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**Part 1      General**

**1.1      DESCRIPTION OF WORK**

- .1 Work under this Contract includes selective demolition of:
  - .1 Interior office space including flooring, walls, wall finish and ceilings
- .2 Work under this Contract includes:
  - .1 Construct interior office space fit-up including flooring, walls, supply and install of demountable walls, wall finishes and ceilings as shown in the contract documents.
  - .2 All mechanical and electrical modification requirements.
- .3 Construct the work under a single fixed-price contract.

**1.2      FAMILIARIZATION 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**

- .1 Perform work in accordance with the National Building Code of Canada (NBC) Latest adopted edition and the 2010 National Fire Code of Canada (NFC) and all other codes 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.
- .2 Meet or exceed requirements of:
  - .1 Contract documents,
  - .2 Specified standards, codes and referenced documents.

**1.4      INTERPRETATION OF DOCUMENTS**

- .1 For Federal Government projects, Division 01 Sections take precedence over the technical specification Sections in other Divisions of this Project.

**1.5      SETTING OUT WORK**

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Provide devices needed to layout and construct work.

- .3 Supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.

## **1.6 COST BREAKDOWN**

- .1 Before submitting first progress claim submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating contract amount. 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.

## **1.7 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy each of the following:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda and amendments.
  - .4 Reviewed Shop Drawings.
  - .5 List of outstanding shop drawings.
  - .6 Change Orders.
  - .7 Other modifications to Contract.
  - .8 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.

## **1.8 PERMITS**

- .1 In accordance with 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.

## **1.9 ADDITIONAL DRAWINGS**

- .1 The departmental representative may furnish additional drawings for clarification.
- .2 These additional drawings have same meaning and intent as if they were included with plans referred to in Contract documents.

## **1.10 PERFORMANCE OF THE WORK**

- .1 Substantial Performance of the Work is required before date established by the Departmental Representative.

## **1.11 RESPONSIBILITY**

- .1 Division of the Work among Trade Contractors, suppliers or vendors is solely the General Contractor's responsibility.
- .2 The Owner assumes no responsibility to act as an arbiter to establish subcontract terms between sectors or disciplines of Work.

## **1.12 COMPLEMENTARY DOCUMENTS**

- .1 Drawings, specifications, and schedules are complementary each to the other and what is called for by one to be binding as if called for by all.
  - .1 Should any discrepancy appear between documents which leaves doubt as to the intent or meaning, abide by Precedence of Documents article below or obtain direction from the departmental representative.
- .2 Drawings indicate general location and routing of conduit and wire/conductors. Install conduit or wiring/conductors and plumbing piping not shown or indicated diagrammatically in schematic or riser diagrams to provide an operational assembly or system.
- .3 Install components to physically conserve headroom, to minimize furring spaces, or obstructions.
- .4 Locate devices with primary regard for convenience of operation and usage.
- .5 Examine all discipline drawings, specifications, and schedules and related Work to ensure that Work can be satisfactorily executed.
  - .1 Conflicts or additional work beyond work described to be brought to attention of the departmental representative.

### **1.13 PRECEDENCE OF DOCUMENTS**

- .1 In the event of conflict within and between the Contract Documents, the order of priority within specifications and drawings are - from highest to lowest:
  - .1 Agreement
  - .2 Supplementary Conditions (if any),
  - .3 General Conditions of the Contract,
  - .4 Sections of Division 1 of the specifications,
  - .5 Specifications:
    - .1 Sections of Divisions 2 through 49 of the specifications, and
    - .2 Specifications specifically indicated on drawings.
  - .6 Schedules and notes:
    - .1 Schedules within the specifications, then
    - .2 Schedules on drawings.
  - .7 Drawings:
    - .1 Drawings of larger scale shall govern over those of smaller scale of the same date, then
    - .2 Dimensions shown on drawings shall govern over dimensions scaled from drawings, then
    - .3 Location of utility outlets indicated on Department Representative detail drawings takes precedence over positions or mounting heights located on mechanical or electrical drawings.
  - .8 Later dated documents shall govern over earlier documents of the same type.
- .2 In the event of conflict between documents, the decision of the departmental representative shall be final.

### **1.14 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to building operations, occupants, public, and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.
- .2 Where security has been reduced by work of Contract, provide temporary means to maintain security.
- .3 Where elevators exist in building, only those assigned for Contractor's use may be used for moving workers within building. Protect walls of passenger elevators, to approval of Department Representative prior to use. Accept liability for damage, safety of equipment and overloading of existing equipment.
- .4 Provide temporary dust screens, barriers, warning signs in locations where renovation and alteration work is adjacent to areas which will be operative during such work.

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**1.15 ROUGHING-IN**

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

**1.16 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, 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.

**1.17 CONCEALMENT**

- .1 Conceal pipes and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

**1.18 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.

## **1.19 EXISTING SERVICES**

- .1 Where work involves 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 to maintain critical building and tenant systems.
- .5 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .6 Protect, relocate or maintain existing active services as required. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction over service. Record locations of maintained, re-routed and abandoned service lines.

## **1.20 ASBESTOS DISCOVERY**

- .1 Should material resembling 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.

**END OF SECTION**

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**Part 1            General**

**1.1                ACCESS AND EGRESS**

- .1    Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations. Maintain tenant access to computer room 2299 at all times during construction.

**1.2                USE OF SITE AND FACILITIES**

- .1    Execute work with least possible interference or disturbance to normal use of premises. Work that generates excessive dust, fumes or noise to be completed at night. Make arrangements with the Departmental Representative to facilitate work as stated.
- .2    Maintain existing services to building and provide for personnel and vehicle access.
- .3    Where security is reduced by work, provide temporary means to maintain security.
- .4    Use of stairs or designated elevator for movement of materials and workers.
  - .1    Contractor responsible to keep clean, protection of elevator interior of elevator cab and to repair and make good any damage.
  - .2    Contractor to take photos with date prior to start-up for record of existing conditions.
- .5    Closures: protect work temporarily until permanent enclosures are completed.
- .6    Use of existing sanitary facilities is permitted.
  - .1    Fully Clean facilities after every shift.

**1.3                CONTRACTOR'S USE OF SITE**

- .1    Use of site: Coordinate use of site with occupants and Departmental Representative for execution of work.
- .2    Obtain and pay for use of additional storage or work areas.
- .3    Parking is not provided by owner. Contractor responsible for their own parking accommodations.

**1.4                SPECIAL REQUIREMENTS**

- .1    Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .2    Keep within limits of work and avenues of ingress and egress.
- .3    Ingress and egress of Contractor vehicles at site to be arranged with Departmental Representative.
- .4    Telecom room 2209 and Data Room 2299 will function during the construction. Contractor must allow access at all times.
- .5    Data room 2299 must be secured at all times. Contractor must provide security plan and dust control plan prior to the performance of work.

- .6 Above ceiling work; contractor must not disturb the fiber infrastructure required for user access to the network.

## **1.5 SECURITY CLEARANCES**

- .1 General Contractor is to have security clearance. General Contractor is also to engage the services of commissionaires for escort and supervision off all sub-trades...
- .2 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times.
  - .1 Pass must be returned at end of work shift and personnel checked out.

## **1.6 SECURITY ESCORT**

- .1 Personnel employed on this project must be escorted when executing work in non-public areas during normal working hours.
  - .1 Personnel must be escorted in all areas after normal working hours.
- .2 Submit an escort request to Departmental Representative at least 14 days before service is needed.
  - .1 Cost will be Contractor's responsibility.

## **1.7 BUILDING SMOKING ENVIRONMENT**

- .1 Comply with smoking restrictions.
  - .1 Smoking is not permitted in buildings, vehicles parked on site or on site / property.

## **1.8 INDOOR AIR QUALITY DURING CONSTRUCTION**

- .1 Provide HVAC protection and pathway interruption to control dust, odors, and irritants during construction. HVAC protection, pathway interruption and housekeeping to follow SMACNA's IAQ Guidelines for Occupied Buildings Under Construction. Contractor to submit an Indoor Air Quality Plan for review and approval and documentation to support that plan was followed during construction.

