

1.1 DESCRIPTION OF WORK

.1 In general, work under this contract consist of:

.1 Work of this contract comprises the completion of one new Solid Waste Management Facility at the Springhill Institution in Springhill, Nova Scotia. The work shall include but is not limited to the supply and installation of all products, services, labour, materials and equipment required to complete the project. In addition, site utility services for potable water, sanitary and storm sewers, electrical, communication, and the district hot water system are to be extended to the Solid Waste Management Building from existing services.

.2 Erection of a temporary security fence around the construction site. Security fence is to meet CSC requirements and installation is to be coordinated with the Departmental Representative.

.3 Selected site demolition as indicated.

.4 Site grading.

.5 Supply and install sanitary lateral pipes and manholes.

.6 Supply and install storm sewer pipes and manholes.

.7 Supply and place new potable and fire protection water supply pipes, post indicator valve, valves and fittings.

.8 Excavation, backfilling and compacting engineered fill where required for foundations.

.9 Reinforcing for block walls where indicated.

.10 Perimeter foundation drains.

.11 Rigid insulation for exterior footings, foundations and underneath slab.

.12 Underslab gravels and compacted engineered fill.

.13 Custom designed structural steel building structure and building envelop systems including, metal cladding assemblies, masonry wall assemblies, curtainwall and window assemblies, exterior doors and related hardware, exterior overhead doors, roofing assemblies, soffit panels, exterior openings for mechanical penetrations, exterior openings for electrical and compacting equipment.

.14 No piping/ductbanks/conduit are to pass under any load bearing foundations or in the footing zone of influence. Step/lower foundations to allow pipes/ductbanks/conduit

1.1 DESCRIPTION OF .1
WORK
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.14 (Cont'd)

to be sleeved through the foundation wall or pass over top of the isolated footing or out of the footing zone of influence. Contractor to coordinate with mechanical/electrical/civil drawings. The layout of stepped footings/lowered footings shown on the structural drawings is schematic only and may not show all locations where stepped footings/lowered footings are required. Contractor is to coordinate all stepped footing/lowered footing locations and depths with all sub-trades and submit all proposed stepped footing/lowered footing locations and depths to department representative prior to excavation for footings and reinforcing and formwork fabrication. Refer to typical stepped footing detail.

.15 Other work required to provide a full weathertight building envelope.

.16 The work for the building generally includes the following however, it is not limited to this scope:

.1 Slab on grade (including reinforcing, finishing and sealants/hardners) and underslab granular layer.

.2 Foundation walls and footings (including reinforcing).

.3 Concrete block walls.

.4 Concrete pads at exterior doors.

.5 Miscellaneous metals.

.6 Pits.

.7 All interior housekeeping pads.

.8 Structural framing, columns and beams.

.9 Column baseplates and anchor bolts.

.10 Open web steel joists and steel roof deck.

.11 Lateral bracing for the block walls.

.12 Damp proofing / Water proofing

.13 All interior block walls and partitions

.14 Interior doors, frames, screens and related door hardware.

.15 Interior floor, wall and ceiling finishes.

.16 Interior countertops, cabinets and finish carpentry.

.17 Firestopping and smoke seals.

1.1 DESCRIPTION OF WORK
(Cont'd)

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.16 (Cont'd)

.18 Specialty equipment as indicated.

.19 Exterior hose bibs.

.20 Interior mechanical work including heating, ventilation, controls, plumbing, trench drains, solids interceptors, roof drains, fire protection system, and the supply and installation of all louvers, and vents in the exterior walls and roof.

.21 Interior electrical work including power panels, power distribution services, receptacles, lighting, lighting controls, emergency lighting, exit lighting, fire alarm system, communication system.

.22 Electrical and mechanical hook-ups to specialty equipment.

.23 Construction of all exterior concrete pads, bollards, pavement, curbs, aprons, and retaining wall.

.24 Topsoil and seeding over site as indicated and reinstatement.

.17 Commissioning, warranties, maintenance manuals, and record drawings.

.2 Site of Work is at: Springhill Institution, 330 McGee Street, PO Box 2140, Springhill, NS B0M 1X0.

1.2 FAMILIARIZATION WITH SITE
WITH SITE

.1 Before submitting a bid, it is recommended that bidders visit the site to review and verify the form, nature and extent of the work, materials needed, the means of access and the temporary facilities required to perform the Work.

.2 Obtain prior permission from the Departmental Representative before carrying out such site inspection.

1.3 CODES AND STANDARDS
STANDARDS

.1 Perform work in accordance with the 2010 National Building Code of Canada and any other code of provincial or local application, including all amendments up to bid closing date, provided that in any case of conflict or discrepancy, the more stringent requirement shall apply.

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- 1.3 CODES AND STANDARDS (Cont'd) .2 Materials and workmanship must meet or exceed requirements of specified standards, codes and referenced documents.
- 1.4 INTERPRETATION OF DOCUMENTS .1 Supplementary to the Order of Precedence article of the General Conditions of the Contract, the Division 01 sections take precedence over the technical specification sections in other Divisions of the Specification Manual.
- 1.5 TERM ENGINEER .1 Unless specifically stated otherwise, the term Engineer where used in the Specifications and on the Drawings shall mean the Departmental Representative as defined in the General Conditions of the Contract.
- 1.6 SETTING OUT WORK .1 Departmental Representative will set stakes to define location, alignment and elevations of work. Give Departmental Representative reasonable notice of construction layout requirements.
- .2 Departmental Representative will provide only those survey control points and set such stakes as necessary to define general location, alignment and elevations of work. Give Departmental Representative reasonable notice of requirements for such control points and stakes.
- .3 Set grades and lay out work in detail from control points and grades established by Departmental Representative.
- .4 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .5 Provide devices needed to lay out and construct work.
- .6 Supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.
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1.6 SETTING OUT WORK
(Cont'd)

.7 Supply stakes and other survey markers required for laying out work.

1.7 COST BREAKDOWN

.1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. Required forms will be provided for application of progress payment.

.2 List items of work numerically following the same division/section number system of the specification manual and thereafter sub-divide into major work components and building systems as directed by Departmental Representative.

.3 Upon approval, cost breakdown will be used as basis for progress payment.

1.8 MEASUREMENT FOR PAYMENT

.1 Notify Departmental Representative sufficiently in advance of operations to permit required measurements for payment.

1.9 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each of the following:

- .1 Contract Drawings
 - .2 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 Health and Safety Plan and other safety related documents
 - .11 Other documents as stipulated elsewhere in the Contract Documents.
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1.10 PERMITS

- .1 In accordance with the the General Conditions, obtain and pay for building permit, certificates, licenses and other permits as required by municipal, provincial and federal authorities.
- .2 Provide appropriate notifications of project to municipal and provincial inspection authorities.
- .3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.
- .4 Submit to Departmental Representative, copy of application forms and approval documents received from above referenced authorities.

1.11 ROUGHING-IN

- .1 Be responsible for obtaining manufacturer's literature and for correct roughing-in and hook-up of equipment, fixtures and appliances.

1.12 CUTTING,
FITTING AND
PATCHING

- .1 Ensure that cutting and patching required by all trades is included in total bid price submitted for the work.
 - .2 Execute cutting including excavation, fitting and patching required to make work fit properly.
 - .3 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work. This includes patching of openings in existing work resulting from removal of existing services.
 - .4 Do not cut, bore, or sleeve load-bearing members, except where specifically approved by Departmental Representative.
 - .5 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.
 - .6 Fit work airtight to pipes, sleeves ducts and conduits.
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- 1.13 CONCEALMENT .1 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.
- 1.14 LOCATION OF FIXTURES .1 Location of equipment, fixtures and outlets, shown or specified shall be considered as approximate. Actual location shall be as required to suit conditions at time of installation and as is reasonable.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative when impending installation conflicts with other new or existing components. Follow directives for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.
- 1.15 EXISTING SERVICES .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to tenant operations.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.
- .3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility. This includes disconnection of electrical power and communication services to tenant's operational areas. Adhere to approved schedule and provide notice to affected parties.
- .4 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant systems.
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1.17 BUILDING .1 Comply with smoking restrictions.
SMOKING
ENVIRONMENT

1.18 ASBESTOS .1 Demolition of spray or trowel-applied
DISCOVERY asbestos can be hazardous to health. Should
material resembling spray or trowel-applied
asbestos be encountered in course of work,
stop work and notify Departmental
Representative immediately. Do not proceed
with relevant work until written instructions
have been received from Departmental
Representative.

1.1 SUBMITTALS

- .1 Upon acceptance of bid and prior to commencement of work, submit to Departmental Representative the following work management documents:
 - .1 Work Schedule as specified herein.
 - .2 Shop Drawing Submittal Schedule specified in section 01 33 00
 - .3 Waste Management Plan specified in section 01 74 21
 - .4 Environmental Plan specified in section
 - .5 Health and Safety Plan specified in section 01 35 29
 - .6 Hot Work Procedures specified in section 01 35 24
 - .7 Lockout Procedures specified in section 01 35 25
 - .8 Dust Control Plan specified in section 01 50 00.
 - .9 List of workers requiring security clearance and those to be placed on Site Security Control list as specified in section 01 35 59.

1.2 WORK SCHEDULE

- .1 Upon acceptance of bid submit:
 - .1 Preliminary work schedule within 7 calendar days of contract award.
 - .2 Detailed work schedule within 21 calendar days of contract award.
 - .2 Schedule to indicate all calendar dates from commencement to completion of all work within the time stated in the accepted bid.
 - .3 Provide sufficient details in preliminary schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.
 - .4 Preliminary work schedule content to include as a minimum the following:
 - .1 Bar (GANTT) Charts, indicating all work activities, tasks and other project elements, their anticipated durations, planned dates for achieving key activities and major project milestones supported with;
 - .2 Written narrative on key elements of work illustrated in bar chart, providing
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1.2 WORK SCHEDULE .4
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.2 (Cont'd)

sufficient details to demonstrate a reasonable implementation plan for completion of project within designated time.

.3 Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.

.5 Detailed Work Schedule:

.1 Prepare by use of Critical Path Method (CPM) indicating:

.1 Complete and detailed sequence of all construction activities. Show projected start and completion dates for each activity.

.2 Number of calendar days required to carryout each activity.

.3 Critical path items with resulting critical dates, non-critical activities and resulting float time.

.4 Actual workdays from non-working days such as weekend and statutory days etc...

.5 Projected and actual percentage of work completed for each major work activity.

.2 Prepare CPM schedule by use of well recognized and widely used electronic software. Submit copy of schedule in paper format and one electronic version on diskette for each submission.

.3 Accompany CPM with written narrative as required and in sufficient detail to fully describe work and demonstrate a reasonable implementation plan for completion of project within designated time.

.6 Work schedule must take into consideration and reflect the work phasing, required sequence of work, special conditions and operational restrictions as specified below and indicated on drawings.

.7 Schedule work in cooperation with the Departmental Representative. Incorporate within Detailed Work Schedule, items identified by Departmental Representative during review of preliminary schedule.

1.2 WORK SCHEDULE
(Cont'd)

- .8 Completed schedule shall be approved by Departmental Representative. When approved, take necessary measures to complete work within scheduled time. Do not change schedule without Departmental Representative's approval.
- .9 Ensure that all subtrades and subcontractors are made aware of the work restraints and operational restrictions specified.
- .10 Schedule Updates:
 - .1 Submit on a monthly basis when requested by Departmental Representative.
 - .2 Provide information and pertinent details explaining reasons for necessary changes to implementation plan.
 - .3 Identify problem areas, anticipated delays, impact on schedule and proposed corrective measures to be taken.
- .11 Departmental Representative will make interim reviews and evaluate progress of work based on approved schedule. Frequency of such reviews will be as decided by Departmental Representative. Address and take corrective measures on items identified by reviews and as directed by Departmental Representative. Update schedule accordingly.
- .12 In every instance, change or deviation from the Work Schedule, no matter how minimal the risk or impact on safety or inconvenience to tenant or public might appear, will be subject to prior review and approval by the Departmental Representative.

1.3 OPERATIONAL
RESTRICTIONS

- .1 The Contractor must perform the work with utmost regard to the safety and convenience of institution occupants and users. All work activities must be planned and scheduled with this in mind. The Contractor will not be permitted to disturb any portion of the site without providing temporary facilities as necessary to ensure safe and direct passage through disturbed or otherwise affected areas.
- .2 Contractor to meet with the Departmental Representative on a weekly basis to identify intended work areas, activities and scheduling

1.3 OPERATIONAL
RESTRICTIONS
(Cont'd)

- .2 (Cont'd)
for the coming week. It is anticipated that work is to be performed during regular working hours. However, the Departmental Representative may require some work to be completed off hours.
- .3 Off Hours: means a period of time which is outside the daily operational hours of the tenants of the Facility. For the purposes of this contract, Off-Hours are defined as follows:
.1 Weeknight Off-Hours: between the hours of 18:00 and 07:00 for each weekday Monday to Thursday inclusive.
.2 Weekend Off-Hours: between the hours of 18:00 Friday evening to 07:00 Monday morning.
.3 Dependent on the nature and location of the construction activity and due to an unanticipated operational requirement of the Tenant, certain off-hour periods may be redefined by adjusting the start and end time periods or cancellation of a specific off-hour workshift during the course of the Work.
- .4 The following work shall be performed during Off-Hours:
.1 Work which requires the temporary disconnection of power and communication services to occupied areas;
- .5 Departmental Representative reserves the right to stop certain daytime work activities, if the nature of that activity generates excessive noise or dust and have Contractor re-schedule that particular work to be performed during the Off-Hour period.
- .6 Ensure that all trades are aware of the "Off-Hour" requirements of this contract and ensure that any extra costs incurred as a result is included in the Contractor's bid price for the work. No extra cost will be paid due to failure by General Contractor or his sub-contractors to recognize the off-hour requirements and other restrictions specified herein and to include all necessary allowances within their bids.
- .7 See section 01 35 59 in regards to:
.1 Special security requirements which must be observed in the course of work.

1.3 OPERATIONAL
RESTRICTIONS
(Cont'd)

- .7 See section 01 35 59 in regards to:(Cont'd)
.2 Provision of security personnel by Contractor as part of the Work.
- .8 Facility circulation maintained:
.1 Ensure that entrances, corridors, stairwells, fire exits and other circulation routes are maintained free and clear providing safe and uninterrupted passage for Facility users and public at all times during the entire work.
.2 Maintain those areas clean and free of construction materials and equipment. Provide temporary dust barriers and other suitable enclosures to ensure users are not exposed to construction activities and are protected from exposure to dust, noise and hazardous conditions.
.3 Provide temporary corridors, walkways, passageways, access to offices, etc... when required due to nature of work. Such circulation routes must be constructed to barrier free requirements unless approved otherwise by Departmental Representative.
.4 Maintain fire escape routes accessible and fire fighting access open all times for the duration of the project.
.5 Do not under any circumstances block fire exit doors. Do not leave construction materials or debris in corridors, stairwells building entrances and exits.
- .9 Safety Signage:
.1 Provide on site, and erect as required during progress of work, proper bilingual signage, mounted on self-supporting stands, warning the public and building occupants of construction activities in progress and alerting need to exercise caution in proceeding through disturbed areas of the facility, and directing building occupants through any detours which may be required.
.2 Signage to be professionally printed and mounted on wooden backing, coloured and to express messages as directed by the Departmental Representative.
.3 Generally maximum size of sign should be in the order of 1.0 square meters. Number of signs required will be dependent on number of areas in facility under renovation at any one time.
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1.3 OPERATIONAL
RESTRICTIONS
(Cont'd)

- .9 Safety Signage:(Cont'd)
 - .4 Include costs for the supply and installation of these signs in the bid price.

- .10 Dust and Dirt Control:
 - .1 See section 01 50 00 and 01 74 11 for dust control and cleaning requirements.
 - .2 Effectively plan and implement dust control measures and cleaning activities as an integral part of all construction activities. Review all measures with the Departmental Representative before undertaking work, especially for major dust generating activities.
 - .3 Do not allow demolition debris and construction waste to accumulate on site and contribute to the propagation of dust.
 - .4 As work progresses, maintain construction areas in a tidy condition at all times. Remove gross dust accumulations by cleaning and vacuuming immediately following the completion of any major dust generating activity.
 - .5 Immediately remove all debris and dust from within occupied areas as generated by work therein during a given workshift.
 - .6 Disconnect and seal-off ductwork of HVAC servicing the construction area to stop spread of dust into other areas of Facility.
 - .7 Avoid situations and practises which results in dust and dirt being brought from the construction areas or from the exterior and tracked into occupied areas used by tenants and the public.
 - .8 Stop workers with soiled footwear from entering building.
 - .9 Inform workers and make them sensitive to the need for dust and dirt control. Stringently enforce rules and regulations, immediately address non-compliance.
 - .10 Keep access doors to work areas closed at all times. Use only designated doors for entry or egress.

