 6.5 Unexpended amounts of cash allowances may be reallocated to other specific cash allowances at the sole discretion of the Owner.
- 6.6 Unexpended amounts of cash allowances shall be deducted from the Contract Price at completion of the Work.

6.7 Include in the Contract Price, cash allowances for the following:

| | | |
|----|--------------------------|--------------------|
| .1 | Unforeseeable Conditions | \$35,000.00 |
| | TOTAL | \$35,000.00 |

7 SCHEDULE OF VALUES (VALUE OF SUBMITTALS)

- 7.1 Within seven Working Days of Contract award, submit a detailed Schedule of Values providing a breakdown of the cost of the Work in a form acceptable to Consultant.
 - .1 Show the cost (value) of the Work broken down by specification section. Identify each line item with number and title of the primary associated specification section, per month, and coincident with approved construction schedule. Identify site mobilization, bonds, insurance, and commissioning. Cost breakdowns when totalled, shall be same as Contract Price.
 - .1 Include in each line item, the amount of specified Allowances. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- 7.2 Contractor shall identify general progress and commissioning payment line items for each of the following:
 - .1 1% of total Contract value for provision of as-built drawings, O&M manuals and warranties covering all sub-contracts.
 - .2 1% of Mechanical value for Commissioning process including completion and submission of testing forms and reports.
 - .3 1% of Electrical value for Commissioning process including completion and submission of testing forms and reports.
 - .4 Contractor shall submit all completed tests, reports and verification forms. The Consultant will use these documents to calculate a percentage completion.
 - .5 Contractor may claim up to 60% of the value for commissioning through monthly progress payment requests leading up to performance testing. The remaining 40% of the value for commissioning shall be paid-out after the performance testing and training have been completed.
- 7.3 Revise schedule to list approved Change Orders with each Application for Payment.

7.4 Purpose of the cost breakdown is to assist Consultant with evaluation of progress draws and to assist Owner with cash flow arrangements.

7.5 The Owner reserves the right to withhold the amounts allocated for Submittals indicated above pending their submission.

8 **SPECIAL PROJECT PROCEDURES**

.1 Existing premises will maintain operation during business hours, 6:00 am to 6:00 pm Monday to Friday. Work may be performed during these hours in areas as indicated in phasing drawings. Carry out work in such a manner as to cause a minimum of noise and interference to the use of the existing building. Conform to the requirements of the building management. Be responsible for any overtime work required after business hours.

8.2 Co-ordinate construction activities and use of premises with Owner and building management.

8.3 Maintain operations of building services, data, telephone and alarm. Ensure no interruptions of these services during execution of the Work.

8.4 Provide written notice to the Owner minimum 10 working days before any system shut downs. Major shutdown requires 20 working days' notice. Do not proceed without written approval from Owner.

8.5 Provide adequate protection against dust, water and other damages to Owner's electronic and computer equipment, fittings and furniture. Use covers acceptable to the Owner. Remove protection after each work period.

9 **INSTALLATIONS IN EXISTING HOSPITAL NETWORK HUB ROOMS**

9.1 Access to Sunnybrook Hospital Network Rooms is severely restricted and Contractors will not be allowed to access these rooms un-escorted / un-supervised. The Electrical Subcontractor is responsible for arranging any access they require as specified in Electrical Specification Section 27 15 00.

9.2 To complete this installation, the following applies:

.1 Contractor must provide to the Hospital a minimum of 10 working days' notice.

.2 Contractor must retain the Hospital's Security Department to allow access to and supervise activities of the Contractor while in the Hub Room for any Cable/ Equipment installation in the Hub Room (it is assumed Contractor can install services to a point outside of the Hub Room but cannot install any services into the Hub Room without Security Supervision) and to complete the installation in the Hub Room.

.3 Arrangements for Security Supervision is to be coordinated directly between Security and the Contractor with the Contractor providing a minimum ten days written request

.4 The Hospital's Security Department will charge the Contractor \$50.00 (fifty dollars) per hour for a minimum four hours at any one time

9.3 As the Contractor is responsible to cover any/ all costs required to retain the Hospital's Security Group, it is strongly recommended the Contractor properly schedule the need to access Hub Rooms and that the times requiring access be accurately indicated on the Project Schedule.