**END OF SECTION**

**Part 1            General**

**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            Lockout Procedures specified in section 01 35 25.
  - .4            Health and Safety Plan specified in section 01 35 29.06.

**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 14 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 (GANNT) 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 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            Schedule work in cooperation with the Departmental Representative. Incorporate within Detailed Work Schedule, items identified by Departmental Representative during review of preliminary schedule.
- .6            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.
- .7            Ensure that all subtrades and subcontractors are made aware of the work restraints and operational restrictions specified.
- .8            Schedule Updates:
  - .1            Submit 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.
  
- .9 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.
  
- .10 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 recognize that building occupants will be affected by implementation of this contract. The Contractor must perform the work with utmost regard to the safety and convenience of building occupants and users. All work activities must be planned and scheduled with this in mind.
  
- .2 Contractor to meet with the Departmental Representative when requested to identify intended work areas, activities and scheduling.
  
- .3 Departmental Representative reserves the right to stop certain daytime work activities, if the nature of that activity generates excessive noise, dust or fumes and have Contractor re- schedule that particular work to be performed during the Off-Hour period.
  
- .4 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 17:00 and 7:00 for each weekday Monday to Thursday inclusive.
  - .2 Weekend Off-Hours: between the hours of 17:00 Friday evening to 7:00 Monday morning.
  
- .5 Facility circulation maintained:
  - .1 Ensure that entrances, 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 protection and other suitable enclosures as required to ensure users are not exposed to construction activities and are protected from exposure to dust, noise and hazardous conditions.

- .3 Maintain fire escape routes accessible and fire fighting access open all times for the duration of the project.
- .4 Do not under any circumstances block fire exit doors. Do not leave construction materials or debris at building entrances and exits.
- .6 Safety Signage:
  - .1 Provide onsite, 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 site, 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.
  - .4 Include costs for the supply and installation of these signs in the bid price.
- .7 Dust and Dirt Control:
  - .1 Effectively plan and implement dust control measures as an integral part of all construction activities. Review all measures with the Departmental Representative before undertaking work, especially for major dust generating activities.
  - .2 Do not allow demolition debris and construction waste to accumulate on site and contribute to the propagation of dust.
  - .3 Disconnect and seal-off HVAC systems in the construction area to stop spread of dust into interior areas of Facility.
  - .4 Avoid situations and practices which results in dust and dirt being brought from the construction areas or from the exterior and tracked inside the building into occupied areas used by tenants.
  - .5 Inform workers and make them sensitive to the need for dust and dirt control.  
Stringently enforce rules and regulations, immediately address non-compliance.
  - .6 Keep access doors to work areas closed at all times. Use only designated doors for entry or egress.
  - .7 Telecom room 2209 to be kept dust free.
  - .8 Data Room 2299 will function during the construction. Install hording to protect equipment from dust and contamination.
- .8 Work in Occupied Areas:
  - .1 Where work must be carried out in an occupied area, perform such work during the non-operational off-hour periods of the Facility.

- .2 Ensure that all dust, dirt, debris, construction waste, materials, tools and equipment are completely removed at the end of each workshift. Clean and reinstate area ready for daytime use by tenant.
- .3 Provide temporary dust barriers around immediate work areas and place fabric drop sheets over workstations, equipment and other furnishings located immediately adjacent to such work.
- .4 Minimize the creation of dust and to avoid contaminating areas beyond the immediate location.
- .5 Discuss and obtain Departmental Representative's approval beforehand on the type and extent of dust barriers, protective devices and measures needed.
- .6 Be responsible for temporarily moving office furnishings, workstations, computer equipment and other objects as needed to gain access and conduct work. Reinstall all dislocated items at end of each workshift making the area operational again. General Contractor is to submit a furniture / equipment moving plan for PSPC and tenant review to ensure appropriate trades and technicians are consulted and engaged.
- .7 Disconnect and reconnect any power and communications systems feeding workstations as required.
- .8 Clean such areas as well as those corridors and routes used to gain entry and access.
- .9 Cleaning of tenant occupied areas used by Contractor:
  - .1 Clean lobbies, corridors, stairs and other circulation routes used by workers to gain access to work by conducting cleaning, vacuuming and washing of floors, walls and other soiled surfaces.
  - .2 Meager attempts at controlling dust and ineffective unprofessional cleaning procedures will not be tolerated.
  - .3 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 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.
- .10 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, to be held a minimum every two (2) weeks, 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 seven (7) 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 each party.
  - .2 Distribute to participants by e-mail within 3 calendar days after each meeting.
  - .3 Make revisions as directed by Departmental Representative.

## **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 Work Cooperation:
  - .1 Ensure cooperation between trades in order to facilitate the general progress of the work.
- .3 The General Contractor shall send out a formal request to the Departmental Representative to receive approval to proceed prior to any mechanical or electrical shutdowns. A 24 hour notice to the user shall be required prior to any mechanical or electrical shutdowns.
- .4 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.

**END OF SECTION**

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**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1      Schedule and administer project meetings throughout the progress of the work.
- .2      Prepare agenda for meetings.
- .3      Distribute written notice of each meeting seven (7) days in advance of meeting date to Departmental Representative.
- .4      Provide physical space and make arrangements for meetings.
- .5      Preside at meetings.
- .6      Record the meeting minutes.
  - .1      Include significant proceedings and decisions.
  - .2      Identify actions by parties.
- .7      Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance.
- .8      Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

**1.2                PRE-CONSTRUCTION MEETING**

- .1      Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2      The Departmental Representative, Departmental Representatives, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3      Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4      Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5      The Departmental Representative will arrange, chair, and distribute minutes for the pre-construction meeting.
  - .1      Agenda to include but not limited to:
    - .1      Appointment of official representative of participants in the Work.
    - .2      Schedule, according to the Critical Path Method or bar charts (Gantt).
    - .3      Schedule of submission of shop drawings, samples, colour chips. in accordance with Section 01 33 00 - Submittal Procedures.

- .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 50 00 - Temporary Facilities And Controls.
- .5 Delivery schedule of specified equipment.
- .6 Site security in accordance with Section 01 56 00 – Temporary Barriers and Enclosures.
- .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .8 Owner provided products.
- .9 Record drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
- .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .12 Monthly progress claims, administrative procedures, photographs, hold backs.
- .13 Insurances, transcript of policies.

### 1.3 PROGRESS MEETINGS

- .1 During course of Work and weeks prior to project completion, schedule progress meetings bi-weekly.
  - .1 Meeting chaired by the Departmental Representative.
- .2 Contractor, major Subcontractors involved in Work, and Departmental Representative, are to be in attendance.
- .3 Notify all parties a minimum of 7 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 2 days after meeting.
- .5 Agenda to include the following:
  - .1 Review, approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, conflicts.
  - .4 Problems which impede construction schedule.
  - .5 Review of off-site fabrication delivery schedules.
  - .6 Corrective measures and procedures to regain projected schedule.
  - .7 Revision to construction schedule.
  - .8 Progress schedule, during succeeding work period.
  - .9 Review submittal schedules: expedite as required.
  - .10 Review proposed changes for effect on construction schedule and on completion date.
  - .11 Other business.

**END OF SECTION**

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**Part 1            General**

**1.1                DEFINITIONS**

- .1    Bar Chart (GANTT Chart): graphic display of schedule related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .2    Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

**1.2                REQUIREMENTS**

- .1    Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2    Plan to complete Work in accordance with prescribed milestones and time frame.
- .3    Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4    Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

**1.3                SUBMITTALS**

- .1    Provide submittals in accordance with Section 01 33 00 - Submittal Procedures .
- .2    Submit to Departmental Representative within 7 working days of Award of Contract, a Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3    Submit Project Schedule to Departmental Representative / Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

**1.4                PROJECT MILESTONES**

- .1    Provide project milestones forming interim targets for Project Schedule within 10 working days of Award of Contract date.
  - .1    Start and completion of Demolition
  - .2    Interior finishing and fitting, mechanical, and electrical work.
  - .3    Start and completion of demountable wall installation.
  - .4    Interim Certificate (Substantial Completion)

**1.5                MASTER PLAN**

- .1    Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2    Departmental Representative will review and return revised schedules within 5 working days.