- .11 Cleaning of tenant occupied areas used by Contractor:
 - .1 Failure to provide effective dust control, allowing construction dust and dirt to escape beyond construction areas and contaminate occupied areas and building circulation areas will result in Contractor being ordered to immediately provide

1.3 OPERATIONAL
RESTRICTIONS
(Cont'd)

- .11 (Cont'd)
.1 (Cont'd)
professional cleaning services without delay to remedy the situation and conduct all cleaning to the extent as determined by Departmental Representative. Alternatively, Departmental Representative may, at certain times and at own discretion, obtain the services of an independent building cleaning agency when cleaning being provided by Contractor is ineffective or tardy in response. Costs of such services will be charged against Contractor in the form of financial penalties or holdback assessments against the Contract.
- .12 Ensure that all sub-trades are made aware of and abide by the contents of this section and in particularly the work restrictions specified herein due to tenant operational requirements.

1.4 PROJECT MEETINGS.1

- Schedule and administer project meetings, held on a minimum bi-weekly basis, for entire duration of work and more often when directed by Departmental Representative as deemed necessary due to progress of work or particular situation.
- .2 Prepare agenda for meetings.
- .3 Notify participants in writing 4 days in advance of meeting date.
.1 Ensure attendance of all subcontractors.
.2 Departmental Representative will provide list of other attendees to be notified.
- .4 Hold meetings at project site or where approved by Departmental Representative.
- .5 Preside at meetings and record minutes.
.1 Indicate significant proceedings and decisions. Identify action items by parties.
.2 Distribute to participants by mail or by facimile within 3 calendar days after each meeting.
.3 Make revisions as directed by Departmental Representative.
.4 Departmental Representative will advise whether submission of minutes by Email is
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1.4 PROJECT MEETINGS.5
(Cont'd)

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.4 (Cont'd)

acceptable. Decision will be based on compatibility of software among participants.

- .6 Departmental Representative will arrange project meetings and assume responsibility for setting times and recording minutes.

1.5 WORK
COORDINATION

.1

The General Contractor is responsible for coordinating the work of the various trades and predetermining where the work of such trades interfaces with each other.

.1 Designate one person from own employ having overall responsibility to review contract documents and shop drawings, plan and manage such coordination.

.2

The General Contractor shall convene meetings between trades whose work interfaces and ensure that they are fully aware of the areas and the extent of where interfacing is required.

.1 Provide each trade with the plans and specs of the interfacing trade, as required, to assist them in planning and carrying out their respective work.

.2 Develop coordination drawings when deemed required illustrating potential interference between work of various trades and distribute to all affected parties including structural trade.

.1 Pay particularly close attention to overhead work above ceilings and within or near to building structural elements.

.2 Coordination drawings to identify all building elements, services lines, rough-in points and indicate from where various services are coming.

.3 Review coordination drawings at purposely called meetings. Have subcontractors sign-off on drawings and publish minutes of each meeting.

.4 Plan and coordinate work in such a way to minimize quantity of service line offsets.

.5 Submit copy of coordination drawings and meeting minutes to Departmental Representative for information purposes.

1.5 WORK
COORDINATION
(Cont'd)

- .3 Submission of shop drawings and ordering of prefabricated equipment or prebuilt components shall only occur once coordination meeting for such items has taken place between trades and all conditions affecting the work of the interfacing trades has been made known and accounted for.
- .4 Work Cooperation:
 - .1 Ensure cooperation between trades in order to facilitate the general progress of the work and avoid situations of spatial interference.
 - .2 Ensure that each trade provides all other trades reasonable opportunity for the completion of the work and in such a way as to prevent unnecessary delays, cutting, patching and the need to remove and replace completed work.
- .5 No extra costs to the Contract will be considered by the Departmental Representative as a result of Contractor's failure to effectively coordinate all portions of the work. Disputes between the various trades as a result of their not being informed of the areas and extent of interface work shall be the sole responsibility of the General Contractor to be resolved at own cost.

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- 1.1 GENERAL .1 The Departmental Representative will supply certain material and equipment in the Contract for installation and incorporation into the Work by the Contractor.
- 1.2 MATERIAL SUPPLIED .1 Departmental Representative will supply the following materials to the Contract:
.1 [_____]
.2 [_____]
.3 [_____]
- .2 The above noted items [are currently stored] [will be delivery] at the following address to be picked up by Contractor:
.1 [_____]
- .3 The above noted items will be delivered and turned over to the Contractor at the site of work.
- .4 Storage location is approximately [____]km from work site.
- 1.3 DELIVERY REQUIREMENTS .1 Materials supplied by the Departmental Representative will be turned over to the Contractor [immediately upon receipt].
- .2 Within [3] calendar days of receipt of material supplied by Departmental Representative, the Contractor must:
.1 Conduct a complete audit to verify that all materials have been received, including loose parts and accessories associated with a particular item;
.2 Acknowledge receipt, identify any missing or damaged items, in writing;
.3 Provide copy of delivery slips submitted by manufacturer and shipping company.
- .3 Unless shortages of material or damaged items are identified in writing to the Departmental Representative within the above specified period, the Contractor will become responsible to supply all missing materials and repair or replace damaged items and missing parts discovered thereafter at own expense.
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- 1.3 DELIVERY REQUIREMENTS
(Cont'd)
- .4 Failure to make a complete check of supplied materials or to acknowledge receipt of same shall not relieve Contractor's responsibility to replace or repair any item subsequently found to be missing or damaged.
- .5 Departmental Representative will make final determination as to whether an item can be repaired or must be replaced.
- .6 In the event of failure on the part of the Contractor to submit written proof within the specified verification period, Departmental Representative reserves the right to:
- .1 Proceed with the supply or repair of missing items through independent sources and;
 - .2 Charge costs of such items, including related shipping charges, to the General Contractor through financial holdback assessments against the Contract.
- 1.4 CONTRACTOR'S DUTIES
- .1 Pick-up the supplied material, at location indicated.
- .2 Take possession of the supplied material immediately upon delivery to the site by shipping company.
- .3 Promptly inspect delivered material. Report missing, damaged or defective items in writing to Departmental Representative in accordance with delivery requirements specified above.
- .4 Obtain and pay costs to load and transport to [site] [work area].
- .5 Unload and handle at site, including lifting, uncrating etc...
- .6 Store material on site at a location [approved] [designated] by Departmental Representative. Protect against inclement weather and site damage by use of appropriate covers.
- .7 Make all arrangements and pay associated costs to provide temporary storage from date
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1.4 CONTRACTOR'S .7
DUTIES
(Cont'd)

- (Cont'd)
of receipt and until ready for incorporation into the work.
- .1 Type and location of storage to meet with Departmental Representative's approval.
 - .8 Be responsible for the protection of such material against damage, loss, theft and fire from date of receipt, during [transportation], loading, unloading, temporary storage and until final installation of work is accepted by the Departmental Representative.
 - .9 Any damage or loss of such material shall result in the Contractor being responsible for replacement or repair of equipment at no additional cost to the Contract.
 - .10 The decision as to whether damaged items may be repaired or must be replaced with new equipment shall be the Departmental Representative's decision.
 - .11 Install such material and equipment and incorporate into the work. Perform assembly and make all connections as required to make item functional.
 - .12 Dispose of containers, crating and protective covering [off site] [as directed by the Departmental Representative].

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under sections as follows:
- .1 Section 04 05 00 - Common Work Results for Masonry.
- 1.2 APPOINTMENT AND PAYMENT .1 Departmental Representative will appoint and pay for services of testing laboratory except follows:
- .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
- .2 Inspection and testing performed exclusively for Contractor's convenience.
- .3 Testing, adjustment and balancing of mechanical and electrical equipment and systems.
- .4 Mill tests and certificates of compliance.
- .5 Tests specified to be carried out by Contractor under supervision of Departmental Representative.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.
- 1.3 CONTRACTOR'S RESPONSIBILITIES .1 Provide labour, equipment and facilities to:
- .1 Provide access to Work for inspection and testing.
- .2 Facilitate inspections and tests.
- .3 Make good Work disturbed by inspection and test.
- .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
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- 1.3 CONTRACTOR'S RESPONSIBILITIES (Cont'd)
- .2 Notify Departmental Representative 48 hours minimum sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
 - .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
 - .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

PART 2 - PRODUCTS

- 2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

- 3.1 NOT USED .1 Not Used.

1.1 RELATED
SECTIONS

.1 Section 01 78 00 - Closeout Submittals.

1.2 SUBMITTAL
GENERAL REQUIREMENTS

- .1 Submit to Departmental Representative for review requested submittals specified in various sections of the specifications including shop drawings, samples, permits, compliance certificates, test reports, work management plans and other data required as part of the work.
- .2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with work until relevant submissions have been reviewed.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, provide soft converted values.
- .6 Review submittals prior to submission. Ensure that necessary requirements have been determined and verified and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.
.1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
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1.2 SUBMITTAL
GENERAL REQUIREMENTS
(Cont'd)

- .9 Contractor's responsibility for errors, omissions or deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .10 Submittal format: paper originals, or alternatively clear and fully legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission. Electronic submittal submissions in PDF (Portable Document Format) are also acceptable. Each submittal is to be issued as a separate file. PDF submittals to be generated at a suitable scanned resolution so that they can be read easily and interpreted without ambiguity. Optimize the size of the files to allow for reasonable electronic transmission while maintaining the clarity of the drawing.
- .11 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental Representative. When resubmitting, identify in writing of any revisions other than those requested.
- .12 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 SHOP DRAWINGS
AND PRODUCT DATA

- .1 The term "shop drawings" means fabrication drawings, erection drawings, diagrams, illustrations, schedules, performance charts, technical product data, brochures, specifications, test reports installation instructions and other data which are to be provided by Contractor to illustrate compliance with specified materials and details of a portion of work.
- .2 Shop Drawing Submittal Schedule:
 - .1 Submit within 15 working days of acceptance of bid a schedule listing all shop drawings to be submitted for project.

1.3 SHOP DRAWINGS .2
AND PRODUCT DATA
(Cont'd)

Shop Drawing Submittal Schedule:(Cont'd)

.2 Schedule shall be in format acceptable to Departmental Representative and indicate proposed submission date for each item, status of review and anticipated product delivery date to site. Track all submissions for entire project.

.3 Revise schedule as work progresses. Identify items which have been reviewed and finalized and indicating those outstanding.

.4 Update schedule at stipulated dates or project time intervals predetermined and agreed upon with Departmental Representative at commencement of Work.

.3 Shop Drawing Quantities: submit sufficient copies required by the General Contractor and sub-contractors plus 4 copies which will be retained by Departmental Representative.

.1 Ensure sufficient copies are submitted to enable one complete set to be included in each of the maintenance manuals specified in 01 78 00.

.4 Shop Drawings Format:

.1 Opaque white prints or photocopies of original drawings or standard drawings modified to clearly illustrate work specific to project requirements. Maximum sheet size to be 1000 x 707 mm.

.2 Product Data from manufacturer's standard catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products, to be original full colour brochures, clearly marked indicating applicable data and deleting information not applicable to project.

.3 Non or poorly legible drawings, photocopies or facsimiles will not be accepted and returned not reviewed.

.4 Electronic PDF submittals are also acceptable.

.5 Shop Drawings Content:

.1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where items or equipment attach or connect to other items or equipment, confirm that all interrelated work have been

1.3 SHOP DRAWINGS .5
AND PRODUCT DATA
(Cont'd)

Shop Drawings Content:(Cont'd)

.1 (Cont'd)

coordinated, regardless of section or trade from which the adjacent work is being supplied and installed.

.2 Supplement manufacturer's standard drawings and literature with additional information to provide details applicable to project.

.3 Delete information not applicable to project on all submittals.

.4 Equipment installation/start-up data: include manufacturer's recommended installation instructions, pre-start and start-up checklists for those pieces of equipment and systems designated to be commissioned as specified in section 01 91 13.

.6 Allow ten(10) calendar days for Departmental Representative's review of each submission.

.7 Adjustments or corrections made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.

.8 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If shop drawings are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected shop drawings, through same submission procedures indicated above.

.9 Be advised that costs and expenses incurred by Departmental Representative to conduct more than one review of incorrectly prepared shop drawing submittal for a particular material, equipment or component of work may be assessed against the Contractor in the form of a financial holdback to the Contract.

.10 Accompany each submissions with transmittal letter, in duplicate, containing:

.1 Date.

.2 Project title and project number.

.3 Contractor's name and address.

1.3 SHOP DRAWINGS .10
AND PRODUCT DATA
(Cont'd)

(Cont'd)
.4 Identification and quantity of each shop drawing, product data and sample.
.5 Other pertinent data.
.6 Electronic PDF transmittal is acceptable.

.11 Submissions shall include:

- .1 Date and revision dates.
- .2 Project title and project number.
- .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized Representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents. Electronic stamps and signatures are acceptable.
- .5 Cross references to particular details of contract drawings and specifications section number for which shop drawing submission addresses.
- .6 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.

.12 After Departmental Representative's review, distribute copies.

.13 The review of shop drawings by the Departmental Representative or by an authorized Consultant or designate is for sole purpose of ascertaining conformance with general concept. This review shall not mean that client approves the detail design inherent in the shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for

1.3 SHOP DRAWINGS .13 (Cont'd)
AND PRODUCT DATA
(Cont'd)

errors or omissions in shop drawings or of responsibility for meeting all requirements of the construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 SAMPLES

- .1 Submit for review samples as specified in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples to Departmental Representative's office or to other address as directed. Do not drop off samples at construction site except for pre-approved circumstances previously approved by Departmental Representative.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments will result in a cost increase to the Contract notify Departmental Representative in writing prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

- 1.1 SECTION INCLUDES
- .1 Fire Safety Requirements
 - .2 Hot Work Permit
 - .3 Existing Fire Protection and Alarm Systems
- 1.2 RELATED WORK
- .1 Section 01 35 29 Health and Safety Requirements
- 1.3 REFERENCES
- .1 Fire Protection Standards issued by Fire Protection Services, Labour Program Division of Service Canada:
 - .1 FCC No. 301-June 1982 Standard for Construction Operations.
 - .2 FCC No. 302-June 1982 Standard for Welding and Cutting.
 - .2 FCC standards may be viewed at:
 - .1 <http://www.hrsdc.gc.ca/en/lp/lo/fp/standards/commissioner.shtml>
 - .2 Fire Protection Services - Atlantic Region office, Halifax, N.S, Tel. (902) 426-6053.
- 1.4 DEFINITIONS
- .1 Hot Work defined as:
 - .1 Welding work
 - .2 Cutting of materials by use of torch or other open flame devices
 - .3 Grinding with equipment which produces sparks.
 - .4 Use of open flame torches such as for roofing work.
- 1.5 SUBMITTALS
- .1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within 14 calendar days of acceptance of bid.
 - .2 Submit in accordance with section 01 33 00.
-

1.6 FIRE SAFETY
REQUIREMENTS

- .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code.
 - .2 Fire Protection Standards FCC 301 and FCC 302.
 - .3 Federal and Provincial Occupational Health and Safety Acts and Regulations.
- .2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.7 HOT WORK
AUTHORIZATION

- .1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot Work on site.
 - .2 To obtain authorization submit to Departmental Representative:
 - .1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample Hot Work Permit to be used.
 - .3 Upon review and confirmation that effective fire safety measures will be implemented and followed during performance of hot work, Departmental Representative will give authorization to proceed as follows:
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Subdivide the work into pre-determined, individual activities, each activity requiring a separately written authorization to proceed.
 - .4 Requirement for individual authorization will be based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.
-

1.7 HOT WORK
AUTHORIZATION
(Cont'd)

- .5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.
- .6 In tenant occupied Facility, coordinate performance of Hot Work with Facility Manager through the Departmental Representative. When directed, perform Hot Work only during non-operative hours of the Facility. Follow Departmental Representative's directives in this regard.

1.8 HOT WORK
PROCEDURES

- .1 Develop and implement safety procedures and work practises to be followed during the performance of Hot Work.
 - .2 Hot Work Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate work area beforehand for each hot work event in accordance with Safety Plan specified in section 01 35 29.
 - .2 Use of a Hot Work Permit system with individually issued permit by Contractor's Superintendent to worker or subcontractor granting permission to proceed with Hot Work.
 - .3 Permit required for each Hot Work event.
 - .4 Designation of a person on site as a Fire Safety Watcher responsible to conduct a fire safety watch for a minimum duration of 60 minutes immediately following the completion of the Hot Work.
 - .5 Compliance with fire safety codes, standards and occupational health and safety regulations specified.
 - .6 Site specific rules and procedures in force at the site as provided by the Facility Manager.
 - .3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Label document as being the Hot Work Procedures for this contract.
 - .4 Procedures shall clearly establish responsibilities of:
 - .1 Worker performing hot work,
 - .2 Person issuing the Hot Work Permit,
 - .3 Fire Safety Watcher,
-

- 1.8 HOT WORK PROCEDURES (Cont'd)
- .4 (Cont'd)
- .4 Subcontractor(s) and Contractor.
- .5 Brief all workers and subcontractors on Hot Work Procedures and of Permit system. Stringently enforce compliance.
- 1.9 HOT WORK PERMIT
- .1 Hot Work Permit to include the following:
- .1 Project name and project number;
- .2 Building name and specific room or area where hot work will be performed;
- .3 Date of issue;
- .4 Description of hot work type needed;
- .5 Special precautions to be followed, including type of fire extinguisher needed;
- .6 Name and signature of permit issuer.
- .7 Name of worker to which the permit is issued.
- .8 Permit validity period not to exceed 8 hours. Indicate start time/date and termination time/date.
- .9 Worker's signature with time/date of hot work completion.
- .10 Stipulated time period of safety watch.
- .11 Fire Safety Wather's signature with time/date.
- .2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.
- .3 Each Hot Work Permit to be completed in full, signed and returned to Contractor's Superintendent for safe keeping on site.
- 1.10 FIRE PROTECTION AND ALARM SYSTEMS
- .1 Fire protection and alarm systems shall not be:
- .1 Obstructed.
- .2 Shut-off, unless approved by Departmental Representative.
- .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than fire fighting.