9.4 Refer also to Sunnybrook 'Data Centre and Hub Room Access Policy' appended at the end of the Specifications.

10 PROTECTION AND SECURITY

10.1 Protect existing services, structures and other items required to remain and newly installed Work during construction with secure and durable coverings, barricades or guards suitable for the various conditions. Perform the Work in a manner to avoid damage. Remove and replace at no expense to the Owner, any work and materials damaged that cannot be repaired or restored to the Consultant's satisfaction.

10.2 Owner's personnel will be occupying the existing building(s) during construction and alterations. Provide for the safety of occupants and for the security of occupied areas. Provide protection and keep clear areas that are required for access to, and exit from, occupied areas. Maintain clear and safe fire exit routes.

10.3 Where construction operations must be executed or traffic routed over finished floors, lay minimum 6 mm thick plywood coverings tightly fitted over surface in such areas. Secure plywood to prevent movement in a manner, which will not damage finished surfaces.

10.4 Keep floors dry. Keep floors free from oil or other contaminants at all times. Clean up all contaminating liquids where same are likely to damage surfaces.

10.5 Cover openings in equipment, ducts and pipes until final connections are made.

10.6 Protect exposed live electrical equipment during construction for personal safety.

10.7 Shield and mark live electrical parts with appropriate warnings.

10.8 Wherever practical lock or barricade finished areas.

10.9 As soon as construction is sufficiently advanced, enclose accessible openings to provide security. Provide temporary doors with security hardware.

10.10 Ensure continuous security of the Work and construction equipment.

10.11 Provide protection against the elements to maintain Products and installations from damage and deterioration.

11 EXAMINATION OF EXISTING CONDITIONS

11.1 Submission of bid shall be deemed evidence that Contractor has examined the site and is familiar with conditions under which work will be done and obtained all information, which may be necessary for proper execution of Contract.

11.2 Signing of Contract indicates acceptance by Contractor of conditions under which work will be done.

11.3 Extra payments will not be authorized for work that could have been determined by a careful examination of site and existing conditions.

12 EXAMINATION OF SURFACES DURING CONSTRUCTION

12.1 Before executing work against surfaces prepared by other Sections, examine such surfaces. Do not accept defective surfaces, or do any work to or on them, until the defects are remedied.

12.2 Commencement of work shall indicate acceptance of surfaces and responsibility concerning the conditions of same.

13 **EXISTING SERVICES**

13.1 Cut off, cap, divert or remove existing water, gas, electric and other services in areas being altered which are affected by the changes as required or as directed by the municipal authorities and the utility company concerned, and the Consultant. Protect and maintain active services to the existing building.

13.2 Prepare interference and/or installation drawings showing the work of the various Sections as well as the existing installation, and submit these drawings to the Consultant for review before the commencement of work.

14 **LOCATION OF EQUIPMENT AND FIXTURES**

14.1 Location of plumbing, heating and electrical fixtures and outlets, ducts, conduits and pipes shown or specified but not dimensioned shall be considered approximate.

14.2 Locate equipment, outlets, fixtures, devices and distribution systems to provide minimum interference and maximum usable space, and as required to meet safety, access, maintenance, acoustic, and regulatory, including barrier free, requirements.

14.3 Consult with the Consultant to determine the actual location of items not dimensioned as may be required to suit the job conditions.

14.4 Obtain Consultant's acceptance for precise locations of fixtures, access panels, outlets, mechanical, electrical and security items. Relocation caused by failure to determine the actual locations shall be executed without charge to the Owner.

14.5 Consultant reserves the right to relocate fixtures, access panels, outlets, mechanical, electrical and security items at a later date, but prior to installation, without additional cost, provided that the relocation per outlet or fixture does not exceed 3050 mm (10 feet) from the original location

15 **INTERFERENCE DRAWINGS**

15.1 Prepare dimensioned interference drawings indicating relationship of new installations and existing and/or unforeseen conditions prior to commencement of work.

15.2 Before commencing installation, prepare interference drawings, based on the actual field measurements, showing relationship of new and existing ductwork, conduit, piping, sprinklers, partitions, ceiling supports and framing, partition framing, communication and specialized equipment located within ceiling and shaft spaces.