- .3 Revise schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

## **1.6 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
  - .1 Award.
  - .2 Shop Drawings, Samples.
  - .3 Permits.
  - .4 Mobilization.
  - .5 Demolition
  - .6 Interiors (Walls, Floors and Ceiling).
  - .7 Demountable walls.
  - .8 Plumbing.
  - .9 Lighting.
  - .10 Electrical.
  - .11 Piping.
  - .12 Controls.
  - .13 Heating, Ventilating, and Air Conditioning.
  - .14 Millwork.
  - .15 Fire Systems.
  - .16 Testing and Commissioning.
  - .17 Supplied equipment long delivery items.

## **1.7 PROJECT SCHEDULE REPORTING**

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

## **1.8 PROJECT MEETINGS**

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

**END OF SECTION**

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**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1        Submit to Departmental Representative, submittals list for review.
  - .1        Submit promptly and in orderly sequence to not cause delay in Work.
  - .2        Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2        Do not proceed with Work affected by submittal until review is complete.
- .3        Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4        Where items or information is not produced in SI Metric units converted values are acceptable.
- .5        Review submittals prior to submission to Departmental Representative.
  - .1        This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents.
  - .2        Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6        Notify the Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7        Verify field measurements and affected adjacent Work are coordinated.
- .8        Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the Departmental Representative's review.
- .10      Keep one reviewed copy of each submission on site.

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1        The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2        Submit shop drawings stamped and signed by professional Departmental Representative registered and licensed to practice in the Province of New Brunswick.

- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work.
  - .1 Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed.
  - .2 Indicate cross references to design drawings and specifications.
- .4 Allow 10 days for review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price.
  - .1 If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents.
  - .1 When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 Specification Section number(s)
  - .2 Date.
  - .3 Project title and number.
  - .4 Contractor's name and address.
  - .5 Identification and quantity of each shop drawing, product data and sample.
  - .6 Other pertinent data.
- .8 Submissions include:
  - .1 Specification Section number(s)
  - .2 Date and revision dates.
  - .3 Project title and number.
  - .4 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .5 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .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.
- .9 After the Departmental Representative's review, distribute copies.
- .10 Submit 6 prints of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit 6 copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit 6 copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit 6 copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit 6 copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit 6 copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit 6 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed.

- .1 If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .21 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that the Departmental Representative approves any of the details or design inherent in the shop drawings, the responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve Contractor of his responsibility for errors or omissions in shop drawings or of his responsibility for meeting the requirements of the construction and of the Contract Documents.
  - .2 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 sub-trades.
- .22 Non-legible or poorly legible drawing or photocopies will not be accepted and returned not reviewed.
- .23 Electronic PDF submittals for shop drawings are also acceptable.

### **1.3 SAMPLES**

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .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 affect value of Work, state such in writing to Departmental Representative 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.

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**1.4 MOCK-UPS**

- .1 Not applicable.

**1.5 PHOTOGRAPHIC DOCUMENTATION**

- .1 Submit electronic copy of colour digital photography in jpg format, fine resolution monthly with Progress Claim and as directed by Departmental Representative.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: as many locations as required to show daily progress of the work but not less than 6.
- .4 Frequency of photographic documentation: daily and as directed Departmental Representative.

**1.6 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.
- .3 Contractor to complete and submit required Green Globes documents and post-construction assessment questionnaire for Green Globes 3 Leaf Level certification

**END OF SECTION**

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**Part 1      General**

**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      CSA C22.1-06 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
- .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.
- .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 practice as applicable to mechanical equipment or other machinery being de-energized.
  - .4 Procedures specified herein.
  - .5 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.
- .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 its location;
    - .2 Duration of isolation period (i e: 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 authorization 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 shutdown 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.

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

## 1.8 LOCKOUT

- .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 tag-out its 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.
- .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.

**END OF SECTION**

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**Part 1            General**

**1.1                FIRE SAFETY BRIEFING**

- .1        Departmental representative will coordinate arrangements for contractor to be briefed on Fire Safety at their pre-work conference before any work is commenced.

**1.2                REPORTING FIRES**

- .1        Know location of nearest telephone, including emergency phone number.
- .2        Report immediately all fire incidents to Fire Department as follows:
  - .1        Activate nearest fire alarm pull station; and
  - .2        When reporting fire by telephone, give location of fire, name or number of building and be prepared to verify the location.
  - .3        Person activating fire alarm box will remain on site to direct Fire Department to scene of fire.

**1.3                INTERIOR AND EXTERIOR FIRE PROTECTION AND ALARM SYSTEMS**

- .1        Fire protection and alarm system will not be:
  - .1        Obstructed;
  - .2        Shut off; and / or
  - .3        Left inactive at end of working day or shift without authorization from Departmental representative.
- .2        Fire hydrants, standpipes and hose systems will not be used for other than fire fighting purposes unless authorized by Departmental Representative.

**1.4                FIRE EXTINGUISHERS**

- .1        Supply fire extinguishers, as called by authority, necessary to protect work in progress and contractor's physical plant on site.

**1.6                RUBBISH AND WASTE MATERIALS**

- .1        Rubbish and waste materials are to be kept to a minimum.
- .2        Burning of rubbish is prohibited.
- .3        Remove rubbish from work site at end of work day or shift or as directed.
- .4        Storage:
  - .1        Store oily waste in approved receptacles to ensure maximum cleanliness and safety.
  - .2        Deposit greasy or oily rags and materials subject to spontaneous combustion in approved receptacles and remove as required in 1.6.3.

## **1.7 FLAMMABLE AND COMBUSTIBLE LIQUIDS**

- .1 Handling, storage and use of flammable and combustible liquids are to be governed by the current National Fire Code of Canada.
- .2 Flammable and combustible liquids such as gasoline, kerosene and naphtha will be kept for ready for use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
- .3 Transfer of flammable and combustible liquids is prohibited within buildings.
- .4 Transfer of flammable and combustible liquids will not be carried out in vicinity of open flames or any type of heat producing devices.
- .5 Flammable liquids having a flash point below 38°C such as naphtha or gasoline will not be used as solvents or cleaning agents.
- .6 Flammable and combustible waste liquids, for disposal, will be stored in approved containers located in a safe ventilated area.
  - .1 Quantities are to be kept to a minimum and Fire Department is to be notified when disposal is required.

## **1.8 HAZARDOUS SUBSTANCES**

- .1 Work entailing use of toxic or hazardous materials, chemicals and/or explosives, or otherwise creating hazard to life, safety or health, will be in accordance with National Fire Code of Canada.
- .2 Obtain a "Hot Work" permit for work involving welding, burning or use of blow torches and salamanders, in buildings or facilities.
- .3 When Work is carried out in dangerous or hazardous areas involving use of heat, provide fire watchers equipped with sufficient fire extinguishers.
  - .1 Determination of dangerous or hazardous areas along with level of protection necessary for Fire Watch is at discretion of the Departmental Representative.
  - .2 Contractors are responsible for providing Fire Watch service.
- .4 Where flammable liquids, such as lacquers or urethanes are to be used, proper ventilation will be assured and all sources of ignition are to be eliminated.

## **1.9 QUESTIONS AND/OR CLARIFICATION**

- .1 Direct any questions or clarification on Fire Safety in addition to above requirements to Departmental Representative.

**1.10 FIRE INSPECTION**

- .1 Site inspections by Fire Chief will be coordinated through Departmental Representative.
- .2 Allow Fire Chief unrestricted access to work site.
- .3 Cooperate with Fire Chief during fire safety inspection of work site.
- .4 Immediately remedy all unsafe fire situations observed by Fire Chief.

**END OF SECTION**

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**Part 1            General**

**1.1                SECTION INCLUDES**

- .1 Health and safety considerations required to ensure that the contractor shows due diligence towards health and safety on construction sites, and meets the requirements laid out in PWGSC/RPB Departmental Policy DP 073 - Occupational Health and Safety – Construction and by WorkSafeNB.