1.10 FIRE PROTECTION.3 AND ALARM SYSTEMS
(Cont'd)

Costs incurred, from the fire department, Facility owner resulting from negligently setting off false alarms will be charged to the Contractor in the form of financial progress payment reductions and holdback assessments against the Contract.

- 1.11 DOCUMENTS
ON SITE
- .1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.
 - .2 Upon request, make available to Departmental Representative or to authorized safety Representative for inspection.

1.1 SECTION INCLUDES .1 Procedures to isolate and lockout electrical facility and other equipment from energy sources.

1.2 RELATED WORK .1 Section 01 35 29: Health and Safety

1.3 REFERENCES .1 Comply with the National Building Code of Canada 2010 (NBC) for fire safety in construction and the National Fire Code of Canada 2010 (NFC) for fire prevention, fire fighting and life safety in building in use.

.2 CAN/CSA C22.3 No.1-06 - Overhead Systems.

.3 CSA C22.3 No.7-06 - Underground Systems.

.4 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

1.4 DEFINITIONS .1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.

.2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment has been isolated.

.3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD).

.4 Guarded: means that an equipment or facility is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.

- 1.4 DEFINITIONS (Cont'd)
- .5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.
 - .6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.
- 1.5 COMPLIANCE REQUIREMENTS
- .1 Comply with the following in regards to isolation and lockout of electrical facilities and equipment:
 - .1 Canadian Electrical Code
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations.
 - .3 Regulations and code of practise as applicable to mechanical equipment or other machinery being de-energized.
 - .4 Procedures specified herein.
 - .2 In event of conflict between any provisions of above authorities the most stringent provision will apply.
- 1.6 SUBMITTALS
- .1 Submit copy of lockout procedures, sample of lockout permit and lockout tags proposed for use in accordance with Section 01 33 00. , Submit within 14 calendar days of acceptance of bid.
- 1.7 ISOLATION OF EXISTING SERVICES
- .1 Obtain Departmental Representative's written authorization prior to working on existing live or active electrical facilities and equipment and before proceeding with isolation of such item.
-

- 1.7 ISOLATION OF EXISTING SERVICES
(Cont'd)
- .2 To obtain authorization, submit to Departmental Representative the following documentation:
 - .1 Written request to isolate the particular service or facility and;
 - .2 Copy of Contractor's Lockout Procedures.
 - .3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, as follows:
 - .1 Fill-out standard form in current use at the Facility as provided by Departmental Representative or;
 - .2 Where no form exist, make written request indicating:
 - .1 The equipment, system or service to be isolated and it's location;
 - .2 Duration of isolation period (ie: start time & date and completion time & date).
 - .3 Voltage of service feed to system or equipment being isolated.
 - .4 Name of person making the request.
 - .4 Do not proceed with isolation until receipt of written notification from Departmental Representative granting the Isolation Request and authorizing to proceed with the work.
 - .1 Note that Departmental Representative may designate another person at the Facility being authorized to grant the Isolation Request.
 - .5 Conduct safe, orderly shut down of equipment or facility. De-energize, isolate and lockout power and other sources of energy feeding the equipment or facility.
 - .6 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require isolation of existing services.
 - .7 Plan and schedule shut down of existing services in consultation with the Departmental Representative and the Facility Manager. Minimize impact and downtime of Facility operations. Follow Departmental Representative's directives in this regard.
-

1.7 ISOLATION OF
EXISTING SERVICES
(Cont'd)

- .8 Conduct hazard assessment as part of the process in accordance with health and safety requirements specified Section 01 35 29.

1.8 LOCKOUTS

- .1 De-energize, isolate and lockout electrical facility, mechanical equipment and machinery from all potential sources of energy prior to working on such items.
- .2 Develop and implement clear and specific lockout procedures to be followed as part of the Work.
- .3 Prepare typed written Lockout Procedures describing safe work practices, procedures, worker responsibilities and sequence of activities to be followed on site by workforce to safely isolate an active piece of equipment or electrical facility and effectively lockout and tagout it's sources of energy.
- .4 Include as part of the Lockout Procedures a system of lockout permits managed by Contractor's Superintendent or other qualified person designated by him/her as being "in-charge" at the site.
- .1 A lockout permit shall be issued to specific worker providing a Guarantee of Isolation before each event when work must be performed on a live equipment or electrical facility.
- .2 Duties of person managing the permit system to include:
- .1 Issuance of permits and lockout tags to workers.
- .2 Determining permit duration.
- .3 Maintaining record of permits and tags issued.
- .4 Making a Request for Isolation to Departmental Representative when required as specified above.
- .5 Designating a Safety Watcher, when one is required based on type of work.
- .6 Ensuring equipment or facility has been properly isolated.
- .7 Collecting and safekeeping lockout tags returned by workers as a record of the event.
-

- 1.8 LOCKOUTS
(Cont'd)
- .5 Clearly establish, describe and allocate responsibilities of:
 - .1 Workers.
 - .2 Person managing the lockout permit system.
 - .3 Safety Watcher.
 - .4 Subcontractor(s) and General Contractor.
 - .6 Generic procedures, if used, must be edited and supplemented with pertinent information to reflect specific project requirements.
 - .1 Incorporate site specific rules and procedures in force at site as provided by Facility Manager through the Departmental Representative.
 - .2 Clearly label the document as being the Lockout procedures applicable to work of this contract.
 - .7 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.
 - .8 Use industry standard lockout tags.
 - .9 Provide appropriate safety grounding and guards as required.
- 1.9 CONFORMANCE
- .1 Brief all workers and subcontractors on requirements of this section. Stringently enforce use and compliance.
- 1.10 DOCUMENTS
ON SITE
- .1 Post Lockout Procedures on site in common location for viewing by workers.
 - .2 Keep copies of Request for Isolation forms and lockout permits and tags issued to workers on site for full duration of Work.
 - .3 Upon request, make available to Departmental Representative or to authorized safety Representative for inspection.

1.1 RELATED WORK

- .1 Section 01 35 24: Special Procedures on Fire Safety Requirements.
- .2 Section 01 35 25: Special Procedures on Lockout Requirements.

1.2 DEFINITIONS

- .1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- .2 Competent Person: means a person who is:
 - .1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
 - .2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
 - .3 Knowledgeable about potential or actual danger to health or safety associated with the Work.
- .3 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
- .4 PPE: personal protective equipment
- .5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00.
 - .2 Submit site-specific Health and Safety Plan prior to commencement of Work.
 - .1 Submit within 15 work days of notification of Bid Acceptance. Provide 3 copies.
 - .2 Departmental Representative will review Health and Safety Plan and provide comments.
-

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- 1.3 SUBMITTALS .2 (Cont'd)
- (Cont'd)
- .3 Revise the Plan as appropriate and resubmit within 5 work days after receipt of comments.
- .4 Departmental Representative's review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.
- .5 Submit revisions and updates made to the Plan during the course of Work.
- .3 Submit name of designated Health & Safety Site Representative and support documentation specified in the Safety Plan.
- .4 Submit building permit, compliance certificates and other permits obtained.
- .5 Submit copy of Letter in Good Standing from Provincial Workers Compensation or other department of labour organization.
- .1 Submit update of Letter of Good Standing whenever expiration date occurs during the period of Work.
- .6 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .7 Submit copies of incident reports.
- .8 Submit WHMIS MSDS - Material Safety Data Sheets.
- 1.4 COMPLIANCE .1 Comply with Occupational Health and Safety REQUIREMENTS Act for Province of Nova Scotia, and Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code - Part II (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations (COSH) as well as any other regulations made pursuant to the Act.
- .1 The Canada Labour Code can be viewed at: [www.http://laws.justice.gc.ca/en/L-2/](http://laws.justice.gc.ca/en/L-2/)
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- 1.4 COMPLIANCE .2 (Cont'd)
REQUIREMENTS .2 COSH can be viewed at:
(Cont'd) www.http://laws.justice.gc.ca/eng/SOR-86-304/n e .html
.3 A copy may be obtained at: Canadian
Government Publishing Public Works &
Government Services Canada Ottawa, Ontario,
K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943)
Publication No. L31-85/2000 E or F)
- .3 Observe construction safety measures of:
.1 Part 8 of National Building Code
.2 Municipal by-laws and ordinances.
- .4 In case of conflict or discrepancy between
above specified requirements, the more
stringent shall apply.
- .5 Maintain Workers Compensation Coverage in
good standing for duration of Contract.
Provide proof of clearance through submission
of Letter in Good Standing.
- .6 Medical Surveillance: Where prescribed by
legislation or regulation, obtain and maintain
worker medical surveillance documentation.
- 1.5 RESPONSIBILITY .1 Be responsible for health and safety of
persons on site, safety of property on site
and for protection of persons and environment
adjacent to the site to extent that they may
be affected by conduct of Work.
- .2 Comply with and enforce compliance by all
workers, sub-contractors and other persons
granted access to Work Site with safety
requirements of Contract Documents, applicable
federal, provincial, and local by-laws,
regulations, and ordinances, and with
site-specific Health and Safety Plan.
- 1.6 SITE CONTROL .1 Control the Work and entry points to Work
AND ACCESS Site. Approve and grant access only to workers
and authorized persons. Immediately stop and
remove non-authorized persons.
.1 Departmental Representative will provide
names of those persons authorized by
Departmental Representative to enter onto Work

1.6 SITE CONTROL .1
AND ACCESS .1
(Cont'd)

(Cont'd)
.1 (Cont'd)
Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.

- .2 Isolate Work Site from other areas of the premises by use of appropriate means.
 - .1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment. See Section 01 50 00 for minimum acceptable requirements.
 - .2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.
 - .3 Use professionally made signs with bilingual message in the 2 official languages or international known graphic symbols.
- .3 Provide safety orientation session to persons granted access to Work Site. Advise of hazards and safety rules to be observed while on site.
- .4 Ensure persons granted site access wear appropriate PPE. Supply PPE to inspection authorities who require access to conduct tests or perform inspections.
- .5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm.

1.7 PROTECTION .1

- .1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.
- .2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take measures to rectify situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

- 1.8 FILING OF NOTICE
- .1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work.
 - .1 Departmental Representative will assist in locating address if needed.
- 1.9 PERMITS
- .1 Post permits, licenses and compliance certificates, specified in section 01 10 10, at Work Site.
 - .2 Where a particular permit or compliance certificate cannot be obtained, notify Departmental Representative in writing and obtain approval to proceed before carrying out applicable portion of work.
- 1.10 HAZARD ASSESSMENTS
- .1 Perform site specific health and safety hazard assessment of the Work and its site.
 - .2 Carryout initial assessment prior to commencement of Work with further assessments as needed during progress of work, including when new trades and subcontractors arrive on site.
 - .3 Record results and address in Health and Safety Plan.
 - .4 Keep documentation on site for entire duration of the Work.
- 1.11 MEETINGS
- .1 Attend pre-construction health and safety meeting, convened and chaired by Departmental Representative, prior to commencement of Work, at time, date and location determined by Departmental Representative. Ensure attendance of:
 - .1 Superintendent of Work
 - .2 Designated Health & Safety Site Representative
 - .3 Subcontractors
 - .2 Conduct regularly scheduled tool box and safety meetings during the Work in conformance with Occupational Health and Safety regulations.
-

1.11 MEETINGS
(Cont'd)

- .3 Keep documents on site.

1.12 HEALTH AND
SAFETY PLAN

- .1 Prior to commencement of Work, develop written Health and Safety Plan specific to the Work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.
- .2 Health and Safety Plan shall include the following components:
- .1 List of health risks and safety hazards identified by hazard assessment.
 - .2 Control measures used to mitigate risks and hazards identified.
 - .3 On-site Contingency and Emergency Response Plan as specified below.
 - .4 On-site Communication Plan as specified below.
 - .5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
 - .6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.
- .3 On-site Contingency and Emergency Response Plan shall include:
- .1 Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency.
 - .2 Evacuation Plan: site and floor plan layouts showing escape routes, marshalling areas. Details on alarm notification methods, fire drills, location of fire fighting equipment and other related data.
 - .3 Name, duties and responsibilities of persons designated as Emergency Warden(s) and deputies.
 - .4 Emergency Contacts: name and telephone number of officials from:
 - .1 General Contractor and subcontractors.
 - .2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.

1.12 HEALTH AND SAFETY PLAN
(Cont'd)

- .3 (Cont'd)
 - .4 Emergency Contacts:(Cont'd)
 - .3 Local emergency resource organizations.
 - .5 Harmonize Plan with Facility's Emergency Response and Evacuation Plan. Departmental Representative will provide pertinent data including name of PWGSC and Facility Management contacts.
 - .4 On-site Communication Plan:
 - .1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.
 - .2 List of critical work activities to be communicated with Facility Manager which have a risk of endangering health and safety of Facility users.
 - .5 Address all activities of the Work including those of subcontractors.
 - .6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.
 - .7 Departmental Representative will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.
 - .8 Post copy of the Plan, and updates, prominently on Work Site.

1.13 SAFETY SUPERVISION

- .1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.
- .2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:
 - .1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work

-
- 1.13 SAFETY .2 (Cont'd)
- SUPERVISION .2 Monitor and enforce Contractor's
(Cont'd) site-specific Health and Safety Plan.
-
- .3 Conduct site safety orientation session
to persons granted access to Work Site.
- .4 Ensure that persons allowed site access
are knowledgeable and trained in health and
safety pertinent to their activities at the
site or are escorted by a competent person
while on the Work Site.
- .5 Stop the Work as deemed necessary for
reasons of health and safety.
- .3 Health & Safety Site Representative must:
- .1 Be qualified and competent person in
occupational health and safety.
- .2 Have site-related working experience
specific to activities of the Work.
- .3 Be on Work Site at all times during
execution of the Work.
- .4 All supervisory personnel assigned to the
Work shall also be competent persons.
- .5 Inspections:
- .1 Conduct regularly scheduled safety
inspections of the Work on a minimum bi-weekly
basis. Record deficiencies and remedial action
taken.
- .2 Conduct Formal Inspections on a minimum
monthly basis. Use standardized safety
inspection forms. Distribute to
subcontractors.
- .3 Follow-up and ensure corrective measures
are taken.
- .6 Cooperate with Facility's Occupational Health
and Safety representative should one be
designated by Departmental Representative.
- .7 Keep inspection reports and supervision
related documentation on site.
- 1.14 TRAINING .1 Use only skilled workers on Work Site who are
effectively trained in occupational health and
safety procedures and practices pertinent to
their assigned task.
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- 1.14 TRAINING (Cont'd)
- .2 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.
 - .3 When unforeseen or peculiar safety-related hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.
- 1.15 MINIMUM SITE SAFETY RULES
- .1 Notwithstanding requirement to abide by federal and provincial health and safety regulations; ensure the following minimum safety rules are obeyed by persons granted access to Work Site:
 - .1 Wear appropriate PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses and hearing protection.
 - .2 Immediately report unsafe condition at site, near-miss accident, injury and damage.
 - .3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
 - .4 Obey warning signs and safety tags.
 - .2 Brief persons of disciplinary protocols to be taken for non compliance. Post rules on site.
- 1.16 CORRECTION OF NON-COMPLIANCE
- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
 - .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
 - .3 Departmental Representative will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.
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- 1.17 INCIDENT REPORTING .1 Investigate and report the following incidents to Departmental Representative:
- .1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
 - .2 Medical aid injuries.
 - .3 Property damage in excess of \$10,000.00,
 - .4 Interruptions to Facility operations resulting in an operational lost to a Federal department in excess of \$5000.00.
- .2 Submit report in writing.
- 1.18 HAZARDOUS PRODUCTS .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all products delivered to site.
- .1 Post on site.
 - .2 Submit copy to Departmental Representative.
 - .3 For interior work in an occupied Facility, post additional copy in one or more publically accessible locations.
- 1.19 BLASTING .1 Blasting or other use of explosives is not permitted on site without prior receipt of written permission and instructions from Departmental Representative.
- 1.20 POWDER ACTUATED DEVICES .1 Powder actuated fastening devices are not allowed to be used inside the Springhill Institution.
- 1.21 CONFINED SPACES .1 Abide by occupational health and safety regulations regarding work in confined spaces.
- .2 Obtain an Entry Permit in accordance with Part XI of the Canada Occupational Health and Safety Regulations for entry into an existing
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- 1.21 CONFINED SPACES (Cont'd) .2 (Cont'd)
identified confined space located at the Facility or premises of Work.
.1 Obtain permit from Facility Manager
.2 Keep copy of permit issued.
- .3 Safety for Inspectors:
.1 Provide PPE and training to Departmental Representative and other persons who require entry into confined space to perform inspections.
.2 Be responsible for efficacy of equipment and safety of persons during their entry and occupancy in the confined space.
- 1.22 SITE RECORDS .1 Maintain on Work Site copy of safety related documentation and reports stipulated to be produced in compliance with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.
- .2 Upon request, make available to Departmental Representative or authorized Safety Officer for inspection.
- 1.23 POSTING OF DOCUMENTS .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.
- .2 Post other documents as specified herein, including:
.1 Site specific Health and Safety Plan
.2 WHMIS data sheets