15.3 Indicate locations of visible items such as air handling outlets, light fixtures, smoke detectors, sprinkler heads, communication grilles, and access panels occurring at these locations.

15.4 Drawings shall be initialed by responsible person of each Sub-Contractor involved along with Contractor's signature and submitted to Consultant for review and record purposes.

16 **DOCUMENTS ON SITE**

16.1 Maintain at job site, one copy each document as follows:

- .1 Permit Drawings and Building Permit Posters.
 - .2 Contract Drawings and Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Site-Specific Health and Safety Plan and Other Safety Related Documents.
 - .11 Other documents as specified.
- 17 **POWDER ACTUATED FASTENINGS**
- 17.1 Powder actuated fastenings shall not be used on any portion of the Work, unless written consent for a specific use is obtained from the Consultant.
- 18 **NOISE LIMITATIONS AND DUST CONTROL**
- 18.1 Keep construction noise to a minimum.
- 18.2 No pneumatic or other noisy equipment will be permitted on the project site.
- 18.3 All vehicles and equipment shall be equipped with efficient muffling devices to minimize noise levels in the project area. In particular, construction equipment such as compressors, gas and diesel driven engines shall be equipped with efficient mufflers.
- 18.4 Undertake dust control measures to prevent dust nuisances resulting from any phase of the construction operation.
- 18.5 Carry out dust control practices at all locations on site.
- 18.6 Provide air scrubbers for equipment, including trucks, to prevent exhaust fumes from entering nearby buildings' air intakes. Provide documentation to the Consultant confirming installation of scrubbers prior to equipment arriving on site.
- 19 **OVERLOADING**
- 19.1 Take precautions to prevent the overloading of any part of the structure, false work, form work or scaffolding during the progress of the Work, and make good, at no expense to the Owner, all damage resulting from such overloading.
- 19.2 No load bearing members shall be cut, drilled or sleeved without the written consent of the Consultant.

20 HOLES THROUGH FLOORS AND WALLS

- 20.1 Where holes are made in floors for the passage of pipes, ducts and conduit or wires, the holes shall be sealed with cement grout after the pipes, ducts and conduit or wires have been placed.
- 20.2 Where holes are made in walls for the passage of pipes, ducts, conduit or wires, holes shall be filled with a suitable material, cement grout in masonry or concrete walls or plaster in plaster or drywall walls, regardless of whether or not the pipes have escutcheon plates. Grout or plaster around outside of sleeves where holes are sleeved.
- 20.3 In mechanical rooms above grade and in other rooms where faucets occur, the pipes, ducts, conduits or wires or all, which pass through floors, shall be enclosed in a 100 mm high metal sleeve and then grouted around pipes and ducts.
- 20.4 Above requirements shall apply to both exposed and concealed walls and floors.

21 MAKING GOOD

- 21.1 Make good materials and finishes, which are damaged or disturbed during the process of additions and reconstruction under the Contract.
- 21.2 Where existing work is to be made good, match new work exactly with the old work in material, form, construction and finish unless otherwise noted or specified.
- 21.3 Protect work in the existing building, such as floors, finishes, trim, etc., as completely as possible to hold the replacing of damaged work to a minimum.
- 21.4 Preparation for new finishes:
- .1 Remove existing finishes, including painting.
 - .2 Fill cracks and depressions with suitable filler and finish smooth, as recommended by the manufacturer of the new finishes.
 - .3 Grind protrusions level with substrates and finish smooth.
 - .4 Remove all evidences of existing adhesive, grease, oil, soil and other encrustations of foreign material by washing, scraping and grinding if necessary.
 - .5 Clean and prepare substrates to receive new work.

22 CUTTING AND PATCHING

- 22.1 Perform cutting, fitting, and patching to complete the Work. Do not cut, drill or sleeve load-bearing members without obtaining written approval for each condition.
- 22.2 Remove and replace defective and non-conforming work.
- 22.3 Perform work to avoid damage to other work.
- 22.4 Prepare proper surfaces to receive patching and finishing.
- 22.5 Cut rigid materials using power saw or core drill. Pneumatic or impact tools not allowed.
- 22.6 Restore work with new products to match existing in accordance with Contract Documents.