**1.2                REFERENCES**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 Province of New Brunswick
  - .1 Occupational Health and Safety Act, S.N.B. 1983.

**1.3                SUBMITTALS**

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work.
  - .1 Health and Safety Plan must include:
    - .1 Results of site specific safety hazard assessment.
    - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Departmental representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan.
  - .1 Revise plan as appropriate and resubmit plan to Departmental Representative within 7 days after receipt.
- .7 Departmental representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

- .8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

#### **1.4 FILING OF NOTICE**

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

#### **1.5 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

#### **1.6 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

#### **1.7 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site.
  - .1 Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

#### **1.8 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

#### **1.9 COMPLIANCE REQUIREMENTS**

- .1 Comply with WorkSafe New Brunswick requirements.
- .2 Comply with Occupational Health and Safety Regulations, 1996.
- .3 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

### **1.10 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety- related factor, 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.

### **1.11 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator.
  - .1 Health and Safety Coordinator must:
    - .1 Have site- related working experience specific to activities associated with project.
    - .2 Have working knowledge of occupational safety and health regulations.
    - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
    - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
    - .5 Be on site during execution of Work.

### **1.12 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

### **1.13 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 may stop Work if non-compliance of health and safety regulations is not corrected.

### **1.14 POWDER ACTUATED DEVICES**

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

**1.15 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**END OF SECTION**

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**Part 1            General**

**1.1                GENERAL**

- .1            Due to nature of this Facility, and client operations therein, security regulations pertaining to site will be in place during the work resulting in need for:
  - .1            Control and limit movement of construction workers inside building;
  - .2            Escort and continuous supervision of workers by security personnel;
  - .3            Specific rules and regulations as specified in this section and as directed by the Departmental Representative to be stringently followed.
  
- .2            It is the Contractor's responsibility to:
  - .1            Become familiar with and abide by security rules and regulations;
  - .2            Brief all workers and subcontractors in respect of the security regulations and ensure that they abide by all rules and directives.
  
- .3            The Departmental Representative will coordinate a pre-construction meeting between Contractor, Facility Management and Security Personnel who will provide details and directives on control and movement on site.
  
- .4            Any infraction of site security regulations on the part of the Contractor, members of work force or any Subcontractor in his employ, could result in:
  - .1            Financial penalties in the form of progress payment reduction or holdback assessments being levied against the Contractor and;
  - .2            Demand immediate removal of offending party from the site.

**1.2                SECURITY PERSONNEL**

- .1            Obtain and pay for the services of security personnel, employed by the Canadian Corps of Commissionaires to provide escort and security supervision of all workers working inside the building during the work of this contract.
  
- .2            Commissionaires employed on this project must have a current Enhanced Security Clearance status issued by PWGSC.
  
- .3            Provide minimum of 2 commissionaires to be on site at all times when work is carried out inside the building, having the following responsibilities:
  - .1            Limit movement of workers to within the boundaries established by the Departmental Representative for each work phase;
  
  - .2            Maintain security control list of workers authorized to be on site as determined by Contractor and the Departmental Representative;
  
  - .3            Escort workers who need to circulate on site beyond the established boundaries of work, including the corridors, stairwells and elevators used for access to and from work areas;
  
  - .4            Escort and supervise short term visitors who need access to the work site such as for material deliveries or to conduct inspections.

- .5 Provide additional commissionaires when required to perform supervision or escort function as may be needed due to Contractor's work operations in order that no worker is left unsupervised on inside building beyond main lobby. Commissionaires to determine the number of commissionaires required at project intervals.
- .6 Ensure Commissionaire(s) are present on site for entire workshift including work breaks and time period after workshifts until all workers have left site.
- .7 Commissionaire must stay within the actual construction area and provide surveillance of all workers ensuring that security rules and requirements are obeyed and to limit movement to approved work areas of site.
- .8 Escort and supervision of workers by Commissionaire is required at all times regardless as to whether workshifts are in the daytime or during Facility off hours.
- .9 Commissionaire shall report directly to the Departmental Representative and to the Facility security personnel and ensure that site security directives are obeyed by all workers.
  - .1 Empower Commissionaire with authority to remove any worker deemed non-compliant with security directives.
- .10 Ensure Commissionaire is fitted and wears approved safety hard hat, safety footwear and other personnel protective equipment appropriate to work in accordance with applicable Occupational Health and Safety requirements specified.

### **1.3 SECURITY CLEARANCE REQUIREMENTS**

- .1 All persons employed by General Contractor who will be working on site must undergo the following check:
  - .1 Apply for PWGSC personnel security clearance screening and obtain a Reliability Status.
- .2 Departmental Representative will advise when worker security clearance has been received and whether escort is no longer needed for a particular individual.
- .3 Within one (1) week following notification of contract award, submit applications for PWGSC Reliability Status security clearance.
  - .1 Make application for workers as one submission to facilitate processing and minimize delays.

- .5 To obtain the PWGSC Reliability Status clearance, the following information is required for each applicant:
  - .1 "Personnel Screening, Consent and Authorization Form" (Form No. TBS/SCT #330-23E (Rev. 2002/07)) completed by each worker.
  - .2 Contractor Declaration to Public Works & Government Services Canada (PWGSC Security Form "A") completed by Contractor attesting to having conducted an assessment of reliability for each worker applicant verifying employment and other reference data.
  - .3 Proof of applicant's identity consisting of a picture ID such as a Canadian Motor Vehicle Driver's License or other similar official ID card.
  - .4 Proof of applicant's Canadian citizenship consisting of a provincial issued birth certificate, baptismal certificate, citizenship certificate or passport.
  - .5 Include both forms along with a clear legible photocopy of the citizenship and identity documents submitted as one complete package for each applicant.
  - .6 A sample of the above mentioned forms are included at the end of this Specification Section for reference purposes and marked Appendix "A".
    - .1 Information on filling out form TBS/SCT # 330-23E are as follows:
      - .1 Part A: by PWGSC Project Manager;
      - .2 Part B: by applicant. Provide full name, including middle name (not simply and initial). Ensure addresses listed represent last five (5) years of residence and each address is fully completed including postal code. Print data in clear, legible manner.
      - .3 Part C: only boxes 1,2 & 3 need to be completed, requiring applicant's initials. Name of official requested here can be PWGSC Project Manager or PWGSC Regional Security Agent provided that Contractor submits the PWGSC Security Form "A" identified in clause 3.5.2 above.
  - .7 Fingerprinting will also be required if:
    - .1 Applicant indicates that he/she has a previous criminal conviction on Form #330-23E;
    - .2 Security clearance search process results in two persons with same identity, such as having the same name.
  - .8 Departmental Representative will provide details as to what procedures, location and time where workers must go should fingerprints are needed.
  - .9 Processing Time:
    - .1 The PWGSC departmental processing time to obtain all security clearances is estimated to be 3 weeks from date of receipt of required documentation.
    - .2 To avoid delays, prepare worker documentation as soon as possible, however submit documentation for each applicant as one package and send information for entire workforce as on submission. Ensure forms are fully completed, signed and that all information and photo identification is clear and legible.

- .3 Be aware that processing time for applicants with criminal convictions may take longer and could extend to 6 months duration.
  - .1 An interview with such applicant may also be required a part of the security clearance process.
- .10 Facilitate workers security clearance process as follows:
  - .1 Prepare comprehensive list of workers who will require security clearance throughout project, including those of sub-contractors.
  - .2 Provide copy of list to Departmental Representative.
  - .3 Coordinate and expedite submission of various subcontractors.
  - .4 Brief and assist applicants in preparing and submitting documentation.
  - .5 Review documentation of each applicant for completeness before submission.
  - .6 Have each worker keep a copy of their completed application form in case the initial submission gets lost.
  - .7 Submit documentation in an organized manner with transmittal letter clearly identifying project for which worker clearance is required.
- .11 Send submission(s) directly to Departmental Representative or to the approved mailing address as directed by Departmental Representative.
- .12 Persons who have not been successful in obtaining security clearance, upon documentation review by PWGSC, will not be allowed further access on site and cannot work on project any longer.