- 1.1 RELATED WORK .1 Waste Management and Disposal: Section 01 74 21.
- 1.2 DEFINITIONS .1 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
- 1.3 FIRES .1 Fires and burning of rubbish on site
- 1.4 HAZARDOUS MATERIAL HANDLING .1 Store and handle hazardous materials in accordance with applicable federal and provincial laws, regulations, codes and guidelines. Store in location that will prevent spillage into the environment
- .2 Label containers to WHMIS requirements and keep MSDS data sheets on site for all hazardous materials.
- .3 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when storage began.
- .4 Store and handle flammable and combustible materials in accordance with National Fire Code.
- .5 Transport hazardous materials in accordance with federal Transportation of Dangerous Goods Regulations and applicable Provincial regulations.
- 1.5 DISPOSAL OF WASTES .1 Do not bury rubbish and waste materials on site. Dispose in accordance with project waste management requirements specified in section 01 74 21.
- .2 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints,
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- 1.5 DISPOSAL OF WASTES (Cont'd) .2 (Cont'd)
thinners, oil or fuel into waterways, storm or sanitary sewers or waste landfill sites.
- .3 Dispose of hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.
- 1.6 DRAINAGE .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing regulations and requirements.
- .4 Provide control devices such as filter fabrics, sediment traps and settling ponds to control drainage and prevent erosion of adjacent lands. Maintain in good order for duration of work.
- 1.7 SITE AND PLANT PROTECTION .1 Protect trees and plants on site and adjacent properties where indicated.
- .2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated or designated by Departmental Representative.
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1.8 WORK ADJACENT
TO WATERWAYS

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material without Departmental Representative's approval.
- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 At borrow sites, design and construct temporary crossings to minimize erosion to waterways in strict conformance with provincial/federal environmental regulations.
- .5 Do not skid logs or construction materials across waterways.
- .6 Avoid indicated spawning beds when constructing temporary crossings of waterways.
- .7 Do not blast under water or 100 m of spawning beds.
- .8 Do not refuel any type of equipment within 100 meters of a water body. Maintain equipment in good working condition with no fluid leaks, loose hoses or fittings.

1.9 POLLUTION
CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this contract.
 - .2 Control emissions from equipment and plant to local authorities emission requirements.
 - .3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
 - .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads and around entire construction site.
 - .5 Have appropriate emergency spill response equipment and rapid clean-up kit on site located adjacent to hazardous materials
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- 1.1 GENERAL
- .1 Perform the Work in such a way as to minimize disruptions to the daily operations of the Institution and to ensure that security at the Institution is maintained at all times.
 - .2 Abide by security rules and procedures specified herein and as stipulated at the security briefing conducted prior to commencement of the Work.
- 1.2 DEFINITIONS
- .1 Institution: means the Penitentiary or Correctional Facility where the Work will be carried out.
 - .2 Director: means the person in charge of the Correctional Institution or Penitentiary where the Work will be carried out and includes any authorized person at the Facility, as designated by the Director, to provide directions on his/her behalf.
 - .3 Contraband: means any of the following:
 - .1 An intoxicant, including alcoholic beverages, drugs and narcotics;
 - .2 A weapon or a component thereof, ammunition for a weapon, and any other object that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization;
 - .3 An explosive or a bomb or a component thereof;
 - .4 Currency over the prescribed limit set by the Director.
 - .5 Any other item, as deemed by the Director, to pose a risk to the security of a Penitentiary or to the safety of persons, when that item is possessed without prior authorization from the Director.
 - .4 Unauthorized smoking items: means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing or snuffing tobacco, cigarette making machines, matches and lighters.
 - .5 Commercial vehicle: means any motor vehicle used to transport materials, equipment and tools to the site as required for construction purposes.
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1.2 DEFINITIONS
(Cont'd)

- .6 CSC: means the Department of Correctional Service Canada.
- .7 CPIC Security Clearance: means a personal background check made through the RCMP Canadian Police Information Centre.
- .8 Construction employee: means any person working for the General Contractor or subcontractor(s), commercial vehicle or equipment operator, material supplier and personnel from testing, inspection or regulatory agencies who needs to circulate on the Institution's property as part of the Work.
- .9 Departmental Representative: means the person as defined in the General Conditions of the Contract for projects managed by Public Works and Government Services Canada (PWGSC) or the Project Manager for projects managed by Correctional Service Canada (CSC).
- .10 Perimeter: means the fenced or walled area of the Institution that restrains the movement of the inmates.
- .11 Construction zone: means the area as shown on the contract drawings and as described below where the Contractor will be allowed to work. This area may or may not be isolated from the security area of the Institution.
 - .1 In general, Contractor's work activities and movement is limited to the designated work site.

1.3 PRELIMINARY
PROCEEDINGS

- .1 Prior to commencement of work, the Contractor shall meet with the Director to:
 - .1 Discuss the nature and extent of all activities involved in the work of this contract.
 - .2 Obtain security rules, regulations and procedures in force at the Institution and directives to be followed by Contractor and all construction employees during the entire course of the work.
 - .2 Departmental Representative will coordinate a pre-construction meeting between Contractor, the Director and Facility security personnel
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- 1.3 PRELIMINARY PROCEEDINGS (Cont'd)
- .2 (Cont'd) who will provide details on site security requirements.
- .3 The Contractor shall:
- .1 Ensure that all construction employees are aware of the CSC security requirements.
- .2 Ensure that a copy of the CSC security requirements is prominently displayed at the work site at all times.
- .3 Co-operate with Institutional staff in ensuring that security requirements and procedures are stringently followed by all construction employees.
- .4 Failure to follow site security requirements by the Contractor or by a construction employee could result in the immediate removal of the offending party or person from the site.
- 1.4 WORKER SECURITY CLEARANCE
- .1 CPIC security clearance must be obtained for all construction employees who needs to circulate on the Institution's property during the course of the Work.
- .1 Application forms will be provided by the Departmental Representative.
- .2 Have forms filled out by each worker.
- .2 Submit to the Director:
- .1 A list of the names with date of birth of all construction employees;
- .2 Completed security clearance form for each person.
- .3 No person will be admitted inside the Institution without a valid CPIC Security Clearance pertinent to the Institution of the Work and a recent picture identification, such as a provincial driver's permit, to show proof of identity.
- .1 Security clearance obtained for other Institutions or other CSC properties are not valid for Work of this contract.
- .4 Allow two (2) weeks for processing of security clearances.
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1.4 WORKER
SECURITY CLEARANCE
(Cont'd)

- .5 Be aware that facial photographs of security cleared construction employees may be taken as deemed required by the Director.
- .1 These photographs will be posted for display at appropriate locations in the Institution or placed into an electronic database for identification purposes.
 - .2 Photo ID cards may also be issued to each construction employee to be donned while on site. ID cards shall be left at the designated security entrance to be picked up by each person upon arrival at the Institution and must be prominently displayed on the person's clothing at all times.
- .6 CSC Security Clearance will be denied and entry into the Institution will be refused to any person which the Director has reason to believe is a security risk to the Facility's operations.
- .1 Also, a person will be subject to the immediate removal from the Institution if he/she:
 - .1 Appears to be under the influence of alcohol, drugs or narcotics.
 - .2 Behaves in an unusual disorderly manner.
 - .3 Is found in possession of contraband.
- .7 Facilitate the security clearance application process:
- .1 Provide an application form to all workers including those of subcontractors.
 - .2 Submit a list of names and birth dates for all persons who require security clearance to the Departmental Representative.
 - .3 Coordinate and expedite subcontractor submissions.
 - .4 Assist applicants in filling out the application form and submitting related documentation.
 - .5 Review application form of each applicant for completeness.
 - .6 Have each worker keep a copy of their completed form in case the initial submission gets lost.
 - .7 Submit documentation in an organized manner complete with transmittal letter clearly identifying the specific project for which security clearance is being requested.
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- 1.4 WORKER .7 (Cont'd)
SECURITY CLEARANCE .8 Send data to the approved mailing
(Cont'd) address provided by the Departmental
Representative.
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- 1.5 VEHICLES .1 All unattended vehicles on the Institution's
property shall have their windows, doors and
trunks closed and locked at all times. Keys
must be removed and kept securely in the
possession of the vehicle's owner or with an
employee of the Contractor or subcontractor
who owns the vehicle.
- .2 The Director may limit the number and type of
vehicles allowed at the Institution at any
given time.
- .3 Drivers of delivery vehicles do not require
security clearance but must remain inside
their vehicle for the entire duration while on
Institution property. This is of absolute
importance for vehicles who must enter the
Secure Perimeter of the Institution. In those
instances, the vehicle must be under constant
escort by Institutional staff or
Commissionaires while inside that area.
- .4 If the Director permits office or storage
trailers to be left inside the Secure
Perimeter; their exterior doors shall be kept
locked at all times and windows securely
locked when unoccupied.
- .1 Additionally, windows shall be covered
with expanded steel mesh securely fastened in
place.
- .2 Storage trailers, whether placed inside
and outside of the Secure Perimeter must be
kept locked when not in use.
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- 1.6 PARKING OF .1 Director will designate a location on site,
VEHICLES outside the Secure Perimeter, where
construction employee vehicles may be parked.
- .2 All other areas of the site are prohibited
and vehicles are subject to being removed by
the Institution with towing costs borne by
their owner.
-

- 1.7 SHIPMENTS
- .1 Shipments of material, equipment and tools to site shall be clearly marked with the project title and Contractor's name to avoid confusion with the Institution's own shipments.
 - .2 Contractor shall have a designated person on site to receive and take possession of all deliveries.
 - .3 Under no circumstances will Institutional staff accept any delivery designated for the Contractor or the Work.
- 1.8 TELEPHONES
- .1 Telephone landlines, facsimile machines and computers with internet connections are not permitted within the Secure Perimeter of the Institution unless prior approval is obtained from the Director.
 - .2 If approved, place telephones, facsimile machines and computers with internet connections only where indicated and not accessible to Inmates.
 - .1 Equip computers with approved password protection features which will block internet connection by unauthorized persons.
 - .3 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, BlackBerries, telephone used as 2-way radios, are not permitted within the Secure Perimeter of the Institution unless prior approval is obtained from the Director.
 - .1 Should wireless cellular telephones be permitted, the owner/user of such device shall not permit it's use by an Inmate.
 - .4 The Director may approve but limit the use of two way radios.
- 1.9 WORK HOURS
- .1 Be aware that for security reasons the days and hours which Contractor will be permitted to perform work at the site are limited to:
 - .1 Weekdays only from Monday to Friday and between the hours of 08:00 and 16:00.
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- 1.9 WORK HOURS
(Cont'd)
- .2 No work will be permitted during evenings, nighttime, weekends and on statutory holidays. These are considered off-hour periods at the Institution.
 - .3 The work day and hour restrictions specified above will only be waved for special situations and for certain aspects of the Work deemed necessary and where off-hour work is determined to be the least disruptive approach to the operations of the Institution as determined by the Director.
 - .1 A minimum of 7 days advance notice is required to obtain permission for off-hour work.
 - .2 In case of an emergency, the advanced notification may be waved by the Director.
- 1.10 OVERTIME WORK
- .1 No overtime work will be allowed at the end of a workshift.
 - .2 Where overtime work is deemed necessary at the end of a workshift to complete a critical component of the work, it shall be planned and requested a minimum of 48 hours beforehand for approval by the Director.
 - .3 Should unplanned overtime work occur due to an emergency situation, such as to complete a concrete pour or to make the work site safe and secure, the Contractor shall immediately advise the Director of this pending situation and stringently follow all directions given by the Director.
 - .4 Extra Costs: Note that when overtime work or off-hour work on weekends and statutory holidays is approved by the Director, be aware that extra CSC security staff or commissionaires may need to be posted at the Institution to maintain security surveillance.
 - .1 The costs for such service may be charged to the Contractor in the form of a financial assessment against the Contract.
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- 1.11 TOOLS AND EQUIPMENT
- .1 Make a complete list of all tools and equipment brought on site for use in the Work. Provide copy of the list to the Director and to Departmental Representative.
 - .2 Maintain and update list during the entire course of the Work.
 - .3 Keep all tools and equipment under constant supervision. This is of particular importance for power-driven and cartridge-driven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders as well as all types of jacking devices.
 - .4 Store all tools and equipment in lockable tool boxes and place in approved and secure location.
 - .5 Lock tool boxes when not in use. Keys shall remain in the possession of employees designated by Contractor.
 - .6 Scaffolding: Store and securely lock scaffolding components when not erected. Once erected, secure against unauthorized disassembly by use of such of manner as approved by Director.
 - .7 Immediately report to the Director any missing tool and equipment.
 - .8 Tool Check: Be aware that CSC security personnel will conduct tool and equipment checks during the course of the Work against the list provided by Contractor. Frequency of checks to be as follows:
 - .1 At commencement and completion of the project.
 - .2 Weekly basis when the construction period is greater than 1 week.
 - .9 Controlled items: entry and use of certain tools and equipment, such as cartridges and hacksaw blades, are highly controlled at the Institution. The Director will determine and advise which items are to be controlled.
 - .1 Controlled items will be given to the Contractor at the beginning of each workday and only in sufficient quantity required for one day.
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- 1.11 TOOLS AND EQUIPMENT (Cont'd) .9 Controlled items:(Cont'd)
.2 Controlled items must be returned to CSC security personnel at the end of each workday including all worn component such as blades, cartridges etc...
- .10 When propane or natural gas is used as fuel for construction heaters, the Contractor shall provide full time supervision of that operation during non-working hours.
- 1.12 KEYS .1 Security Hardware Keys:
.1 Arrange and ensure that keys for security door hardware are delivered directly by the hardware Supplier/Installer to the Institution's designated Security Maintenance Officer (SMO).
.2 The SMO will provide written receipt to Contractor for security keys received.
.3 Provide a copy of such receipt to the Departmental Representative.
- .2 Construction Keys:
.1 Supply and install construction cylinders on all new doors and keep such doors locked during the entire construction period.
.2 Instruct construction employees on the care and safekeeping of keys assigned to them to ensure safe custody of construction keys.
.3 Construction cylinders shall only be removed and be replaced with operational cylinders at such time as deemed appropriate by the Director. The SMO will, in conjunction with the lockset manufacturer:
.1 Prepare an operational keying schedule.
.2 Accept the operational keys and cylinders directly from the lockset manufacturer.
.3 Arrange for removal and return of the construction cylinders and install the operational cylinders in all locks.
.4 Upon putting operational security keys into use, an approved security escort designated by the Director will thereafter obtain specific keys from the SMO and open those doors as required by Contractor to access work areas.
.5 Contractor shall issue instructions to all construction employees advising them that
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- 1.12 KEYS
(Cont'd) .2 Construction Keys:(Cont'd)
.5 (Cont'd)
all security keys must always remain with the security escort.
- 1.13 SECURITY
HARDWARE .1 Turn over to Director all security hardware removed as part of the work. This includes all items intended for disposal as well as those for temporary safekeeping until ready for reinstallation as part of the work.
- 1.14 PRESCRIPTION
DRUGS .1 Construction employees who are required to take prescription drugs during the workday shall obtain approval from the Director beforehand and shall only bring on site a one days supply each day.
- 1.15 SMOKING
RESTRICTIONS .1 Contractor and construction employees are not permitted to:
.1 Smoke inside the Institution or outdoors within the Secure Perimeter and;
.2 Must not possess unauthorized smoking items within the Secure Perimeter of the Institution.
- .2 Persons found in violation of this directive shall immediately cease smoking and dispose of all unauthorized smoking items. Further smoking violation will result in the removal of the offending person off the Institution.
- .3 Smoking at the Institution is only permitted outdoors, outside the boundary of the Secure Perimeter and in a location designated by the Director.
- 1.16 CONTRABAND .1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are considered Contraband and are strictly prohibited at the Institution.
- .2 Discovery of Contraband at the site and in work areas by Contractor shall be reported immediately to the Director complete with the
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- 1.16 CONTRABAND (Cont'd)
- .2 (Cont'd)
identification of person(s) in possession of such Contraband.
 - .3 Contractor shall be vigilant with construction employees and suppliers to ensure that no contraband items are brought on site. Advise all persons that the discovery of contraband will result in cancellation of their security clearance and their immediate removal from the site. Serious infractions could result in the removal of the subcontractor or Contractor from the Institution for the duration of the Contract.
 - .4 Arms and ammunition found in vehicles owned by Contractor, subcontractors, suppliers or construction employee will result in the immediate cancellation of security clearance for the driver of that vehicle.
- 1.17 SEARCHES
- .1 All vehicles and persons entering onto Institutional property may be subject to search.
 - .2 Based on reasonable grounds, the Director may order the search of any person suspected to be in possession of contraband at the site.
 - .3 Be aware that persons entering the Institution may be subject to screening of their personal effects for traces of contraband drug residue.
- 1.18 OFF-HOURS SITE ACCESS
- .1 Construction personnel and commercial vehicles will not be permitted access to the Institution outside of the stipulated work hours specified, unless approved by the Director.
- 1.19 MOVEMENT OF VEHICLES
- .1 Be aware that commercial vehicles will only be allowed to enter or leave the Secure Perimeter of the Institution (ie: pass through the designated vehicle security gate) between the following hours of each day:
 - .1 From 07:45 AM to 11:00 AM and;
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1.19 MOVEMENT
OF VEHICLES
(Cont'd)