- 22.7 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces, and with suitable allowance for deflections, expansions, contractions, and firestopping.
- 22.8 Maintain fire ratings of fire rated assemblies where cutting and patching is performed. At penetration of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated material, full thickness of construction element.
- 22.9 Refinish surfaces to match adjacent finishes; for continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.

23 **SALVAGE AND DISPOSAL OF MATERIALS**

- 23.1 Cut, disconnect and detach items and materials designated to be removed.
- 23.2 All materials resulting from the demolition work except as otherwise specified or directed shall become the property of the Contractor.
- 23.3 Remove all material and debris from the site as quickly as possible and dispose of legally.
- 23.4 Burning of debris or selling of materials on the site will not be permitted.

24 **FIRE SAFETY DURING CONSTRUCTION**

- 24.1 Provide fire prevention and protection measures to existing building as required by all authorities having jurisdiction.
- 24.2 Maintain exits, including stairways and exterior doors to the outside. Provide acceptable alternative exits where an existing exit is blocked off or deleted due to construction activities.
- 24.3 Where access to an exit through construction area is absolutely necessary, clearly define, protect and separate access from the construction area by a smoke tight fire separation equivalent to minimum 3/4 hour fire resistance rating.

25 **SAFETY MEASURES**

- 25.1 Comply with the safety regulations of the Occupational Health and Safety Act and authorities having jurisdiction for the safety of the Work.

26 **PROJECT MEETINGS**

- 26.1 Schedule and administer project progress meetings throughout progress of work.
- 26.2 Distribute written notice of each meeting four days in advance of meeting date to Consultant and Owner.
- 26.3 Provide physical space and make arrangements for meetings.
- 26.4 Record minutes. Include significant proceedings and decisions. Identify 'action by' parties.

26.5 Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, affected parties not in attendance, Consultant and Owner.

27 **SUBMITTALS**

27.1 Administrative

.1 Submit to Consultant submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as to not cause delay in the Work. Identify Drawing Number and Specification Section number to which the submittal applies.

.2 Unless otherwise specifically permitted by the Consultant, make submittals in groups containing associated items; the Consultant may reject partial submittals as not complying with the provisions of the Contract Documents.

.3 Make submittals far enough in advance of scheduled dates of installation to provide required time for reviews, for securing necessary reviews, for possible revision and re-submittal, and for placing orders and securing delivery so as to cause no delay in the Work or in the work of other contractors. Costs of delays occasioned by tardiness of submittals shall not be borne by the Owner.

.4 Do not proceed with Work affected by submittal until review is complete.

.5 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of the Work and Contract Documents.

.6 Verify field measurements and affected adjacent Work is coordinated.

27.2 Submittals Processing Time: Allow time for submittal review, including time for re-submittals, as follows:

.1 Time for review shall commence on Consultant's receipt of submittal. If a shop drawing is received after 12 noon, it will be considered as received the next working day for the purposes of the processing time.

.2 For scheduling purposes allow minimum 10 working days following submission and minimum 10 working days following resubmission. Consultant will advise Contractor if additional time is required for technical or co-ordination review.

.3 Concurrent Review: When concurrent review of submittals by Consultant's subconsultants, Owner, or other parties is required, allow a minimum of fifteen (15) working days for initial review of each submittal. Direct transmittal to Consultant's subconsultants will not be permitted.

.4 If at any time the Contractor submits unusually large number of shop drawings, the Consultant will, within 5 working days of receipt of such drawings, provide the Contractor with an estimate of time necessary for processing such shop drawings.

.5 Failure to provide submittals in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension will be allowed.