#### 1.4 SECURITY PASSES

- .1 Visitor or worker ID Tags are required for all personnel requiring access inside the building beyond the main public lobby.
- .2 ID Tags will be provided by the Facility Security, issued to the Security Personnel for distribution to authorized workers which shall also be placed on the Security Control List specified below.
- .3 All persons while on site must wear the ID Tag issued to him regardless of daytime or nighttime work.
- .4 Be responsible to obtain ID Tags before work commences, including those required by subcontractors, and continually control their distribution and use by workers. Submit request for tags as early as possible prior to commencement of work.
- .5 For the duration of this contract, anyone not in possession of the ID Tag will not be allowed access on site.
- .6 At end of project, return to Departmental Representative all tags issued to workers and to subcontractors. The Departmental Representative will levy a financial penalty in the form of a holdback assessment against the Contract for each pass not returned regardless of the reason the pass is not returned.

- .7 Immediately report any lost, stolen or destroyed ID Tags to the Departmental Representative.

## **1.5 SECURITY CONTROL LIST**

- .1 Provide a list of employee names from workforce and from subcontractors who will be present at site during the course of work.
- .2 List to include each person's name, address and telephone number.
- .3 Submit copy of list to Departmental Representative and to Security Commissionaire for control of workers.
- .4 Update list as work progresses.
- .5 Ensure that each worker can provide proof of identity upon demand, when requested by Facility's Security Personnel, Departmental Representative or by Facility Management.

## **1.6 BUILDING ACCESS**

- .1 Keys and door security access cards necessary for access to restricted areas may be issued at the discretion of the Building Manager and the Departmental Representative. Follow all instructions in regards to use, care and disposition of all keys and access cards so issued.
- .2 Keys and security access cards given to the Commissionaire for his sole possession, as determined by Departmental Representative, shall not under any circumstances be given to any worker or sub-contractor.
- .3 Do not, under any circumstances, make or allow workers to make duplicates of keys issued.
- .4 At end of project, return to Departmental Representative all keys and access cards issued. Departmental Representative will deduct from final contract payment, \$25.00 for each item not returned, regardless of the reason.
- .5 Immediately report to Departmental Representative any lost, stolen or destroyed keys and door security access cards.

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## **1.7 SITE SECURITY**

- .1 Where work of this contract requires use of a permanently locked door, it is Contractor's responsibility to ensure that door is unlocked and locked after each use or provide a competent security guard, posted at door, when door must remain open for an elongated period of time during a particular workshift.
  - .1 Notify Building Security when security doors will be used and stringently follow all directives to ensure building security is effectively maintained.
  - .2 When work must be carried out during "off-hours" or beyond the work hours previously agreed upon at start of work, provide notice as soon as possible in order to minimize the impact on Building Security.

**END OF  
SECTION**

**Part 1            General**

**1.1                REFERENCES AND CODES**

- .1        Perform Work in accordance with National Building Code of Canada (NBC) Latest adopted edition, including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2        Meet or exceed requirements of:
  - .1        Contract documents.
  - .2        Specified standards, Codes and referenced documents.

**1.2                HAZARDOUS MATERIAL DISCOVERY**

- .1        Asbestos: demolition of spray or trowel- applied asbestos is hazardous to health.
  - .1        Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work.
  - .2        Notify Departmental Representative.
- .2        PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work.
  - .1        Notify Departmental Representative.
- .3        Mould: stop work immediately when material resembling mould is encountered during demolition work.
  - .1        Notify Departmental Representative.

**END OF SECTION**

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**Part 1            General**

**1.1                REFERENCES**

- .1        Canadian Construction Documents Committee (CCDC)
  - .1        CCDC 2-2008, Stipulated Price Contract.

**1.2                INSPECTION**

- .1        Refer to CCDC 2, GC 2.3.
- .2        Allow Departmental Representative access to Work.
  - .1        If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .3        Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .4        If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .5        Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.
  - .1        If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.
  - .2        If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

**1.3                INDEPENDENT INSPECTION AGENCIES**

- .1        Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work.
  - .1        Cost of such services will be borne by the Departmental Representative.
- .2        Provide equipment required for executing inspection and testing by appointed agencies.
- .3        Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect.
  - .1 Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative.
  - .2 Pay costs for retesting and re-inspection.

#### **1.4 ACCESS TO WORK**

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Cooperate to provide reasonable facilities for such access.

#### **1.5 PROCEDURES**

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

#### **1.6 REJECTED WORK**

- .1 Refer to CCDC, GC 2.4.
- .2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents.
  - .1 Replace or re-execute in accordance with Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of the Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

#### **1.7 REPORTS**

- .1 Submit 4 copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested manufacturer or fabricator of material being inspected or tested.

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**1.8 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by the Departmental Representative and may be authorized as recoverable.

**1.9 MOCK-UPS**

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to the Departmental Representative as specified in specific Section.
- .3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for 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 schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when directed by the Departmental Representative.
- .7 Mock-ups will not remain as part of Work.

**1.10 MILL TESTS**

- .1 Submit mill test certificates as required of specification Sections.

**1.11 EQUIPMENT AND SYSTEMS**

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
- .2 Refer to specification Sections for definitive requirements.

**END OFSECTION**

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**Part 1      General**

**1.1          REFERENCES**

- .1      CAN/CSA-Z321-96 (R2001), Signs and Symbols for the Workplace.

**1.2          CONTRACTOR'S SITE OFFICE**

- .1      Not applicable.

**1.3          STORAGE SHEDS**

- .1      Not applicable. There is no available space on site for storage sheds.

**1.4          PARKING**

- .1      There are no parking spaces available for contractor or workers.
- .2      Make good damage resulting from Contractors' use of existing roads, asphalted areas and lawns on site. Make repairs only under favourable and suitable weather conditions.

**1.5          BUILDING ACCESS**

- .1      Use only those approved doors, and circulation routes within building, as designated by Departmental Representative.
- .2      Departmental Representative will indicate which elevator can be used for moving items to storage in Basement.
- .1      Protect walls with suitable devices to approval of Departmental Representative prior to use.
- .2      Accept liability for damage, safety and overloading of equipment.
- .3      Use is restricted to Facility off-hour periods

**1.6          MATERIAL STORAGE AND SITE TRAILERS**

- .1      Space for storage of material and equipment is on site, is limited, and is restricted to the work area enclosed by each phase.
- .2      No site trailers for material storage and office use permitted on site.
- .3      Minimize the quantity of materials stored on site at any given time.

**1.7          WASTE DUMPSTERS**

- .1      Provide wheeled carts and other suitable equipment to move out and remove demolition debris and waste off site.
- .2      Permanent dumpsters located at exterior of the building are not permitted.

## **1.8 SANITARY FACILITIES**

- .1 Washroom facilities on the 2nd floor of the building are permitted for use by workforce .
- .2 Maintain in hygiene condition, clean as required and as directed by Departmental Representative.

## **1.9 POWER AND COMMUNICATIONS**

- .1 Existing power supply at site is available for construction use at no cost.
- .2 Provide temporary cabling to maintain power, voice and data services active in occupied areas as may be required due to work.

## **1.10 LIGHTING**

- .1 Existing and new light fixtures may be used for construction purposes provided that guarantee are not affected and units damaged by work are replaced at no cost to Departmental Representative. Replace lamps which have been used for over a 3 month period.

## **1.11 WATER SUPPLY**

- .1 Water supply is available on site and will be provided for construction usage at no cost.

## **1.12 SCAFFOLDING**

- .1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CAN/CSA-S269.2-M87 (R1998) .
- .2 Erect scaffolding independent of walls. Remove when no longer required.

## **1.13 HEATING AND VENTILATING**

- .1 Use of direct-fired heaters discharging waste products into work areas will not be permitted unless prior approval is given by Departmental Representative.
- .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°C or higher where specified as soon as finishing work is commenced and maintain until acceptance of structure by Departmental Representative.

- .4 Maintain ambient temperature and humidity levels as required for comfort of office personnel.
- .5 Ventilating:
  - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
  - .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.
- .6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1 Conform to 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.