- .1 (Cont'd)
 - .2 From 13:00 PM to 15:30 AM.
 - .2 Vehicles will not be allowed to leave the Institution until an inmate count has been completed.
 - .3 Vehicles must be escorted by an approved CSC Staff or Commissionaire while inside the Secure Perimeter of the Institution.
 - .4 Contractor shall provide 24 hours advance notice to the Director of the arrival of heavy equipment such as excavator, cranes, concrete trucks etc...to the site.
 - .5 Vehicles being loaded with soil or other debris at site, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or Commissionaires working under the authority of the Director.
 - .6 Commercial vehicles will only be allowed access onto the Institution's property when their contents are certified by the Contractor, or his representative, as being strictly necessary to the execution of the work.
 - .7 Vehicles shall be refused access to Institutional property if, in the opinion of the Director, they contain an article which jeopardizes the security of the Institution.
 - .8 Private vehicles of construction employees will NOT be allowed inside the Secure Perimeter area of a medium or maximum security Institution, except for a special situation as may be authorized by the Director.
 - .9 Subject to the Director's prior approval, a vehicle may be used in the morning and evening to bring a group of construction employees to and from the Secure Perimeter of the Institution. However the vehicle shall not be allowed to remain parked inside the Security Perimeter.
 - .10 Subject to the Director's prior approval, certain construction equipment may be permitted to remain on site overnight and during weekends provided that such equipment
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- 1.19 MOVEMENT OF VEHICLES (Cont'd) .10 (Cont'd)
is securely locked and the battery removed. The Director may also require that the equipment be tied by chain and padlocked to a solid unmovable object.
- 1.20 MOVEMENT OF PERSONS AT THE INSTITUTION .1 Subject to the requirements of good security, the Director will permit the Contractor and construction employees as much freedom of action and movement in the work areas of the site as is possible.
- .2 Notwithstanding the above clause, the Director will:
- .1 Prohibit or restrict access to certain parts of the Institution.
- .2 Require that access to certain areas of the Institution, (either for the entire duration of the work or for certain specific time periods} be only allowed under escort by a member of CSC security staff or a commissionaire.
- .3 During lunch and coffee breaks, all construction employees shall remain within the construction work areas of the site. No person shall not be permitted to eat in the Officer's lounge or the dining room of the Institution.
- 1.21 SURVEILLANCE AND INSPECTION .1 Construction activities and related movement of personnel and vehicles will be under surveillance and subject to inspection by the Institution security staff to ensure that established site security requirements are stringently followed.
- .2 CSC staff will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the duration of the entire Work.
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- 1.22 STOPPAGE OF WORK
- .1 The Director may, at any given time during the course of the Work, stop Contractor and construction employees from entering the Institution, order their immediate departure or instruct them to remain in a designated location due to an emergency security situation occurring at the Institution.
.1 Should this occur, Contractor's Superintendent shall obtain the name of the CSC staff member issuing the order, note the date and time when the notification was received and immediately obey the order as quickly as possible.
- .2 Advise the Departmental Representative within 24 hours of receipt of such notification from the Institution.
- 1.23 CONTACT WITH INMATES
- .1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any construction employee doing any of the above will be removed from the site and his security clearance revoked.
- .2 Note that cameras are not allowed on CSC property.
- .3 Notwithstanding the above, should Director approve the use of cameras for work purposes, it is strictly forbidden to take pictures of inmates, CSC staff members or of any part of the Institution other than those required as part of the Work.
- 1.24 COMPLETION OF THE WORK
- .1 Prior to takeover and occupancy of the facility or premises by CSC, remove all leftover material, waste, tools and equipment that are not specifically required to complete the Work or which are to remain at the Institution as part of the Work.

1.1 RELATED SECTIONS .1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 78 00 - Closeout Submittals.

1.2 INSPECTION .1 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Departmental Representative or by inspection authorities having jurisdiction.
.2 In accordance with the General Conditions, Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.
.3 If Contractor covers or permits to be covered Work designated for special tests, inspections or approvals before such is made, uncover Work until particular inspections or tests have been fully and satisfactorily completed and until such time as Departmental Representative gives permission to proceed.
.4 Pay costs to uncover and make good work disturbed by inspections and tests.

1.3 TESTING .1 Tests on materials, equipment and building systems as specified in various sections of the Specifications is the responsibility of the Contractor except where stipulated otherwise.
.1 Provide all necessary instruments, equipment and qualified personnel to perform tests.
.2 At completion of tests, turn over 2 sets of fully documented tests reports to the Departmental Representative. Submit in accordance with Section 01 33 00.
.1 Obtain additional copies for inclusion of a complete set in each of the maintenance manuals specified in Section 01 78 00.
.3 Unspecified tests may also be made by Departmental Representative, at the discretion of the Departmental Representative. The costs of these tests will be paid for by the Departmental Representative.

1.3 TESTING
(Cont'd)

- .4 Where tests or inspections reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests and inspections incurred by Departmental Representative as required to verify acceptability of corrected work.

1.4 INDEPENDENT
INSPECTION AGENCIES

- .1 Departmental Representative may engage and pay for service of Independent Inspection and Testing Agencies for purpose of inspecting and testing portions of Work except for the following which remain part of Contractor's responsibilities:
- .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of mechanical and electrical equipment and other building systems.
 - .4 Performance verification tests before building commissioning procedures commences.
 - .5 Mill tests and certificates of compliance.
 - .6 Tests as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.
 - .7 Additional tests as specified in Clause 1.3.4 above.
- .2 Provide sufficient advance notice to Departmental Representative of time when the Work will be ready for testing by designated Testing Agency in order for Departmental Representative to make attendance arrangements with such Agency. When directed by Departmental Representative notify the Agency directly.
- .3 When specified or directed, submit Representative samples of materials, in required quantities, to Testing Agency for testing purposes. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .4 Provide labour and facilities to obtain, handle and deliver samples.

1.4 INDEPENDENT
INSPECTION AGENCIES
(Cont'd)

- .5 Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.
- .6 Employment of Independent Inspection and Testing Agencies by Departmental Representative does not relax responsibility to perform Work in accordance with Contract Documents.

1.5 ACCESS TO WORK

- .1 Facilitate Departmental Representative's access to Work. If part of Work is being fabricated at locations other than construction site, make preparations to allow access to such Work whenever it is in progress.
- .2 Furnish labour and facility to provide access to the work being inspected and tested.
- .3 Co-operate to facilitate such inspections and tests.

1.6 REJECTED WORK

- .1 Remove and replace defective Work, whether result of poor workmanship, use of defective or damaged products and whether incorporated in Work or not, which has been identified by Departmental Representative as failing to conform to Contract Documents.
- .2 Make good damages to new and existing construction and finishes resulting from removal or replacement of defective work.

1.7 MOCK-UPS

- .1 Prepare mock-ups of certain work as specified in various sections of the Specifications. Include in each mock-up all related work components representative of final assembly.
 - .2 Construct in locations acceptable to Departmental Representative.
 - .3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
-

1.7 MOCK-UPS
(Cont'd)

- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will assist in preparing a schedule fixing dates for preparation.
- .6 Dismantle and remove mock-up when directed by Departmental Representative, unless approval is given for mock-up to remain as part of the Work.

- 1.1 SITE ACCESS AND PARKING .1 The Departmental Representative will designate Contractor's access to project site as well as parking facilities for equipment and workers.
- 1.2 CONTRACTOR'S AND COMMISSIONAIRE'S SITE OFFICE .1 Be responsible for and provide own site office, if required, including electricity, heat, lights and telephone. Locate site office as directed by Departmental Representative.
- .2 Contractor to provide a temporary site office for two commissionaires. Office to come with heat, lights, 2 chairs, power and telephone connections, desks and a table. Commissionaires office can be located in contractor's site trailer.
- 1.3 MATERIAL STORAGE.1 Locate site storage trailers where directed by Departmental Representative. Place in location of least interference with existing Facility operations.
- .2 Material storage space on site is limited. Coordinate delivery to minimize storage period on site before being needed for incorporation into work.
- 1.4 SITE ENCLOSURES .1 Provide temporary fence where indicated on drawings to enclose various construction areas of work site.
- .2 Erect steel fence using new 3000 mm high galvanized steel wire fence fabric supported by steel posts spaced at maximum 3.0 m oc. See details and layout on Civil drawings.
- .1 Provide one truck gate and one pedestrian gate.
- .2 Maintain fence in good repair.
- .3 Provide barbed wire as per drawings.
- .3 Make all gates lockable and provide keyed padlocks.
- .4 Obtain Departmental Representative's approval beforehand of location and layout of all temporary fence enclosures.
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- 1.4 SITE ENCLOSURES .5 Provide battery powered lanterns around the perimeter of the site enclosure to clearly mark its location at night.
(Cont'd)
- .6 Provide warning signs affixed to all fenced areas, identifying those enclosed areas as "Construction Zones" with access restricted to only those persons so authorized by General Contractor.
- .7 Do not construe fencing as an acceptable replacement for pedestrian walkway and hoarding requirements specified below.
- 1.5 PEDESTRIAN WALKWAYS AND HOARDING .1 Ensure maximum safety and security to facility users during the course of work.
- 1.6 INTERIOR DUST CONTROL AND DUST BARRIERS .1 Control creation and spread of dust and dirt to building interior and in particular to areas within premises still under use by occupants.
- .2 Develop and implement a dust control plan, addressing effective measures to carry out work with least amount of dust being created and propagated.
- .1 Carefully evaluate the type of work to be undertaken and the physical layout of each work area on site.
- .2 Provide specifically tailored strategy for each work area.
- .3 Pre-determine location and placement of dust barriers to confine resulting dust to immediate work area zone.
- .4 Inform Departmental Representative of the proposed dust control measures to be followed at each work area and for each major dust generating activities. Obtain Departmental Representative's approval before proceeding with work.
- .3 Dust control plan to incorporate as a minimum the following dust protection and cleaning requirements:
- .1 Erect dustproof partitions completely around work areazones to fully isolate construction from other parts of the building.
-

1.6 INTERIOR DUST .3
CONTROL AND
DUST BARRIERS
(Cont'd)

(Cont'd)

.2 Construct dust partitions as follows:

.1 Use 10 mm polyethylene installed and sealed tightly to abutting walls, ceilings and floor with continuous duct tape along all edges and seams. Support in position with 38 x 89 wood framing at 400 mm o.c. Locate seams only at framing members and overlap sheeting by minimum of 150 mm.

.2 Use 12 mm thick drywall plywood installed to steel stud framing spaced at 400 o.c. for areas located in public and corridors in use by occupants

.1 Erect from floor to underside of ceiling/floor/roof deck above, sheeting applied to occupied side of partition. Install polyethylene for remainder of partition height to underside of floor/roof deck above.

.2 Scribe, cut and fit sheeting tight to shape of structural steel, deck profile and to other obstructions in ceiling space and abutting walls.

.3 Use compressable neoprene gaskets around perimeter of partition and at all protrusions to achieve airtight construction.

.4 Where partition is exposed to public view, tape and finish drywall joints and paint surface to color approved by the Departmental Representative.

.3 Provide a "dust tight" and lockable access door(s) within dust partition or between rooms for worker entry into work area. This is of particular importance for situations where excessive dust will be generated.

.4 Provide additional dust barriers, placed tightly to underside of the floor/roof deck above, in locations where existing walls are used as part of the dust barrier system but simply terminate at the finished ceiling level resulting in an open space above, or other similar condition, permitting dust to migrate beyond the construction areas.

.5 Make all dust barriers airtight, effectively blocking and stopping all dust migration.

-
- 1.6 INTERIOR DUST .3 (Cont'd)
- CONTROL AND DUST BARRIERS
(Cont'd)
- .6 Inspect dust barriers at various intervals during each work shift. Immediately fix tears, unsealed edges and maintain barriers effectively sealed for the entire work duration.
- .7 Shut down existing ventilation system feeding construction space, or disconnect and seal-off supply and return air ducts to stop dust from contaminating other areas.
- .8 Immediately clean areas in use by occupants and public contaminated by work.
- .1 Vacuum carpets, wash floors and walls. Remove accumulated dust from all surfaces. Clean and remove smears, scuffs and marks.
- .4 Meager attempts at controlling dust will not be tolerated. Failure to provide effective dust control during work and to perform satisfactory cleaning thereafter will result in Departmental Representative to proceed and obtain a separate cleaning service agency to perform cleaning to tenant's satisfaction with cost for such services being charged against this Contract in the form of financial holdbacks.
- .5 Obtain Departmental Representative's approval before erecting any dust partitions simply to underside of finish ceiling.
- .6 Construction of dust barriers, enclosures and placement of temporary protective devices to be performed during Facility non-operational off-hour periods.
- 1.7 SANITARY FACILITIES .1 Provide temporary sanitary facilities for work force in accordance with governing regulations and ordinances.
- 1.8 ENCLOSURE OF STRUCTURE .1 Provide temporary weathertight enclosures and protection for exterior openings until permanently enclosed.
- .2 Provide weathertight and heated enclosures to conduct exterior work during winter and other inclement weather conditions. Erect to allow
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- 1.8 ENCLOSURE OF STRUCTURE (Cont'd) .2 (Cont'd) accessibility for installation of materials and working inside of enclosure.
- .3 Design enclosures to withstand wind pressure and snow loading.
-
- 1.9 POWER .1 Power supply is available and will be provided for construction usage at current cost rates. Contractor is to provide electrical meter.
- .1 Make arrangements for the use of such services through the Departmental Representative.
- .2 Departmental Representative will designate and approve each location of existing power source to which connections can be made to obtain temporary power service.
- .3 Connect to existing power supply in accordance with Canadian Electrical Code.
- .2 Provide and pay all costs to supply and install temporary cabling, panelboards, switching devices and other equipment as required to connect into power source, provide adequate ground fault protection and extend power supply from existing source to work areas. Perform work and make all connections in accordance with the Canadian Electrical Code, in compliance with the federal and provincial Occupational Health and Safety Regulations as specified in section 01 35 28 and to lockout requirements specified in section 01 35 25.
- .3 Provide and maintain temporary lighting to conduct work. Ensure illumination level is not less than 162lx in all locations.
- .4 Electrical power and lighting systems installed under this Contract can be used for construction requirements provided that guarantees are not affected thereby. Make good damage. Replace lamps which have been used over period of 3 months.
-

- 1.10 WATER SUPPLY .1 Permanent water supply system installed under this Contract can be used for construction requirements provided that guarantees are not affected thereby. Make good damage.
- 1.11 SCAFFOLDING .1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CAN/CSA-S269.2-M87(R2003).
- .2 Erect scaffolding independent of walls. Remove when no longer required.
- 1.12 HEATING AND VENTILATING .1 Supply, install and pay for costs of temporary heat and ventilation used during construction, including costs of installation, fuel, operation, maintenance and removal of equipment. Use of direct-fired heaters discharging waste products into work areas will not be permitted.
- .2 Provide temporary heat and ventilation in enclosed areas as required to:
- .1 Facilitate progress of work.
- .2 Protect work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .3 Maintain minimum temperature of 10 degrees C, or higher where specified, as soon as finishing work is commenced and maintain until acceptance of structure by Departmental Representative.
- .1 Maintain ambient temperature and humidity levels as required for comfort of office personnel.
- .4 Ventilating:
- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
-

1.12 HEATING AND
VENTILATING
(Cont'd)

- .4 Ventilating:(Cont'd)
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .5 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.
- .6 Submit bid assuming new equipment and systems will not be used for temporary heating and ventilating.
- .7 Upon acceptance of bid, Departmental Representative may permit use of permanent system providing agreement can be reached on:
 - .1 Conditions of use, special equipment, protection and maintenance.
 - .2 Saving on Contract price.
 - .3 Provisions relating to warranties on equipment.