27.3 Shop Drawings and Product Data

- .1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connection, explanatory notes and other information necessary for completion of Work.
 - .2 Adjustments made on shop drawings by Consultant are not intended to change Contract Price.
 - .3 Make changes in shop drawings as Consultant may require.
 - .4 Submit Shop drawings and Product Data in electronic format as a PDF or DWG file via the project website or other means of electronic file delivery. Scanned drawings will only be accepted if legible. Illegible drawings will be rejected.
 - .5 Product Data catalogue cuts showing all aspects, design, sizes, components and rough-in information for equipment may be submitted where shop drawings will not be prepared due to standardized manufacture of product. Supplement standard information to provide details applicable to project. Generic documents will be rejected.
- 27.4 Samples
- .1 Submit samples for review as requested in respective specification Sections.
 - .2 Deliver samples prepaid to Consultant's business address.
- 27.5 Operating Maintenance Manuals
- .1 Two weeks prior to Substantial Performance of the Work, submit to Consultant, three copies of operating and maintenance manuals.
 - .2 Manuals to contain operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information.
 - .3 Bind contents in a three-ring, hard covered, plastic jacketed binder. Organize contents into applicable categories of work, parallel to specifications Sections.
- 28 **AS BUILT AND RECORD DRAWINGS**
- 28.1 After award of Contract, obtain a set of CAD drawings from the Consultant. Make sets of white prints for purpose of maintaining record drawings. Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by Consultant.
 - 28.2 Record locations of concealed components of mechanical and electrical services.
 - 28.3 Identify drawings as "Project Record Copy". Maintain in new condition and make available for inspection on site by Consultant. On a weekly basis, scan marked-up drawings to Adobe PDF format and provide a copy to Owner and Consultant.
 - 28.4 On completion of Work and prior to final inspection, submit a copy of record documents to Consultant in PDF format.
 - 28.5 Prior to testing, balancing and adjusting, obtain a current set of CAD files from the Consultant and transfer record drawing information to AutoCad 2016 (CAD) files, to record final as-built condition.
 - 28.6 Drawings are to remain set to and follow Consultants AutoCad Standards. Do not alter drawing scales, X-refs, colours, layers or text styles.

- 28.7 The Consultant's CAD files may not reflect all or any construction changes.
- 28.8 Where items have been deleted, moved, renumbered or otherwise changed from contract drawings, revise the CAD files to record these changes. "Bubble" these revisions, and place these annotations on a separate and easily identified drawing layer.
- 28.9 As-built drawings to show the final as-built condition.
- 28.10 Identify each drawing in lower right hand corner in letters at least 12 mm (1/2") high and as follows:

"AS-BUILT DRAWINGS. This drawing has been revised to show all systems and conditions as installed". [Signature of Contractor] and [Date]
- 28.11 Provide "AS BUILT DRAWINGS" white prints to Consultant for review. Transfer Consultant's comments to the CAD files. Return AutoCad drawings modified to "As Built" condition to Consultants on CD or DVD Rom.
- 28.12 Submit three (3) sets of final "AS BUILT DRAWINGS" white prints with Operating and Maintenance Manuals.
- 28.13 Submit full set of final "AS BUILT DRAWINGS" to Owner in digital format: AutoCAD and PDF files, on CD or DVD Rom, or USB Flash drive, in triplicate.

29 **QUALITY CONTROL**

29.1 Owner's Quality Control

- .1 The Owner may require during progress of the Work, testing and inspection by an independent testing agency as directed by the Consultant, or as required in these Specifications, to determine if materials provided for the Works meet the specified requirements. The cost of these services shall be paid by Cash Allowances.
- .1 In this case, the Contractor shall pay independent inspection and testing agency charges authorized by the Consultant from the cash allowances included for these services.
- .2 Employment of inspection/testing agencies does not relax Contractor's responsibility to perform Work in accordance with Contract Documents.
- .3 Contractor shall provide equipment required by testing agencies for executing inspection and testing.
- .4 Re-Testing and Re-Inspection:
.1 If defects are revealed during inspection and testing, testing agency will request additional inspection and/or testing to ascertain full degree of defect. Re-testing and re-inspection shall be performed by the same testing agency as the initial tests.
.1 Contractor shall correct defects and irregularities at no cost to Owner;
.2 Contractor shall pay costs for re-testing and re-inspection.