#### **1.14 CONSTRUCTION SIGNS AND NOTICES**

- .1 Contractor or subcontractor advertisement signboards are not permitted on site.
- .2 Safety and Instruction Signs and Notices:
  - .1 Signs and notices for safety and instruction shall be in both official languages. Graphic symbols shall conform to CAN3-Z321-95 .
- .3 Maintenance and Disposal of Site Signs:
  - .1 Maintain approved signs and notices in good condition for duration of project.

#### **1.15 REMOVAL OF TEMPORARY FACILITIES**

- .1 Not applicable.

**END OF SECTION**

**Part 1        General**

**1.1            REFERENCES**

- .1        Canadian Construction Documents Committee (CCDC)
  - .1        CCDC 2-2008, Stipulated Price Contract.
- .2        Within text of each specifications section, reference may be made to reference standards.
- .3        Conform to these reference standards, in whole or in part as specifically requested in specifications.

**1.2            QUALITY**

- .1        Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended.
  - .1        If requested, furnish evidence as to type, source and quality of products provided.
- .2        Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition.
  - .1        Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3        Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections.
  - .1        Inspection does not relieve responsibility, but is precaution against oversight or error.
  - .2        Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4        Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5        Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6        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.

**1.3            AVAILABILITY**

- .1        Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items.

- .1 If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

#### **1.4 STORAGE, HANDLING AND PROTECTION**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact.
  - .1 Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .5 Store and mix paints in heated and ventilated room.
  - .1 Remove oily rags and other combustible debris from site daily.
  - .2 Take every precaution necessary to prevent spontaneous combustion.
- .6 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .7 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction.
  - .1 Use touch-up materials to match original.
  - .2 Do not paint over name plates.

## **1.5 TRANSPORTATION**

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative.
  - .1 Unload, handle and store such products.

## **1.6 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in the specifications, install or erect products in accordance with manufacturer's instructions.
  - .1 Do not rely on labels or enclosures provided with products.
  - .2 Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

## **1.7 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed.
  - .1 Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties.
  - .1 Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

## **1.8 COORDINATION**

- .1 Ensure cooperation of workers in laying out Work.
  - .1 Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

## **1.9 CONCEALMENT**

- .1 Unless otherwise indicated, conceal pipes, ducts and electrical cables in floors, walls and ceilings of parts and finished areas.
- .2 Prior to conceal items; inform the Departmental Representative of any unusual situation.
  - .1 Do the installation as directed by the authority having jurisdiction.

## **1.10 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable.
  - .1 Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected.
  - .1 Perform in a manner to neither damage nor put at risk any portion of Work.

## **1.11 LOCATION OF FIXTURES**

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

## **1.12 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage.
- .5 Wood, or any other organic material plugs are not acceptable.
- .6 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .7 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

**1.13 FASTENINGS - EQUIPMENT**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Bolts may not project more than one diameter beyond nuts.
- .3 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur.
  - .1 Use resilient washers with stainless steel.

**1.14 PROTECTION OF WORK IN PROGRESS**

- .1 Prevent overloading of parts of building.
- .2 Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

**1.15 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services, execute Work at times directed by Departmental Representative, with minimum of disturbance to Work, and/or building occupants.
- .2 Protect, relocate or maintain existing active services.
  - .1 When services are encountered, cap off in manner approved by authority having jurisdiction.

**END OF SECTION**

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**Part 1        General**

**1.1            REFERENCES**

- .1        Canadian Construction Documents Committee (CCDC)
  - .1        CCDC 2-2008, Stipulated Price Contract.

**1.2            EXISTING SERVICES**

- .1        Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
- .2        Remove abandoned service lines within 2 m of structures.
  - .1        Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

**1.3            LOCATION OF EQUIPMENT AND FIXTURES**

- .1        Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .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 of impending installation and obtain approval for actual location.
- .4        Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

**1.4            RECORDS**

- .1        Maintain a complete, accurate log of control and survey work as it progresses.
- .2        Record locations of maintained, re-routed and abandoned service lines.

**END OF SECTION**

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**Part 1            General**

**1.1                SUBMITTALS**

- .1        Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit written request in advance of cutting or alteration which affects:
  - .1        Structural integrity of elements of project.
  - .2        Integrity of weather- exposed or moisture- resistant elements.
  - .3        Efficiency, maintenance, or safety of operational elements.
  - .4        Visual qualities of sight- exposed elements.
  - .5        Work of Owner or separate contractor.
- .3        Include in request:
  - .1        Identification of project.
  - .2        Location and description of affected Work.
  - .3        Statement on necessity for cutting or alteration.
  - .4        Description of proposed Work, and products to be used.
  - .5        Alternatives to cutting and patching.
  - .6        Effect on Work of Owner or separate contractor.
  - .7        Written permission of affected separate contractor.
  - .8        Date and time work will be executed.

**1.2                MATERIALS**

- .1        Required for original installation.

**1.3                PREPARATION**

- .1        Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2        After uncovering, inspect conditions affecting performance of Work.
- .3        Beginning of cutting or patching means acceptance of existing conditions.
- .4        Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

**1.4 EXECUTION**

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Restore work with new products in accordance with requirements of Contract Documents.
- .8 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .9 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.
- .10 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .11 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

**1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

**END OF SECTION**

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**Part 1            General**

**1.1                REFERENCES**

- .1            Canadian Construction Documents Committee (CCDC)
  - .1            CCDC 2-2008, Stipulated Price Contract.
- .2            Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

**1.2                PROJECT CLEANLINESS**

- .1            Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by other Contractors.
- .2            Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative.
- .3            Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4            Provide on-site containers for collection of waste materials and debris.
- .5            Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .6            Provide adequate ventilation during use of volatile or noxious substances.
  - .1            Use of building ventilation systems is not permitted for this purpose.
- .7            Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .8            Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

### 1.3 FINAL CLEANING

- .1 Refer to CCDC 2, GC 3.13.
- .2 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste products and debris including that caused by other Contractors.
- .6 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative.
- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .8 Clean and polish glass.
  - .1 Replace broken, scratched or disfigured glass.
- .9 As a result of Work:
  - .1 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
  - .2 Clean lighting reflectors, lenses, and other lighting surfaces.
  - .3 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
  - .4 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
  - .5 Thoroughly clean equipment and appliances, and clean or replace filters of mechanical systems.
  - .6 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.7 General Cleaning

- .1 Clean all existing aluminum framing inside and out.
- .2 Clean interior surfaces prior to painting.

**1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**END OF SECTION**

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**Part 1            General**

**1.1                WASTE MANAGEMENT GOALS**

- .1    Prior to start of Work conduct meeting with Departmental Representative to review and discuss Waste Management Plan and Goals.
- .2    Accomplish maximum control of solid construction waste.
- .3    Preserve environment and prevent pollution and environment damage.

**1.2                DEFINITIONS**

- .1    Class III: non-hazardous waste - construction renovation and demolition waste.
- .2    Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .3    Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .4    Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1    Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
  - .2    Returning reusable items including pallets or unused products to vendors.
- .5    Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .6    Separate Condition: refers to waste sorted into individual types.
- .7    Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials.

**1.3                SUBMITTALS**

- .1    Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Prepare and submit following prior to project start-up:
  - .1    Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B, see Article 3.4.

**1.4                WASTE REDUCTION WORKPLAN (WRW)**

- .1    Prepare WRW prior to project start-up.

- .2 WRW should include but not limited to:
  - .1 Destination of materials listed.
  - .2 Schedule for deconstruction/disassembly.
  - .3 Location.
  - .4 Security.
  - .5 Protection.
  - .6 Clear labelling of storage areas.
  - .7 Details on materials handling and removal procedures.
- .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .4 Describe management of waste.
- .5 Post WRW or summary where workers at site are able to review content.
- .6 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.

## **1.5 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)**

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
  - .1 Transport to approved and authorized recycling facility or to users of material for recycling.
- .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.

## **1.6 STORAGE, HANDLING AND PROTECTION**

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified otherwise, materials for removal becomes Contractor's property.