1.13 CONSTRUCTION
SIGN AND NOTICES

- .1 Upon request by Departmental Representative, erect a self supporting project sign in location indicated.
- .2 Departmental Representative will provide a vinyl sign facing for installation by Contractor on sign framework. Sign frame to be plywood face of approximately 1200 x 2400 mm in size complete with required wood framing at 400 mm o.c and support posts.

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- 1.13 CONSTRUCTION .3 Install sign plumb and level in neat wood
SIGN AND NOTICES framework and securely anchor in ground by
(Cont'd) posts to withstand wind pressure of 160 km/h.
- .4 Contractor or subcontractor advertisement
signboards are not permitted on site.
- .5 Safety and Instruction Signs and Notices:
.1 Signs and notices for safety and
instruction shall be in both official
languages or commonly understood graphic
symbols conforming to CAN3-Z321-96(R2006).
- .6 Maintenance and Disposal of Site Signs:
.1 Maintain approved signs and notices in
good condition for duration of project and
dispose of off site on completion of project
or earlier if directed by Departmental
Representative.
- 1.14 REMOVAL OF .1 Remove temporary facilities from site when
TEMPORARY directed by Departmental Representative.
FACILITIES
-

1.1 GENERAL

- .1 Use new material and equipment unless otherwise specified.
- .2 Within 7 days of written request by Departmental Representative, submit following information for any materials and products proposed for supply:
 - .1 Name and address of manufacturer.
 - .2 Trade name, model and catalogue number.
 - .3 Performance, descriptive and test data.
 - .4 Compliance to specified standards.
 - .5 Manufacturer's installation or application instructions.
 - .6 Evidence of arrangements to procure.
 - .7 Evidence of manufacturer delivery problems or unforeseen delays.
- .3 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.
- .4 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.
- .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.2 PRODUCT QUALITY

- .1 Contractor shall be solely responsible for submitting relevant technical data and independent test reports to confirm whether a product or system proposed for use meets contract requirements and specified standards.
 - .2 Final decision as to whether a product or system meets contract requirements rest solely with the Departmental Representative in accordance with the General Conditions of the Contract.
-

1.3 ACCEPTABLE
MATERIALS AND
ALTERNATIVES

- .1 Acceptable Materials: When materials specified include trade names or trade marks or manufacturer's or supplier's name as part of the material description, select and only use one of the names listed for incorporation into the Work.
- .2 Alternative Materials: Submission of alternative materials to trade names or manufacturer's names specified must be done during the bidding period following procedures indicated in the Instructions to Bidders.
- .3 Substitutions: After contract award, substitution of a specified material will be dealt with as a change to the Work in accordance with the General Conditions of the Contract.

1.4 MANUFACTURERS
INSTRUCTIONS

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods to be used. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing of any conflict between these specifications and manufacturers instructions, so that Departmental Representative will designate which document is to be followed.

1.5 AVAILABILITY

- .1 Immediately notify Departmental Representative in writing of unforeseen or unanticipated material delivery problems by manufacturer. Provide support documentation as per clause 1.1.2 above.

1.6 WORKMANSHIP

- .1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed.
- .2 Remove unsuitable or incompetent workers from site as stipulated in the General Conditions of the Contract.

1.6 WORKMANSHIP
(Cont'd)

- .3 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.
- .4 Coordinate work between trades and subcontractors. See section 01 14 10 in this regard.
- .5 Coordinate placement of openings, sleeves and accessories.

1.7 FASTENINGS -
GENERAL

- .1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work and in humid areas.
- .2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood or organic material plugs not acceptable.
- .3 Keep exposed fastenings to minimum, space evenly and lay out neatly.
- .4 Fastenings which cause spalling or cracking of material to which anchorage is made, are not acceptable.
- .5 Do not use explosive actuated fastening devices unless approved by Departmental Representative. See section on Health and Safety Requirements in this regard.

1.8 FASTENINGS -
EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where

1.8 FASTENINGS - .4
EQUIPMENT
(Cont'd)

(Cont'd)
vibrations occur and, use resilient washers
with stainless steel.

1.9 STORAGE, .1
HANDLING AND
PROTECTION

- .1 Deliver, handle and store materials in manner to prevent deterioration and soiling and in accordance with manufacturer's instructions when applicable.
 - .2 Store packaged or bundled materials in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work. Provide additional cover where manufacturer's packaging is insufficient to provide adequate protection.
 - .3 Store products subject to damage from weather in weatherproof enclosures.
 - .4 Store cementitious products clear of earth or concrete floors, and away from walls.
 - .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
 - .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
 - .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
 - .8 Immediately remove damaged or rejected materials from site.
 - .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.
-

- 1.1 GENERAL
- .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-polution laws.
 - .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
 - .3 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- 1.2 MATERIALS
- .1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- 1.3 CLEANING DURING CONSTRUCTION
- .1 Maintain work site in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.
 - .2 Keep building entrances, corridors, stairwells and tenant occupied areas of building in a clean dust free condition at all times. Conduct thorough cleaning of these areas at end of each workshift when used by workers or affected by the Work.
 - .3 Provide on-site containers for collection of waste materials and debris.
 - .4 Use separate collection bins, clearly marked as to purpose, for source separation and recycling of waste and debris in accordance with waste management requirements specified.
 - .5 Remove waste materials, and debris from site as directed by Departmental Representative.
 - .6 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.
 - .7 Remove snow and ice from access doors used by workforce
-

- 1.4 FINAL CLEANING .1 In preparation for acceptance of the completed work perform final cleaning.
- .2 Remove grease, dust, dirt, stains, labels, fingerprints, marks and other foreign materials, from interior and exterior finished surfaces. Clean and polish surfaces including glass, mirrors, hardware, wall tile, stainless steel, chrome, baked enamel, plastic laminate, mechanical and electrical fixtures.
- .3 Replace items with broken pieces, scratches or disfigured.
- .4 Clean lighting reflectors, lenses, and other lighting surfaces.
- .5 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .6 Wax, seal, shampoo or prepare floor finishes as recommended by manufacturer.
- .7 Inspect finishes, fitments and equipment. Ensure specified workmanship and operation.
- .8 Broom clean and wash exterior paved surfaces and walks; rake clean other surfaces of grounds.
- .9 Remove debris and surplus materials from crawl areas, roof areas and other accessible concealed spaces.
- .10 Clean equipment, washroom and kitchen fixtures to a sanitary condition. Replace filters of mechanical equipment.

1.1 RELATED WORK .1 Environment Procedures: Section 01 35 43

1.2 GENERAL .1 Carry out work placing maximum emphasis on the areas of:
.1 Waste reduction;
.2 Diversion of waste from landfill and;
.3 Material Recycling.

1.3 WASTE MANAGEMENT PLAN.1 Prior to commencement of work, prepare waste Management Workplan.
.2 Workplan to include:
.1 Waste audit.
.2 Waste reduction practices.
.3 Material source separation process.
.4 Procedures for sending recyclables to recycling facilities.
.5 Procedures for sending non-salvageable items and waste to approved waste processing facility or landfill site.
.6 Training and supervising workforce on waste management at site.
.3 Workplan to incorporate waste management requirements specified herein and in other sections of the Specifications.
.4 Develop Workplan in collaboration with all subcontractors to ensure all waste management issues and opportunities are addressed.
.5 Submit copy of Workplan to Departmental Representative for review and approval.
.1 Make revisions to Plan as directed by Departmental Representative.
.6 Implement and manage all aspects of Waste Management Workplan for duration of work.
.7 Revise Plan as work progresses addressing new opportunities for diversion of waste from landfill.

1.4 WASTE AUDIT

- .1 At project start-up, conduct waste audit of:
 - .1 Site conditions identifying salvageable and non-salvageable items and waste resulting from demolition and removal work.
 - .2 Projected waste resulting from product packaging and from material leftover after installation work.
- .2 Develop written list. Record type, composition and quantity of various salvageable items and waste anticipated, reasons for waste generation and operational factors which contribute to waste.

1.5 WASTE REDUCTION

- .1 Based on waste audit, develop waste reduction program.
 - .2 Structure program to prioritize actions, with waste reduction as first priority, followed by salvage and recycling effort, then disposal as solid waste.
 - .3 Identify materials and equipment to be:
 - .1 Protected and turned over to Departmental Representative when indicated.
 - .2 Salvaged for resale by Contractor.
 - .3 Sent to recycling facility.
 - .4 Sent to waste processing/landfill site for their recycling effort
 - .5 Disposed of in approved landfill site.
 - .4 Reduce construction waste during installation work. Undertake practices which will minimize waste and optimize full use of new materials on site, such as:
 - .1 Use of a central cutting area to allow for easy access to off-cuts;
 - .2 Use of off-cuts for blocking and bridging elsewhere.
 - .3 Use of effective and strategically placed facilities on site for storage and staging of left-over or partially cut materials (such as gypsum board, plywood, ceiling tiles, insulation etc...) to allow for easy incorporation into work whenever possible avoiding unnecessary waste.
 - .5 Develop other strategies and innovative procedures to reduce waste such as minimizing
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1.5 WASTE REDUCTION .5
(Cont'd)

(Cont'd)
the extent of packaging used for delivery of materials to site etc...

1.6 MATERIAL SOURCE .1
SEPARATION PROCESS

- .1 Develop and implement material source separation process at commencement of work as part of mobilization and waste management at site.
- .2 Provide on-site facilities to collect, handle and store anticipated quantities of reusable, salvageable and recyclable materials.
- .1 Use suitable containers for individual collection of items based on intended purpose.
- .2 Locate to facilitate deposit but without hindering daily operations of existing building tenants.
- .3 Clearly mark containers and stockpiles as to purpose and use.
- .3 Isolate product packaging and delivery containers from general waste stream. Send to recycling facility or return to supplier/manufacturer.
- .4 Send leftover material resulting from installation work for recycling whenever possible.
- .5 Establish methods whereby hazardous and toxic waste materials, and their containers, encountered or used in the course work are properly isolated, stored on site and disposed in accordance with applicable laws and regulations from authorities having jurisdiction.
- .6 Isolate and store existing materials and equipment identified for re-incorporation into the Work. Protect against damage.

1.7 WORKER TRAINING .1
AND SUPERVISION

- .1 Provide adequate training to workforce, through meetings and demonstrations, to emphasize purpose and worker responsibilities in carrying out the Waste Management Plan.
- .2 Waste Management Coordinator: designate full-time person on site, experienced in waste
-

1.7 WORKER TRAINING .2
AND SUPERVISION
(Cont'd)

- Waste Management Coordinator:(Cont'd)
management and having knowledge of the purpose
and content of Waste Management Plan to:
- .1 Oversee and supervise waste management during work.
 - .2 Provide instructions and directions to all workers and subcontractors on waste reduction, source separation and disposal practices.
- .3 Post a copy of Plan in a prominent location on site for review by workers.

1.8 CERTIFICATION OF.1
MATERIAL DIVERSION

- Submit to Departmental Representative, copies of certified weigh bills from authorized waste processing sites and sale receipts from recycling/reuse facilities confirming receipt of building materials and quantity of waste diverted from landfill.
- .2 Submit data at pre-determined project milestones as determined by Departmental Representative.
 - .3 Compare actual quantities diverted from landfill with projections made during waste audit.

1.9 DISPOSAL
REQUIREMENTS

- .1 Burying or burning of rubbish and waste materials is prohibited.
 - .2 Disposal of waste, volatile materials, mineral spirits, oil, or paint thinner into waterways, storm, or sanitary sewers is prohibited.
 - .3 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.
 - .4 Contact the authority having jurisdiction prior to commencement of work, to determine what, if any, demolition and construction waste materials have been banned from disposal in landfills and at transfer stations. Take appropriate action to isolate such banned materials at site of work and dispose in
-

1.9 DISPOSAL
REQUIREMENTS
(Cont'd)

- .4 (Cont'd)
strict accordance with provincial and
municipal regulations.
- .5 Transport waste intended for landfill in
separated condition, following rules and
recommendations of Landfill Operator in
support of their effort to divert, recycle and
reduce amount of solid waste placed in
landfill.
- .6 Collect, bundle and transport salvaged
materials to be recycled in separated
categories and condition as directed by
recycling facility. Ship materials only to
approved recycling facilities.

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- 1.1 SECTION INCLUDES .1 Administrative procedures preceding inspection and acceptance of Work by Departmental Representative.
- 1.2 RELATED SECTIONS .1 Section 01 78 00 - Closeout Submittals.
- 1.3 INSPECTION AND DECLARATION .1 Contractor's Inspection: Coordinate and perform, in concert with subcontractors, an inspection and check of all Work. Identify and correct deficiencies, defects, repairs and perform outstanding items as required to complete work in conformance with Contract Documents.
- .1 Notify Departmental Representative in writing when deficiencies from Contractor's inspection have been rectified and that Work is deemed to be complete and ready for Departmental Representative's inspection of the completed work.
 - .2 Departmental Representative's Inspection: Accompany Departmental Representative during all substantial and final inspections of the Work.
 - .1 Address defects, faults and outstanding items of work identified by such inspections.
 - .2 Advise Departmental Representative when all deficiencies identified have been rectified.
 - .3 Note that Departmental Representative will not issue a Certificate of Substantial Performance of the work until such time that Contractor performs following work and turns over the specified documents:
 - .1 Project record as-built documents;
 - .2 Final Operations and Maintenance manuals;
 - .3 Maintenance materials, parts and tools;
 - .4 Compliance certificates from applicable authorities;
 - .5 Reports resulting from designated tests;
 - .6 Demonstration and training complete with user manuals;
 - .7 Manufacturer's Guarantee certificates.
-

1.3 INSPECTION AND .3
DECLARATION
(Cont'd)

(Cont'd)

.8 Testing, adjusting and balancing of equipment and systems complete with submission of test reports.

.9 Commissioning of equipment and systems specified.

.4 Correct all discrepancies before Departmental Representative will issue the Certificate of Completion.

-
- 1.1 SECTION INCLUDES .1 Project Record Documents.
.2 Operations and Maintenance data.
- 1.2 RELATED SECTIONS .1 Section 01 79 00 - Demonstration and Training.
- 1.3 PROJECT RECORD DOCUMENTS .1 Departmental Representative will provide 2 white print sets of contract drawings and 2 copies of Specifications Manual specifically for "as-built" purposes.
.2 Maintain at site one set of the contract drawings and specifications to record actual as-built site conditions.
.3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Departmental Representative upon request.
.4 As-Built Drawings:
.1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of work, neatly transfer notations to second set (also by use of red ink).
.2 Submit both sets to Departmental Representative prior to application for Certificate of Substantial Performance.
.3 Stamp all drawings with "As-Built Drawings". Label and place Contractor's signature and date.
.4 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
.5 Record following information:
.1 Depths of various elements of foundation in relation to first floor level.
.2 Horizontal and vertical location of exterior underground utilities and appurtenances referenced to permanent surface improvements.
.3 Horizontal and vertical location of various elements in relation to Geodetic Datum;
.4 Location of internal utilities and appurtenances concealed in construction,
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1.3 PROJECT RECORD .4
DOCUMENTS
(Cont'd)

As-Built Drawings:(Cont'd)

.5 Record following information:(Cont'd)

.4 (Cont'd)

referenced to visible and accessible features of structure;

.5 Field changes of dimension and detail;

.6 Location of all capped or terminated services and utilities.

.7 Chases for mechanical, electrical and other services;

.8 Ceiling and floor elevations;

.9 Reflected ceiling plan condition showing finished layout of all

ceiling-mounted services and devices;

.10 Plumbing, heating and ventilation, sprinkler and electrical service

installation locations; all to be dimensioned and referenced to building

columns or load bearing walls;

.11 All structural steel installations to be fully dimensioned;

.12 All design elevations, sections, floor plans and details dimensioned and

marked-up to consistently report finished installation conditions;

.13 Any details produced in the course of the contract by the Departmental

Representative to supplement or to change existing design drawings;

.14 All change orders and site instructions issued over the course of

the contract must be documented on the finished as-built documents, accurately

and consistently depicting the changed condition as it applies to all affected

drawing details.

.5 As-built Specifications: legibly mark in red each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly items substituted from that specified.

.2 Changes made by Addenda, Change Orders and Site Instructions..

.3 Mark up both copies of specifications; stamp "as-built", sign and date similarly to drawings as per above clause.

1.3 PROJECT RECORD DOCUMENTS
(Cont'd)

.6 Maintain As-built documents current as the contract progresses. Departmental Representative will conduct reviews and inspections of the documents on a regular basis. Failure to maintain as-builts current and complete to satisfaction of the Departmental Representative shall be subject to financial penalties in the form of progress payment reductions and holdback assessments.