29.2 Code Compliance and Contractor's Convenience Testing

- .1 Code Compliance Testing: Inspection and tests required by codes or ordinances, or by an authority having jurisdiction shall be the responsibility of the Contractor and shall be paid for by the Contractor as part of the Contract Price.
- .2 Contractor's Convenience Testing: Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor and paid for by Contractor as part of the Contractor's overhead expenses.
- .3 Engage a qualified testing agency to perform these quality-control services. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
- .4 Submit a certified written report, in triplicate, of each quality-control service.
- .5 Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- .6 Re-testing/Re-inspecting: Provide quality-control services, including re-testing and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents. Pay costs for re-testing and re-inspection.

30 **SITE SIGNS**

- 30.1 Do not exhibit on the site advertisements or signs other than those required by authorities having jurisdiction, unless otherwise approved by the Consultant, in writing.

31 **CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

31.1 Co-ordination

- .1 Co-ordinate with the building management use of temporary controls and facilities not provided under this Contract, including but not necessarily limited to material delivery, unloading and hoisting. Make prior arrangements and schedule use at times acceptable to the building management. Be responsible for payment for use of such facilities.

31.2 Installation/Removal

- .1 Provide construction facilities and temporary controls in order to execute work expeditiously. Remove from site all such work after use.

31.3 Conveying Equipment

- .1 Provide and maintain conveying equipment such as cranes, hoists, derricks and the like as required for the proper execution of the project.
- .2 Assume complete responsibility for construction, strength, placing, anchoring and operation of derricks, cranes, hoists, guy and operating cables and any other mechanical contrivance used for the work, to ensure that any load carried thereon can be safely supported and be free from accidents.
- .3 Provide air scrubbers for crane equipment, including trucks, to prevent exhaust fumes from entering nearby buildings' air intakes. Provide documentation to the Consultant confirming installation of scrubbers prior to equipment arriving on site.
- .4 Where local by-laws and regulations or any authorities having jurisdiction require drawings and specifications on accessory and conveying equipment, obtain and pay for same and assume responsibility for their adequacy.

31.4 Hoisting and Delivery

- .1 Deliveries shall be scheduled between 7:30 am to 3.30 pm. Any deliveries to be made on weekends must be scheduled with the hospital a minimum of three business days in advance. Large deliveries, which could affect the operations of the hospital, shall be scheduled with the hospital a minimum of 10 business days in advance.
- .2 Arrange for delivery and unloading of materials at areas designated by the building management. Do not interfere with vehicular traffic on the streets and pedestrian traffic on the sidewalks.
- .3 One of the existing elevators, as designated by the building management, may be used for construction personnel and material hoisting. Do not overload the elevator beyond the rated capacity. Provide protective coverings for finish surfaces of cars and entrances. Be responsible for safe operation of the elevator and any damages resulted from its usage. Provide alternative means of hoisting if the elevator is of insufficient size and capacity for materials intended.

31.5 Security Provisions

- .1 Maintain and conform to existing security provisions required by the building management. Do not compromise such provisions.

31.6 Hoarding and Barricades

- .1 Erect hoarding and barricades to protect public, workers, public and private property from injury or damage. Provide lockable doors within hoarding for access to site by workers.
- .2 Locks shall be Best construction core. Provide spare keys to Sunnybrook Security.

31.7 Weather Enclosures

- .1 Provide weathertight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work area for temporary heat.

31.8 Parking

- .1 Construction parking is extremely limited. Construction personnel may park in the designated construction parking lot and only with a valid parking permit.
- .2 Parking Permit cost is based on Owner's set fees and is on a first come first serve basis.
- .3 Permits can be purchased at the Parking Service Office.

31.9 Temporary Partitions / Dust-Proof Barriers

- .1 Erect dust-proof barriers between occupied and construction areas to prevent dissemination of dust. Extend from floor to slab ceiling if suspended ceiling are to be removed.
 - .1 Vacuum the area above false ceilings, including duct work and pipes prior to construction.
 - .2 Establish traffic control patterns, which prevent construction dust from being tracked into occupied areas. Provide adhesive strips on floors to catch dust on shoes.