- .3 Separate non- salvageable materials from salvaged items.
  - .1 Transport and deliver non- salvageable items to licensed disposal facility.
- .4 Protect structural components not removed for demolition from movement or damage.
- .5 Support affected structures.
  - .1 If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .6 Separate and store materials produced during dismantling of structures in designated areas.
- .7 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
  - .1 On-site source separation is recommended.
  - .2 Remove co-mingled materials to off-site processing facility for separation.

## **1.7 DISPOSAL OF WASTES**

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste volatile materials mineral spirits oil paint thinner into waterways, storm, or sanitary sewers.
- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

### **Part 2 Products**

#### **2.1 NOT USED**

- .1 Not Used.

### **Part 3 Execution**

#### **3.1 APPLICATION**

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

### 3.2 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

### 3.3 DIVERSION OF MATERIALS

- .1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative and consistent with applicable fire regulations.
  - .1 Mark containers or stockpile areas.
  - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged recovered reusable recyclable materials is not permitted.

### 3.4 WASTE REDUCTION WORKPLAN (WRW)

- .1 Schedule B:

Material Category	Material(s) Destination
Wood and Plastics Material Description	
Wood	
Plastic	
Card- board Packaging	
Other	
Doors and Windows Material Description	
Painted Frames	
Glass	
Wood	
Metal	
Other	

- .2 Contractor is to provide an estimate of waste diversion. 50% of construction and demolition waste is to be recycled or salvaged.
- .3 Contractor to provide diversion strategies including whether materials will be separated or comingled.
- .4 Contractor to provide a list of materials targeted for diversion and the approximate percentage of the overall project waste that these materials represent.
- .5 Contractor to indicate where the materials will be taken and how the recycling facility will process them.

**END OF SECTION**

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**Part 1      General**

**1.1      REFERENCES**

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.

**1.2      ADMINISTRATIVE REQUIREMENTS**

- .1 Acceptance of Work Procedures:
  - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
    - .2 Request Departmental Representative's inspection.
  - .2 Departmental Representative's Inspection:
    - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
    - .2 Contractor to correct Work as directed.
  - .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
    - .1 Work: completed and inspected for compliance with Contract Documents.
    - .2 Defects: corrected and deficiencies completed.
    - .3 Equipment and systems: tested, adjusted and fully operational.
    - .4 Operation of systems: demonstrated to Owner's personnel.
    - .5 Work: complete and ready for final inspection.
  - .4 Final Inspection:
    - .1 When completion tasks are done, request final inspection of Work by Departmental Representative and Contractor.
    - .2 When Work is incomplete according to Owner and Departmental Representative, complete outstanding items and request re- inspection.
  - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
  - .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
  - .7 Final Payment:
    - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
  - .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

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**1.3 FINAL CLEANING**

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

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**Part 1            General**

**1.1                ADMINISTRATIVE REQUIREMENTS**

- .1 Pre-warranty Meeting:
  - .1 Convene meeting one week prior to contract completion with Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:
    - .1 Verify Project requirements.
    - .2 Review manufacturer's installation instructions and warranty requirements.
  - .2 Departmental Representative to establish communication procedures for:
    - .1 Notifying construction warranty defects.
    - .2 Determine priorities for type of defects.
    - .3 Determine reasonable response time.
  - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
  - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.
- .5 Complete and submit required documents for Green Globes 3 Leaf Level certification.

**1.3                FORMAT: OPERATIONS AND MAINTENANCE MANUAL**

- .1 Building Name: GOCB Moncton  
Project Name: CSC 2<sup>nd</sup> Floor Tenant Fit-Up, GOCB, Moncton.
- .2 The commissioning process requires detailed O&M documentation as identified in the project specifications.
- .3 **\*Initial Review of O&M manuals must take place 2 weeks prior to Substantial Completion or training\***

- .4 The contractor shall compile O&M manuals for every piece of equipment and building operating or electrical system being commissioned and as required by the project specifications with the following format:
- .5 Binder:
- .1 Must be in a "D" Ring binder no larger than 50 mm and no more than 2/3 full.
- .2 The binder must be labeled on the front cover and on the binder edge with the following information:
- .1 Building Name
- .2 Address
- .3 Project Name
- .4 Project Number
- .5 Completed Date i.e. October 2017
- .6 Submitted By
- .3 Dividers with permanently marked tabs shall separate each section and sub section.
- .4 Tab labels shall not be hand written.
- .5 Four (4) copies are required.
- .6 An electronic format that is compatible with the Owner's system is required.
- .7 If the binder is one of many for the project, the volume must be noted i.e. Volume 1 of 3.
- .8 **Title Page:** To read: O&M Manual for  
CSC 2<sup>nd</sup> Floor Tenant Fit-Up, GOCB, Moncton. Date.....
- .9 **Project Information Page:**  
CSC 2<sup>nd</sup> Floor Tenant Fit-Up, GOCB, Moncton. Date.....  
Principal contractor's information: Name  
Address  
Phone numbers  
Departmental Representatives: Names  
Addresses  
Phone numbers.
- .10 **Table of Contents:**
- .1 Table of contents of first binder to include all sections in all binders. (volumes).
- .2 Each binder shall contain a table of contents for that binder.
- .3 Sections are to be as follows;
- A - Warranties
- .1 To include:
- .1 Signed Letter of warranty' for each piece of equipment carrying a warranty.
- .2 General contractor to provide a "letter of Warranty" to cover workmanship as defined in the specification.
- .2 Warranties to be:
- .1 Dated
- .2 Project to be identified by name
- .3 Project number

- .4 Location
- .5 Warranty period.
- .3 Any extended warranty of equipment only must be identified.
  
- B - Contact information
  - .1 For all sub-contractors & suppliers.
  
- C - Reports
  - .1 To include:
    - .1 Copy of all TAB reports,
    - .2 Pre-functional tests,
    - .3 Start-up reports,
    - .4 Functional test reports,
    - .5 Completed performance verification forms,
    - .6 Cabling verifications,
    - .7 ESA (Electronic Systems Associate) certification,
    - .8 Pressure vessel certification,
    - .9 Fire alarm certifications
    - .10 All other required certifications required by the National Building Code or Provincial Regulations.
  
  - .2 Reports to be organized together by piece of equipment i.e. TAB, pre-functional, start-up, etc to be together for a specific piece of equipment.
  
- D – As built drawings
  
- E – Sequence of operation
  - .1 Outline how the system is designed to work.
  
- F – CMMS Data Sheets
  - .1 All equipment which is to be deleted, removed, added or replaced from site is to have a CMMS inventory sheet completed and included in the O&M manual. See attached form.
  
  - .2 If this equipment is a pressure vessel and is included in the annual inspection, the certification tag that is attached to the equipment must be removed prior to demolition and forwarded to the commissioning manager.

G, H, I ...

- .1 Tab for each piece of new equipment to include:
  - .1 Copy of approved shop drawing – all drawings must note which model has been installed if several are shown on one sheet
  - .2 Copy of Specific Service and Maintenance manual for each.

Last Tab:

- .1 Misc.

#### 1.4 SITE DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store documents and samples in field office apart from documents used for construction.
  - .1 Provide files, racks, and secure storage.
- .3 Label documents and file in accordance with Section number listings in List of Contents of this Project Manual.

#### 1.5 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 After award of Contract, Departmental Representative will provide 2 sets of white print drawings for the purpose of maintaining As-Built information.
- .2 Use red ink pens, accurately and neatly record As-Built information.
- .3 Identify drawings as "Project AS-BUILT Copy" and keep separate from set used by site superintendent for construction.
  - .1 Do not use As-Built documents for construction purposes.
- .4 Maintain in new condition, clean, dry and legible and make available for inspection on site, and at all job meetings, by Departmental Representative.
- .5 Record information concurrently with construction progress.
  - .1 Do not conceal Work until required information is recorded.
- .6 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Deviations from the Contract Documents caused by site conditions.

- .2 Record locations of concealed components of mechanical and electrical services.
- .3 Field changes of dimension and detail.
- .4 Changes made by change orders.
- .5 Details not on original Contract Drawings.
  
- .7 Specifications: mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.
  
- .8 Other Documents: maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.
  
- .9 Provide digital photos, if requested, for site records.
  