1.4 REVIEWED SHOP DRAWINGS

.1 Provide a complete set of all shop drawings reviewed for project to incorporate into each copy of the Operations & Maintenance manuals.

.2 Submit full sets at same time and as part of the contents of the Operation and Maintenance manuals specified.

1.5 UPDATING OF DIGITAL DRAWINGS

.1 Obtain and pay for the services of a qualified drafting firm to update the digital files which were used to produce the contract drawings.

.1 Update the digital drawing files with the same as-built information as specified for the paper as-built drawings.

.2 Supply of digital documents does not replace the requirement to provide marked-up white prints specified above.

.2 The Departmental Representative will provide a copy of the digital drawing files which were prepared in AutoCad - Release 2007.

.3 Incorporate the as-built changes to the digital drawings by following the standards specified in the latest version of the PWGSC Atlantic Region CADD Data Specification manual. A copy of this manual will be provided by the Departmental Representative.

.4 Make revisions to electronic files found to be in non-conformance with the CADD Data Specifications Manual as directed by Departmental Representative.

.5 In regards to updating the digital files to reflect changes resulting from Change Orders, the change in cost of completing the As-Built

1.6 OPERATIONS &
MAINTENANCE MANUAL
(Cont'd)

- .5 Binding:
- .1 Assemble, coordinate, bind and index required data into Operation and Maintenance Manual.
 - .2 Use vinyl, hard covered, 3 "D" ring binders, loose leaf, sized for 215 x 280 mm paper, with spine pocket.
 - .3 Where multiple binders are needed, correlate data into related consistent groupings.
 - .4 Identify contents of each binder on spine.
 - .5 Organize and divide data following same numerical system as the section numbers of the Specification Manual.
 - .6 Dividers: separate each section by use of cardboard dividers and labels. Provide tabbed fly leaf for each individual product and system and give description of product or component.
 - .7 Type lists and notes. Do not hand write.
 - .8 Drawings, diagrams and manufacturers' literature must be legible. Provide with reinforced, punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .6 Manual Contents:
- .1 Cover sheet containing:
 - .1 Date submitted.
 - .2 Project title, location and project number.
 - .3 Names and addresses of Contractor, and all Sub-contractors.
 - .2 Table of Contents: provide full table of contents in each binder(s), clearly indicate which contents are in each binder.
 - .3 List of maintenance materials.
 - .4 List of spare parts.
 - .5 List of special tools.
 - .6 Original or certified copy of warranties and product guarantees.
 - .7 Copy of approval documents and certificates issued by Inspection Authorities.
 - .8 Copy of reports and test results performed by Contractor as specified.
 - .9 Product Information (PI Data) on materials, equipment and systems as specified in various sections of the specifications.
- Data to include:
- .1 List of equipment including manufacturer's name, supplier, local
-

1.6 OPERATIONS & .6
MAINTENANCE MANUAL
(Cont'd)

Manual Contents:(Cont'd)

.9 (Cont'd)

.1 (Cont'd)

source of supplies and service depot(s). Provide full addresses and telephone numbers.

.2 Nameplate information including equipment number, make, size, capacity, model number and serial number.

.3 Parts list.

.4 Installation details.

.5 Operating instructions.

.6 Maintenance instructions for equipment.

.7 Maintenance instructions for finishes.

.7 Shop drawings:

.1 Include complete set of reviewed shop drawings into each copy of the operations and maintenance manual.

.2 Fold and bind material professionally in a manner that corresponds with the specification section numbering system.

.3 When large quantity of data is submitted, place into separate binders of same size as O&M binders.

.8 Equipment and Systems Data: the following list indicates the type of data and extent of information required to be included for each item of equipment and for each system:

.1 Description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

1.6 OPERATIONS &
MAINTENANCE MANUAL
(Cont'd)

- .8 Equipment and Systems Data:(Cont'd)
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .6 Servicing and lubrication schedule, and list of lubricants required.
 - .7 Manufacturer's printed operation and maintenance instructions.
 - .8 Sequence of operation by controls manufacturer.
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .10 Provide installed control diagrams by controls manufacturer.
 - .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
 - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .14 Include test and balancing reports.
 - .15 Additional requirements as specified in individual specification sections.
- .9 Materials and Finishes Maintenance Data:
- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
 - .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
 - .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
 - .4 Additional Requirements: as specified in individual specifications sections.
-

1.7 SPARE PARTS, .1
TOOLS AND MAINTENANCE
MATERIALS

- .1 Provide spare parts, special tools and extra materials for maintenance purposes in quantities specified in individual specification sections.
- .2 Tag all items with associated function or equipment.
- .3 Provide items of same manufacture and quality as items in Work.
- .4 Deliver to site in well packaged condition. Store in location as directed by Departmental Representative.
- .5 Clearly mark as to contents indicating:
.1 Part number.
.2 Identification of equipment or system for which parts are applicable.
.3 Installation instructions or intended use as applicable.
.4 Name, address and telephone number of nearest supplier.
- .6 Prepare and submit complete inventory list of items supplied. Include list within Maintenance Manual.

1.1 RELATED SECTIONS .1 Operations and Maintenance Manual: Section 01 78 00.

1.2 DESCRIPTION .1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel prior to date of final inspection.

.2 Departmental Representative will provide a list of Owner's personnel to receive instructions,

.3 Cooperate with Departmental Representative in coordinating time and attendance of Owner's personnel with manufacturer's training Representative(s).

1.3 QUALITY CONTROL .1 Ensure that only personnel from own forces, Subcontractors or Suppliers competent and fully knowledgeable in the particular material component, equipment or system installation are used to provide training and demonstrations.

.2 When specified in individual Sections, obtain the manufacturers authorized Representative to demonstrate operation of equipment and systems, instruct Owner's personnel, and provide written report that demonstration and instructions have been completed.

.3 Upon request, provide evidence to Departmental Representative of individual Trainor's knowledge and qualifications.

1.4 SUBMITTALS .1 Submit schedule of time, date and complete list of equipment and systems for which demonstration and training sessions will be provided. Submit schedule a minimum of 2 weeks prior to designated dates, for Departmental Representative's approval.

.2 Submit report within 1 week after completion of demonstration, that demonstration and instructions have been satisfactorily completed. Provide time and date of when each

- 1.4 SUBMITTALS .2 (Cont'd)
(Cont'd) demonstration was actually given, with list of persons present.
- 1.5 CONDITIONS FOR DEMONSTRATIONS .1 Prior to carrying out demonstration and training, ensure that equipment has been inspected and tested, is fully operational, has been performance verified and TAB has been carried out.
- .2 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.
- .3 Provide a sign-in sheet at training sessions to record the names of those instructing and attending.
- 1.6 PREPARATION .1 Verify that conditions for demonstration and instructions comply with requirements.
- .2 Verify that designated personnel are present.
- 1.7 DEMONSTRATION AND INSTRUCTIONS .1 Include the following items within the demonstration and training:
- .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each of equipment.
- .2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.
- .3 Review contents of manual in detail to explain all aspects of operation and maintenance.
- .4 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.
- .5 Provide other specific training and instructions as specified in trade sections.
-

1.8 TIME ALLOCATED .1 Observe the allocated time period specified
FOR INSTRUCTIONS in trade sections. Provide additional time
when required to ensure all personnel fully
understand all aspects of the information and
instructions being provided. Allow for
questions by participants.

1.1 SECTION
INCLUDES

- .1 This section deals with commissioning activities to occur during the construction stage and the early period of facility occupancy stage.
- .2 Section includes:
 - .1 Commissioning activities will be performed by the Contractor who is assigned membership on a Commissioning Team as part of the contract requirements.
 - .2 Commissioning activities to be performed by other members of the Commissioning Team.
- .3 In general, Contractor's commissioning activities consists of performing specified tasks and functions to assist the Commissioning Agent, along with other members of the commissioning team who will commission various components and systems of the Facility.

1.2 RELATED
SECTIONS

- .1 Operations and Maintenance Manuals: Section 01 78 00
- .2 Demonstration and Training: Section 01 79 00

1.3 DEFINITIONS

- .1 For the purpose of this contract, the various terms listed below, as they relate directly or indirectly to the commissioning process, shall be deemed to have the following meaning.
- .2 Commissioning Process: a planned program of tasks, activities and procedures carried out systematically during the Construction and Occupancy Stages in accordance with the commissioning objectives, specified in clause 1.5, to:
 - .1 Verify whether the fully installed equipment, systems and intergrated systems operate in accordance with contract documents and design criteria and;
 - .2 Confirm appropriate documentation is compiled to effectively train O& M staff and prepare a comprehensive Building Management Manual (BMM).
- .3 Commission (ie: to commission a building component or system): tests and checks conducted by Commissioning Agent on all systems and intergrated systems of Facility; carried out only after they are fully installed, functional and Contractor's Performance Verification responsibilites have been completed and approved.
 - .1 Contractor provides assistance during this process by operating equipment and systems, by troubleshooting and making adjustments as may be required.

1.3 DEFINITIONS
(Cont'd)

- .3 Commission (ie:(Cont'd)
- .2 Systems are run under their full operation and under various modes to determine if they function correctly, consistently, at peak efficiency and interactively with each other as intended in accordance with Contract Documents and design criteria.
- .3 During these checks, adjustments may be made enhancing performance to meet environmental or user requirements.
- .4 Commissioning Agent: a specifically appointed person, appointed by the Owner and representing the Owner, responsible for the development of a Commissioning Plan and managing it's implementation by overseeing and coordinating various activities and responsibilities to be performed by members of the Commissioning Team.
- .1 Commissioning Agent plays a lead role in support to the Departmental Representative to ensure that the commissioning objectives are achieved.
- .5 Commissioning Manager: a PWGSC departmental employee providing advice and guidance on commissioning requirements to the Commissioning Agent in support to the Departmental Representative.
- .6 Commissioning Plan: The document which describes the organization, scheduling, allocation of resources, required documentation, target dates, and team roles and responsibilities for verification that the built works meet Contract Document and design criteria requirements.
- .7 Contractor: means the General Contractor, however it also refers to any personnel from subcontractors, including the controls and TAB specialists, suppliers and manufacturer's technical persons which Contractor employs to carry out his/her designated commissioning duties and activities.
- .8 Design Consultant: persons from the civil, architectural, mechanical and electrical design disciplines of the engineering firm(s) which have been engaged by the Departmental Representative to prepare the final design and produce the contract documents. Design Consultant also has specifically identified commissioning activities for this project.
- .9 Design Criteria: All those factors included in the design of a Facility prescribed by the tenant needs or as determined by Designer as necessary in order to meet all Facility functional and user operational requirements.

1.3 DEFINITIONS
(Cont'd)

- .10 Installation/Start-up Checks:(sometimes referred to as pre-functional checks) A written compilation of checks and inspections to be performed by Contractor during the pre-start-up and start-up of a particular equipment or system component.
- .1 Checklist sheets are produced which include the following data:
- .1 Product manufacturer's installation instructions and recommended checks and;
 - .2 Special procedures as specified in relevant sections of Specifications;
 - .3 Other items considered good installation and engineering industry practices deemed appropriate for proper and efficient operation.
- .2 Standard Installation/Start-up Checklist sheets prepared by equipment manufacturer are acceptable for use. However, supplement with additional data representative of specific project conditions as deemed required by Commissioning Agent.
- .3 Use Checklist sheets for all equipment installation. Document in writing on checklist the various checks made, deficiencies noted and corrective action taken.
- .4 Installer to sign Checklist sheets upon completion, certifying that stated checks and inspections have been performed.
- .5 Use of Installation/Start-up Checklists will not be considered part of the commissioning process but shall be stringently used for all equipment pre-start and start-up procedures.
- .6 Return completed Installation/Start-up Checklist sheets after use to Commissioning Agent for retention. Checklists are required by Commissioning Agent when Facility is commissioned and will be included in the BMM manual at completion of project.
- .11 Performance Verification (sometimes referred to Functional Testing): checks, running dynamic tests and adjustments carried out by Contractor on equipment and systems, upon their installation, to ensure they operate correctly, efficiently and function independently and interactively with other systems as intended in accordance with contract documents and manufacturer's recommendations.
- .1 Performance Verification will not be considered part of the commissioning process. It is however considered an essential and integral part of Contractor's responsibilities in the equipment installation process which must be stringently conducted, successfully completed and approved by Departmental Representative before a piece of equipment or system is considered fully installed and functional.
-

1.3 DEFINITIONS
(Cont'd)

- .11 (Cont'd)
 - .2 Facility components and systems will not be commissioned by Commissioning Agent until performance verification has been completed and approved.
- .12 Performance Verification Report Sheets (PV sheets): forms developed by Commissioning Agent for Contractor's use to record measured data and readings taken during functional testing and Performance Verification procedures.
- .13 Product Information (PI Data): a compilation of data gathered on a particular piece of equipment, typically produced by manufacturer, which includes nameplate information, installation/startup instructions, parts list, operating instructions, maintenance guidelines and other pertinent technical data and recommended checks that is necessary to prepare for start-up and functional testing and used during operation and maintenance of such equipment. This documentation is included in the Building Management Manual(BMM) at completion of work.

1.4 BACKGROUND
INFORMATION

- .1 Historically in the past, the term commissioning has been used in reference to the process used to conduct testing, adjusting and balancing of the heating, ventilation and air conditioning (HVAC) systems of a building.
 - .2 Commissioning (or the commissioning process), as understood by PWGSC, is a planned program of activities conducted in concert with other activities performed during each stage of project delivery.
 - .1 The commissioning process identifies issues during the Planning and Design stages which are addressed during the Construction and Occupancy Stages of a Facility to ensure that the built facility is constructed and proven to operate satisfactorily under all weather, environmental and occupancy conditions to meet operational and user requirements.
 - .2 Commissioning activities during the Construction stage incorporates a third party verification process and a transfer of critical operational knowledge to Facility personnel.
-

1.5 COMMISSIONING
OBJECTIVES

- .1 A Commissioning Plan has been initiated by the Design Consultant, on behalf of PWGSC, which identifies, among other issues, specific commissioning activities to be carried out by the commissioning team during the Construction and Occupancy Stages of the project.
- .2 The commissioning activities have the following objectives:
 - .1 Collect data on equipment and systems being supplied and document their installation;
 - .2 Conduct checks and tests on fully installed building components, equipment, systems and integrated systems to:
 - .1 Verify whether they operate in accordance with requirements of Contract Documents;
 - .2 Verify performance against design criteria and user requirements and measure peak capacities;
 - .3 Prepare a Building Management Manual (BMM) which contains operations and maintenance data, as-built record documents, commissioning reports, training data and other critical information for future use by Facility operational staff;
 - .4 Ensure transfer of knowledge on the operations, maintenance and management of the Facility to Tenant and Operational personnel by means of appropriate training.
- .3 Work to achieve the above objectives requires a collaborative effort from all members of the commissioning team.
 - .1 Contractor's commissioning activities and responsibilities are described in Clause 1.8 below.
- .4 Commissioning activities performed by the Commissioning Agent does not replace checks, tests, adjustments, balancing and other performance verification procedures to be carried out by the Contractor as an integral part of performing the Work of this contract as specified in other sections of the Specifications.

1.6 SYSTEMS TO BE
COMMISSIONED

- .1 The following systems and controls, complete with associated equipment and components, will be commissioned by the Commissioning Agent and requires related commissioning activities to be performed by Contractor as specified herein and in section(s):
 - .1 Walk-in Bin Cooler: Section 11 41 11
 - .2 Self-Contained Waste Compactor: Section 11 82 27
 - .3 Plumbing Pumps: Section 22 10 10.