- .2 Follow assembly description of the hoarding / tarps / dust barriers and hoarding details on drawings.
 - .3 Refer to Section 01 35 33 Infection Control Procedures for additional requirements.
 - .4 Maintain and relocate protection until Work is complete.
- 31.10 Site Storage/Loading
- .1 Confine the Work and operations of employees to limits indicated by Contract Documents. Do not unreasonably encumber premises with Products.
 - .2 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the Work.
 - .3 Storage outside the construction zone is not permitted.
- 31.11 Sanitary Facilities
- .1 Existing facilities as designated may be used during construction period.
 - .2 Maintain in clean condition.
- 31.12 Water and Power Supply
- .1 The Owner will provide and pay for a continuous supply of water, power for construction use as available from the existing facilities. Provide hoses, extensions, valves, connections, and transformers as required for execution of the Work. Provide extra supply if the existing facilities are insufficient or not suitable for construction use.
 - .2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.
- 31.13 Temporary Lighting
- .1 Provide temporary lighting required during construction period, including attendance and maintenance.
 - .2 Maintain lighting at levels required by Sections doing the work.
- 31.14 Temporary Heating
- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
 - .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders not permitted.
 - .3 Maintain temperatures at levels required by Sections doing the work.
 - .4 Ventilate heated areas and keep building free of exhaust or combustion gases.
- 31.15 Equipment/Tool/Materials Storage
- .1 Provide and maintain, in clean and orderly condition, lockable areas for storage of tools, equipment and materials.
 - .2 Locate materials on site in manner to cause least interference with work activities.
- 31.16 Project Cleanliness

- .1 Maintain the Work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste material and debris from site at end of each working day. Do not burn waste materials on site.
- .3 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

32 MATERIAL AND EQUIPMENT

32.1 Product and Material Quality

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of Products provided.
- .2 Whenever Products are specified exclusively by trade name, manufacturer's name or by catalogue reference, use only those items, unless written approval for substitution is obtained from Consultant.
- .3 Whenever manufacturer's catalogue trade name is specified, that product has been used as the Basis of Design and sets the standard of acceptance.
 - .1 It is not the intent that these products are supplied exclusively. The manufacture's names and product numbers are used to denote the minimum requirements for quality, performance, durability, design function, size, style, finish, maintenance and warranty.
 - .2 Other manufacturer's products may be used provided the items are equal or better in all respects to the items specified, subject to the provisions identified in this Article.
 - .3 Whenever classifications, listing, or other certifications by a recognized standards body is a part of the Basis of Design product, proposed substitutions to be accompanied by reports from the equivalent body indicating compliance.
- .4 Proposed substitutions will be considered only under the following conditions:
 - .1 If the materials and products specified are not available; or
 - .2 If substitute materials and products to those specified, which are brought to the attention of and considered by the Consultant as equivalent to those specified, will offer Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Consultant for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
- .5 Requests for substitutions must be fully documented and properly submitted, and must include the following statements:
 - .1 Description of proposed substitution.
 - .2 Respective costs of items originally specified and the proposed substitution.
 - .3 Compliance with the Building Codes and requirements of authorities having jurisdiction.
 - .4 Affect concerning compatibility and interface with adjacent building materials and components.

- .5 Compliance with the intent of the Contract Documents.
- .6 Reason for the request.
- .6 There is no obligation on the part of the Consultant or Owner to accept proposed substitutions. Acceptance of proposed substitutions by Owner does not relieve the Contractor's responsibility under the Contract.
- .7 Defective Products will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective Products at own expense and be responsible for delays and expenses caused by rejection.
- .8 Should any dispute arise as to quality or fitness of Products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- 32.2 Storage, Handling and Protection
 - .1 Handle and store Products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
 - .2 Store packaged or bundled Products in original and undamaged condition with manufacturer's seals and labels intact.
- 32.3 Manufacturer's Instructions
 - .1 Unless otherwise indicated in specifications, install or erect Products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.
 - .2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.
 - .3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes Consultant to require removal and reinstallation at no increase to Contract Price.
- 32.4 Workmanship
 - .1 Workmanship shall be best quality, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.
 - .2 Do not employ any unfit person or anyone unskilled in their required duties.
 - .3 Decisions as to quality or fitness of workmanship in cases of dispute rest solely with Consultant, whose decision is final.
- 32.5 Concealment
 - .1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
 - .2 Before installation, inform Consultant if there is a contradictory situation. Install as directed by Consultant.