- .10 On completion of Work and prior to Interim inspection, submit As-Built documents to the Departmental Representative for preparation of "RECORD" Drawings

## **1.6 MATERIALS AND FINISHES**

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
  - .1 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 DELIVERY, STORAGE AND HANDLING**

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
  
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
  
- .3 Store components subject to damage from weather in weatherproof enclosures.
  
- .4 Store paints and freezable materials in a heated and ventilated room.

- .5 Remove and replace damaged products at own expense and for review by Departmental Representative.

## **1.8 WARRANTIES AND BONDS**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative's approval.
- .3 Warranty management plan to include required actions and documents to assure that the Owner receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative's for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 11 month warranty inspection, measured from time of acceptance, by the Departmental Representative.
- .9 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
  - .2 Provide list for each warranted equipment, item, feature of construction or system indicating:
    - .1 Name of item.
    - .2 Model and serial numbers.
    - .3 Location where installed.

- .4 Name and phone numbers of manufacturers or suppliers.
- .5 Names, addresses and telephone numbers of sources of spare parts.
- .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
- .7 Cross-reference to warranty certificates as applicable.
- .8 Starting point and duration of warranty period.
- .9 Summary of maintenance procedures required to continue warranty in force.
- .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
- .11 Organization, names and phone numbers of persons to call for warranty service.
- .12 Typical response time and repair time expected for various warranted equipment.
- .3 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.
- .4 Procedure and status of tagging of equipment covered by extended warranties.
- .5 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
  - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED SECTIONS**

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

### **1.2 BACKGROUND INFORMATION**

- .1 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.
- .2 Commissioning to occur during the construction stage and the early period of facility occupancy stage.

### **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 to:
  - .1 Verify whether the fully installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and;
  - .2 Ensure that appropriate documentation is compiled to effectively train O& M staff and prepare a comprehensive Building Management Manual (BMM).
- .3 Commission (i.e., to commission a building component or system): tests and checks conducted by Commissioning Agent on all systems and integrated systems of Facility; carried out only after they are fully installed, functional and Contractor's Performance Verification responsibilities 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.

- .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: an appointed person, representing the Departmental Representative, responsible for the development of a Commissioning Plan and managing its implementation by overseeing and coordinating various activities and responsibilities to be performed by members of the Commissioning Team.
  - .1 In this project, the Commissioning Agent is part of the engineering consultant firm engaged by PWGSC to prepare the final design and contract documents for this Work.
  - .2 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.
  - .1 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.
  - .2 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. The Contractor is responsible for the performance of their subcontractors.
  - .3 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.
  - .4 Design Criteria: All those factors included in the design of a Facility prescribed by the tenant needs or as determined by the Design Consultant as necessary in order to meet all Facility functional and user operational requirements.
  - .5 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.
  - .6 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.
  - .7 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.
  - .8 Use Checklist sheets for all equipment installation. Document in writing on checklist the various checks made, deficiencies noted and corrective action taken.
  - .9 Installer to sign Checklist sheets upon completion, certifying that stated checks and inspections have been performed.

- .10 Use of Installation/Start-up Checklists is not considered part of the commissioning process but will be stringently used for all equipment pre-start and start-up procedures.
- .11 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.
- .12 Submit blank forms to Commissioning Agent before performing start-up. Sample forms may be used to develop equipment specific forms.
- .6 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.
  - .2 Facility components and systems will not be commissioned by Commissioning Agent until performance verification has been completed and approved.
- .7 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. Equipment specific forms will be issued by Commissioning Agent after shop drawing review.
- .8 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 COMMISSIONING OBJECTIVES**

- .1 A Commissioning Plan has been prepared by the Commissioning Agent, on behalf of PWGSC, which identifies, among other issues, specific commissioning activities to be carried out by the commissioning team during the Construction 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 Facilitate the 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 8 below.
- .4 Commissioning activities performed by the Commissioning Agent and the Design Consultant 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.

## **1.5 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 Computer Room AC systems (CRAC-#)
  - .2 Air Handling Systems
  - .3 Heating Controls
  - .4 Plumbing Fixtures
  - .5 Fire Dampers
  - .6 TAB
  - .7 Branch Circuit Panelboards
  - .8 Disconnects - Fused and Unfused
  - .9 Dry-Type Transformers
  - .10 Emergency Lighting Battery Unit
  - .11 Exit Sign
  - .12 Lighting
  - .13 Fire Alarm
  - .14 Generator
  - .15 Wiring Devices

## **1.6 COMMISSIONING TEAM**

- .1 A commissioning team will be assembled to carryout various functions needed to effectively commission the Facility. Contractor will be part of this team with duties and responsibilities as specified in this section and in other sections of the Specifications.

## **1.7 CONTRACTOR'S COMMISSIONING ACTIVITIES**

- .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 herein.
  - .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.
  - .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 un-functional 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.
  - .8 Prior to Facility being Commissioned:
    - .1 Submit commissioning documentation as specified in clause 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.
    - .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.
- .9 When Facility is being Commissioned:
- .1 Provide qualified tradespersons to be present at site to assist Commissioning Agent.
  - .2 Assist in commissioning systems specified and as follows:
    - .1 Operate designated building component, mechanical/electrical equipment and system 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 integrated 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 or heating loads, duplicating outside temperature conditions, fire alarm and power failure conditions).
    - .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.
    - .5 Run component or systems as long as necessary to effectively commission all items as deemed required by Commissioning Agent and Departmental Representative.
    - .6 Monitor equipment and system responses.
    - .7 Record test results, measurements and other data on commissioning forms provided by Commissioning Agent.
    - .8 Assist in analyzing results. Identify system deficiencies and components not responding as intended.
    - .9 Correct deficiencies and system non-conformance issues. Adjust, calibrate or fine tune system components as required. Debug system software as may be required.
    - .10 Retest systems when directed to confirm compliance.
- .10 Upon completion of Facility Commissioning:
- .1 Provide training to maintenance & operational personnel as specified.
  - .2 Turn over any filled-in checks sheets or reports resulting from commissioning.

## **1.8 COMMISSIONING ACTIVITIES OF OTHER TEAM MEMBERS**

- .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 (referred to as the "Departmental Representative" throughout the technical sections):
  - .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.
  - .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 analyzing 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.
  - .5 Facility Operations and Maintenance Staff:
  - .6 Participates in the commissioning process to obtain early introduction to the facility systems and to provide early operator feedback.
  - .7 Prime interest is in the familiarization and training of appropriate maintenance staff.

- .8 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.
- .9 Attends commissioning meetings periodically, depending on issues being discussed.
- .10 Identifies the appropriate staff which must receive the O & M training.

## **1.9 COMMISSIONING MEETINGS**

- .1 General briefing on commissioning will be conducted 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.
- .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 Whenever possible meetings will be held immediately following the construction meetings.
- .4 Meeting will be chaired by Contractor, who will record and distribute minutes.
- .5 Confirm all subcontractors and relevant manufacturer representatives are present at meetings as deemed required.

## **1.10 COMMISSIONING SCHEDULE**

- .1 Address commissioning activities within the construction work schedule. Clearly identify allocated time period for commissioning and training activities.
- .2 Develop commissioning schedule in conjunction with Commissioning Agent. Indicate allocated time period and anticipated dates for:
  - .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.
- .3 Submit schedule to Departmental Representative for review.

### **1.11 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 on all new equipment, sub-systems, systems and integrated systems.
- .4 Carry out 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 giving general outline of each system design and intended function.
- .7 Submit training manuals for review two (2) weeks prior to actual training.
- .8 Keep required tools and O&M Manual 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 checklists 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.

### **1.12 COMMISSIONING DOCUMENTATION**

- .1 Submit the following documentation for use during 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.
- .2 Completed Installation/Start-up Checklist 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 and Design Consultant will compile above documentation and produce a BMM manuals for operation/maintenance staff and tenant use.

## **PART 2 - PRODUCTS**

### **2.1 NOT USED**

- .1 Not applicable.

## **PART 3 - EXECUTION**

### **3.1 3.1 NOT USED**

- .1 Not applicable.

**END OF SECTION**