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- 1.6 SYSTEMS TO BE COMMISSIONED (Cont'd)
- .4 Domestic Water Heaters: Section 22 30 05.
 - .5 Commercial Plumbing Fixtures: Section 22 42 00.
 - .6 Pumps - Hydronic Systems: Section 23 21 23. 15.
 - .7 Heat Exchangers: Section 23 57 00.
 - .8 Heat Recovery Ventilator: Section 23 73 10.
 - .9 Split System Air Conditioning Unit: Section 23 81 26.
 - .10 Unit Heaters and Force Flow Heaters: Section 23 82 39.
 - .11 Grounding - Secondary: Section 26 05 28.
 - .12 Dry Type Transformer to 600V Primary: Section 26 12 17.
 - .13 Panelboards Breaker Type: Section 26 24 17.
 - .14 Wiring Devices: Section 26 27 26.
 - .15 Disconnect Switches Fused and Non-Fused: Section 26 28 23.
 - .16 Motor Starters to 600V: Section 26 29 10.
 - .17 Lighting Equipment: Section 26 50 00.
 - .18 Equipment for Emergency Lighting: Section 26 52 01.
 - .19 Exit Lights: Section 26 53 00.
 - .20 Telecommunications System: Section 27 05 13.
 - .21 Fire Alarm System: Section 28 31 00.
- 1.7 COMMISSIONING TEAM
- .1 A commissioning team will be assembled to carryout various functions needed to effectively commission the Facility. Contractor shall be part of this team with duties and responsibilities as specified in this section and in other sections of the Specifications.
 - .2 Members of the Commissioning Team are as follows:
 - .1 Commissioning Agent
 - .2 Design Consultant
 - .3 Contractor
 - .4 Construction Commissioning Supervisor
 - .5 Departmental Representative
 - .6 PWGSC departmental personnel providing advice and project quality control to Departmental representative when required.
 - .7 Facility's operation and maintenance personnel staff as identified by Departmental Representative.
 - .3 Effective commissioning requires coordination between members of the commissioning team. Cooperate with other team members in fulfilling assigned duties and as follows:
 - .1 Communicate commissioning objectives, to subcontractors, suppliers and manufacturers.
 - .2 Coordinate activities between subcontractors and trades as needed to carryout Contractor's assigned commissioning activities.
-

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- 1.7 COMMISSIONING TEAM
(Cont'd)
- .3 (Cont'd)
.3 Ensure attendance of subcontractors and required specialist at commissioning meetings and during the commissioning process.
- .4 Construction Commissioning Supervisor:
.1 Assign a person, under Contractor's employ, to be the Construction Commissioning Supervisor.
.2 Person to be knowledgeable and have past experience in commissioning of mechanical and electrical systems. Submit affidavit confirmation person's qualifications for Departmental Representative's review and approval.
.3 Construction Commissioning Supervisor to coordinate and oversee all work activities and input required from subcontractors and applicable trades as required to make equipment, subsystems and system ready for commissioning and to conduct commissioning duties assigned to the Contractor.
.4 Construction Commissioning Supervisor shall:
.1 Be the main point of contact, representing the Contractor, with whom the Commissioning Agent and Departmental Representative will to deal with in matters relating to commissioning.
.2 Attend all commissioning meetings and ensure that appropriate persons from subcontractors, trades, suppliers and manufacturers attend meetings when deemed required by Commissioning Agent or Departmental Representative.
- 1.8 CONTRACTOR'S COMMISSIONING ACTIVITIES
- .1 General:
.1 Organize and arrange for the services of subcontractors, their specialists and manufacturer's technical representatives to perform Contractor's commissioning activities
.2 Confirm personnel forming part of the Commissioning Team are qualified and knowledgeable of installed equipment and systems and with design intent.
.3 Develop in conjunction with the Commissioning Agent a commissioning schedule as specified in clause 1.11.
.4 Notify Departmental Representative in writing when Facility is ready for be commissioned. Give 14 calendar day notice.
.5 Commissioning will only commence once that full documentation has been received and installed equipment and systems have undergone successful performance verification.
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1.8 CONTRACTOR'S
COMMISSIONING
ACTIVITIES
(Cont'd)

- .1 General:(Cont'd)
 - .6 Note that Certificate of Substantial Completion will only be issued when:
 - .1 All commissioning documentation has been received and found suitable by Departmental Representative;
 - .2 Designated equipment and systems have been commissioned and;
 - .3 Training has been completed.
 - .7 Performance faults:
 - .1 Equipment and systems found not operating correctly or not performing as intended during commissioning shall be re-verified by checking 100% of all equipment and components of the unfunctional system, including related controls as required to rectify the deficiencies and ensure correct performance.
 - .2 Costs to conduct additional tests and inspections, as deemed required by Departmental Representative, to determine acceptability and proper performance of such item to be paid for by Contractor.
 - .2 Prior to Facility being Commissioned:
 - .1 Submit commissioning documentation as specified in clause 1.13 below.
 - .2 Submit the Installation/Start-up Checklist sheets to Commissioning Agent for review prior to conducting the pre-start and start-up of any piece of equipment. Incorporate additional start-up instructions onto checklist as determined by the Commissioning Agent's review.
 - .3 Conduct the pre-start and start-up of all equipment by following and filling out the approved Installation/Start-up Checklists.
 - .4 Conduct Performance Verification on all installed equipment and systems. Use and fill out the PV Report Sheets provided.
 - .5 Upon completion of start-up and performance verification process, submit signed copy of Checklist and PV sheets to Commissioning Agent as affidavit that required checks and tests were successfully conducted.
 - .6 Record performance measurements and data reading on PV sheets and return to Commissioning Agent for compilation.
 - .7 Give Departmental Representative and Commissioning Agent a minimum of five (5) days notice for start-up and performance verification of equipment and systems which must be witnessed by Commissioning Agent as determined by Commissioning Agent beforehand on PV sheets.
-

- 1.8 CONTRACTOR'S .2 (Cont'd)
COMMISSIONING
ACTIVITIES
(Cont'd)
- .8 Provide missing information and data as identified by Commissioning Agent and Departmental Representative during documentation review.
 - .9 Submit above noted documentation before Commissioning will proceed.
 - .10 Address deficiencies in Work identified during performance verification of equipment and systems. Conduct additional performance verification thereafter.
 - .11 Arrange for special tools and devices, identified at commissioning meeting(s), as deemed required to assist with commissioning.
 - .12 Provide access ladders, two way radios and other equipment required by Team when facility will be commissioned.
- .3 When Facility is being Commissioned:
- .1 Provide qualified tradespersons to be present at site to assist Commissioning Agent for the time period specified as follows:
 - .1 Control systems: two (2) days.
 - .2 Mechanical systems: one (1) day.
 - .3 Plumbing systems: one-half (1/2) day.
 - .4 Electrical systems: one (1) day.
 - .5 Communications and Electronic systems: one (1) day.
 - .2 Assist in commissioning architectural building component, mechanical and electrical systems specified and as follows:
 - .1 Operate designated building component, mechanical/electrical equipment and systems under all modes of operation and conduct checks and tests as directed by Commissioning Agent.
 - .2 Check and verify that building component, equipment, systems and intergrated systems, including their controls, are functioning and responding correctly and interactively with each other.
 - .3 Test systems independently and then in unison with other related systems.
 - .4 Conduct all Commissioning checks and tests in presence of and witnessed by Commissioning Agent and Departmental Representative.
 - .5 Assist Design Consultant and other members of the commissioning team who will also be present to commission Facility.
 - .3 Specific procedures used to commission Facility will be provided by Commissioning Agent which includes:
 - .1 Sequential order of building component and system to be tested.
 - .2 Running systems under various anticipated modes and demands (example: high and low cooling

- 1.8 CONTRACTOR'S .3 When Facility is being Commissioned:(Cont'd)
COMMISSIONING .3 (Cont'd)
ACTIVITIES .2 (Cont'd)
(Cont'd) or heating loads, duplicating outside
temperature conditions, fire alarm and power
failure conditions etc.).
.3 Running building controls through all
sequences of operation to verify and confirm
that equipment and systems are responding as
designed and intended.
.4 Operating designated equipment at peak
capacities, recording output data against design
criteria.
.4 Run component or systems as long as necessary
to effectively commission all items as deemed
required by Commissioning Agent and Departmental
Representative.
.5 Monitor equipment and system responses.
.6 Record test results, measurements and other
data on commissioning forms provided by Commissioning
Agent.
.7 Assist in analysing results. Identify system
deficiencies and components not responding as
intended.
.8 Correct deficiencies and system non-conformance
issues. Adjust, calibrate or fine tune system
components as required. Debug system software as may
be required.
.9 Retest systems when directed to confirm
compliance.
- .4 Upon completion of Facility Commissioning:
.1 Provide training to maintenance & operational
personnel as specified in clause 1.12 below.
.2 Turn over any filled-in checks sheets or
reports resulting from commissioning.
- .5 During Warranty period at Occupancy Stage provide
repairs and/or adjustments to facility to
satisfaction of Departmental Representative.
.1 Fine tune components, systems and intergrated
systems and continue system debugging to optimize
Facility performance.
.2 Rectify warranty issues.
.3 Submit written report to Commissioning Agent
and Departmental Representative.
.1 Indicate results noted and corrective
action taken.
.2 Note improvements made to operating
parametes and control settings.
.3 Recommend modifications deemed advisable
to improve performance, environmental
conditions, energy consumptions and other
issues.
-

- 1.8 CONTRACTOR'S .5 (Cont'd)
COMMISSIONING
ACTIVITIES
(Cont'd)
- 1.9 COMMISSIONING .1 Commissioning Agent:
ACTIVITIES OF
OTHER TEAM MEMBERS
- .4 Commissioning Agent and other team members as determined by Departmental Representative to be present during such work.
- .1 Commissioning Agent:
- .1 Represents the Departmental Representative during the commissioning process.
 - .2 Coordinates activities of the commissioning team members to ensure that commissioning activities are carried out properly and in a timely manner.
 - .3 Prepares commissioning schedule in concert with Contractor.
 - .4 Chairs commissioning meetings.
 - .5 Works with Contractor, subcontractors, equipment suppliers, Design Consultant resources, PWGSC and Tenant Representatives to resolve technical problems which may arise during the process.
 - .6 Witnesses Contractor's pre-start, start-up and performance verification procedures for certain equipment and systems specified when deemed required due to their critical nature and function in the Facility.
 - .7 Verifies that Installation/Start-up Checklists and Performance Verification checks and tests are used and stringently followed by Contractor.
 - .8 Assists Contractor in coordination of training activities for facility staff.
 - .9 Submits final commissioning report to Departmental Representative.
- .2 Design Consultant:
- .1 Prepares in concert with Commissioning Agent the Commissioning Plan.
 - .2 Reviews Contractor's Installation/Start-up Checklists for completeness, incorporating supplement data not addressed on checklist. Provides to Contractor checklist for products which manufacturer does not provide installation and start-up instructions.
 - .3 Develops performance verifications report sheets for use by Contractor to record actual data and measurements against design data criteria.
 - .4 Includes, on performance verification report sheets, design data and anticipated performance values for equipment and systems to undergo verification.
 - .5 Compiles commissioning documentation submitted by Contractor. Prepares final Building Management Manuals.
-

-
- 1.9 COMMISSIONING .2 Design Consultant:(Cont'd)
ACTIVITIES OF
OTHER TEAM MEMBERS
(Cont'd)
- .6 Assists Commissioning Agent in witnessing pre-start, start-up and performance verification activities.
 - .7 Approves type and method of calibration for instruments used by Contractor to conduct performance verification and commissioning tests.
 - .8 Assists Commissioning Agent in reviewing and analysing tests results.
 - .9 Participate in the training sessions provided by Contractor to tenant O&M staff by giving introductory information on design philosophy, design intent and systems designs,
 - .10 Assist in the resolution of issues relating to commissioning.
- .3 Tenant Representative:
- .1 Participates with other team members to ensure that systems as installed meet the operational and functional requirements.
 - .2 Periodically attends commissioning meetings as required.
 - .3 Attends final commissioning activities.
 - .4 Assists in resolving technical problems by providing additional details on operational requirements.
- .4 Facility Operations and Maintenance Staff:
- .1 Participates in the commissioning process to obtain early introduction to the facility systems and to provide early operator feedback.
 - .2 Prime interest is in the familiarization and training of appropriate maintenance staff.
 - .3 Staff may attend certain critical equipment start-up and performance verification activities and provide comments and practical suggestions on issues which may arise during actual operation, maintenance and repair of the equipment and systems.
 - .4 Attends commissioning meetings periodically, depending on issues being discussed.
 - .5 Identifies the appropriate staff which must receive the O & M training.
- 1.10 COMMISSIONING .1 General briefing on commissioning will be conducted
MEETINGS at first project construction meeting at commencement of work.
- .1 Issues discussed will include scope and extent of commissioning and clarify responsibilities of commissioning team members.
 - .2 All team members must attend, including subcontractors of equipment and systems to be commissioned.
-

1.10 COMMISSIONING
MEETINGS

(Cont'd)

- .2 Include commissioning as one agenda item at each construction meeting held and chaired by Contractor during construction. Give subject due consideration for each material and equipment supplied and for all matters of Work.
- .3 At the 60% construction completion stage, as determined by Departmental Representative, a separate commissioning scope meeting will be called by Departmental Representative to review progress of work, discuss schedule of equipment start-up activities and prepare for upcoming commissioning. Issues at meeting will include:
 - .1 Review duties and responsibilities of Contractor and subcontractors, addressing delays and potential problems.
 - .2 Determine the degree of involvement of each trade and manufacturer's representatives in the commissioning process.
- .4 Separate commissioning meetings will be held from the 60% construction stage to project completion. Meetings are tentatively scheduled to be held on a bi-monthly basis but may be more frequent during the equipment start-up and functional testing period.
- .5 Whenever possible meetings will be held immediately following the construction meetings.
- .6 Meeting will be chaired by Commissioning Agent, who will record and distribute minutes.
- .7 Ensure that all subcontractors and relevant manufacturer representatives are present at the 60% commissioning scope meeting and at other meetings as deemed required.

1.11 COMMISSIONING
SCHEDULE

- .1 Address commissioning activities within the construction work schedule. Clearly identify allocated time period for commissioning and training activities.
 - .2 Provide a separate independent commissioning schedule at the 60% construction stage in order that specific issues and individual details of commissioning can be reviewed, discussed and dealt with from that period onward to project completion. Submit monthly updates thereafter,
 - .3 Develop commissioning schedule in conjunction with Commissioning Agent. Indicate allocated time period and anticipated dates for:
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- 1.11 COMMISSIONING SCHEDULE (Cont'd)
- .3 (Cont'd)
 - .2 (Cont'd)
 - .1 Submission of commissioning documentation, including O&M Manuals.
 - .2 Equipment and system start-up and performance verification, making them ready to be commissioned.
 - .3 Allocated period to commission designated building components and systems.
 - .4 Training period.
 - .5 Work during Warranty period.
 - .4 Submit schedule to Departmental Representative for review.
- 1.12 TRAINING
- .1 Commence process of familiarizing Tenant and O&M personnel in the early stages of work on purpose and operation of various equipment and systems. Continue process throughout the entire construction duration.
 - .1 Provide informal briefings during occasional site visits, at planned commissioning meetings and during the final commissioning site activities.
 - .2 Conduct formal demonstration and training sessions only after all identified systems have been commissioned by Commissioning Agent and Departmental Representative has given approval to proceed with the training process.
 - .3 Provide training and demonstration to personnel designated by the Departmental Representative on equipment, sub-systems, systems and integrated systems for the time period specified as follows:
 - .1 Control systems: two (2) days.
 - .2 Electrical systems: one-half (1/2) day.
 - .3 Communications and Electronic systems: one-half (1/2) day.
 - .4 Ventilation systems: one (1) day.
 - .5 Heating systems: one (1) day.
 - .6 Plumbing systems: one (1) day.
 - .7 Fire protection systems: two (2) days.
 - .4 Carryout training in accordance with requirements of section 01 79 00.
 - .5 Submit written agenda of training session(s) four (4) weeks beforehand for review by Commissioning Agent and Departmental Representative.
 - .6 Coordinate content with Commissioning Agent. Design Consultant will provide introductory presentation
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- 1.12 TRAINING .6 (Cont'd)
(Cont'd) giving general outline of each system design and intended function.
- .7 Submit training manuals for review two (2) weeks prior to actual training.
- .8 Confirm required tools and O&M Manuals are on site for training and system demonstration.
- .9 As a minimum, the training sessions to cover the following information:
.1 Introduction.
.2 Description of the system with factory personnel being involved at appropriate times.
.3 Instructions on start-up procedures including seasonal procedures, system check-lists and emergency procedures.
.4 Operational procedures, including occupancy considerations, seasonal change-over, manual and automatic operations and emergency modes.
.5 Instruction on system shutdowns, including checklists.
.6 Instructions on all aspects of system maintenance, including routine servicing, lubrication, overhaul and factory servicing.
.7 Information concerning the scope of warranties and their use.
.8 A description of spare parts in stock and their service.
.9 A description of normal tools required for servicing the systems/equipment.
- .10 Submit typewritten record of training sessions given and list of attendees. Use forms of format approved by Departmental Representative.
- 1.13 COMMISSIONING .1 Submit the following documentation for use during
DOCUMENTATION commissioning and for incorporation thereafter into a Building Management Manual (BMM):
.1 Operations and Maintenance Manuals, Project Record Documents and other data as specified in Section 01 78 00. Data to include:
.1 Equipment Product Information (PI Data) complete with:
.1 Nameplate info,
.2 Installation instructions,
.3 Operating procedures and
.4 Maintenance guidelines.
.2 Reviewed shop drawings,
.3 As-built record drawings and Specifications.
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- 1.13 COMMISSIONING .1 (Cont'd)
DOCUMENTATION .2 Completed Installation/Start-up Checklist
(Cont'd) sheets used.
.3 Performance Verifications checks and tests
procedures and completed report sheets used.
.4 Copy of any static and dynamic test and reports
conducted.
.5 TAB report and other reports as specified in
various trade sections.
- .2 Above documentation is required by Commissioning
Agent to commission Facility. Submit data minimum
three (3) weeks before commencement of commissioning.
- .3 Documentation to include detailed information and
number of copies as specified for maintenance manuals
of section 01 78 00.
- .4 Commissioning Agent will compile above documentation
and produce a BMM manuals for operation/maintenance
staff and tenant use.