33 NUMBER OF ITEMS

33.1 In cases where an item or part of materials or equipment is referred to in the singular number, it is intended that such reference shall apply to as many items or parts as are required to complete the Work.

34 RECONSTRUCTION, ALTERATIONS AND MAKING GOOD

34.1 Where new work connects with existing work and where existing work is altered, carry out all necessary cutting and fitting required to make satisfactory connections with the existing work under this contract so as to leave the project in a finished and workmanlike condition.

34.2 Unless otherwise specified or required by codes or By-laws to meet a certain requirement or both, make good new work to match existing work.

34.3 Make good concrete, masonry, steel, plaster, drywall ceilings, walls, flooring and other materials and finishes which are damaged or disturbed during the progress of additions and re-construction under the Contract.

34.4 Existing services shall be disconnected and relocated, where necessary, and reconnected as required to complete the Work. This work shall include, without being limited to, plumbing, drainage, heating, ventilating, air conditioning and electrical services.

34.5 Where existing work is to be made good, the new work shall match exactly the old work in material, construction and finish, unless otherwise noted or specified.

34.6 Drilling or cutting of existing work shall be carefully executed, leaving a clean hole no larger than required.

34.7 Wherever it becomes necessary to cut or interfere in any manner with existing equipment or service lines for short periods of time, do such work at times agreed upon between the Owner, Consultant and the Contractor.

34.8 Coordinate the Work of the various trades, taking into account the existing installations to assure the best arrangement of pipes, conduit, ducts and mechanical, electrical and other equipment, in the available space.

34.9 If required, in critical locations, interference or installation drawings or both, shall be prepared showing the Work of the various trades as well as the existing installations, and shall be submitted to the Consultant for review before the commencement of the Work.

35 CONTRACT CLOSEOUT

35.1 Final Cleaning

.1 When the Work is Substantially Performed, remove surplus products, tools construction machinery and equipment not required for performance of remaining Work.

.2 Leave work broom clean before inspection process commences.

.3 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

- .4 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls ceilings.
 - .5 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
 - .6 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- 35.2 Systems Demonstration / Training
- .1 Prior to final inspection, demonstrate operation of each system to Owner.
 - .2 Instruct personnel in operation, adjustment, and maintenance of equipment and systems, using provided operation and maintenance data as basis for instruction.
 - .3 Provide training to Owner’s personnel on operations and maintenance of all systems and equipment.
 - .1 The training session must be video-recorded by a professional media company acceptable to the Owner (no cell phone recording).
- 35.3 Documents
- .1 Collect reviewed submittals and assemble documents executed by Subcontractors, suppliers, and manufacturers.
 - .2 Organize contents within Operation and Maintenance Data binder into applicable sections of work to parallel project specification breakdown using broad scope headings: Architectural, Mechanical, Electrical, etc.
 - .3 Submit material prior to final application for payment.
 - .4 Submit three (3) print copies and three (3) CD-ROM or USB flash drives with electronic files of Project Record Manual consisting of operation and maintenance manuals in PDF format, three (3) sets of final :MAS BUILD DRAWINGS” white prints; and full set of final “AS BUILT DRAWINGS” in digital format: AutoCAD and PDF files on CD-ROM or USB flash drives (in triplicate).
 - .5 Provide warranties fully executed and notarized.
 - .6 Execute transition of Performance Bond to warranty period requirements.
- 35.4 Inspection/Takeover Procedures
- .1 Prior to application for certificate of Substantial Performance, carefully inspect the Work and ensure it is complete, that major and minor construction deficiencies are complete, defects are corrected and building is clean and in condition for occupancy. Notify Consultant in writing, of satisfactory completion of the Work and request an inspection.
 - .2 During Consultant inspection, a list of deficiencies and defects will be tabulated. Correct same.
 - .3 When Consultant considers deficiencies and defects have been corrected and it appears requirements of Contract have been performed, make application for certificate of Substantial Performance.
 - .4 Conform to OAA/OGCA Document No.100 for takeover procedures.
 - .5 Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and monies remaining due.

- .6 Consultant will issue a final change order reflecting approved adjustments to Contract Price not previously made.

End of Section