

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1 Documents.
- .2 Description of the Work.
- .3 Contract method.
- .4 Documents provided.
- .5 Performance of the Work.
- .6 Work sequence.
- .7 City supplied Products.
- .8 Contractor use of premises.

**1.2                RELATED DOCUMENTS**

- .1 Agreement, General Conditions, and Supplementary Conditions.
- .2 Other Division 1 specification sections.
- .3 This section describes requirements applicable to all Sections within Divisions 02 to 49.

**1.3                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. Should any discrepancy appear between documents which leaves doubt as to the intent or meaning, abide by Precedence of Documents listed in the General Conditions or obtain direction from the Contract Administrator.
- .2 Drawings indicate general location and route 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. Conflicts or additional work beyond work described to be brought to attention of Contract Administrator.

#### **1.4 DESCRIPTION OF THE WORK**

- .1 Work of this Contract comprises general construction of East District Police Station, located at 1750 Dugald Road Winnipeg, Manitoba; and identified as East District Police Station.
- .2 Division of the Work among other contractors Subcontractors suppliers or vendors is solely the Contractor's responsibility. The City assumes no responsibility to act as an arbiter to establish subcontract terms between sectors or disciplines of work.

#### **1.5 CONTRACT METHOD**

- .1 Contract Documents were prepared by the Consultant for the City. Any use which a third party makes of the Contract Documents, or any reliance on or decisions to be made based on them, are the responsibility of such third parties. The Consultant accepts no responsibility for damages, suffered by any third party as a result of decisions made or actions based on the Contract Documents.

#### **1.6 DOCUMENTS PROVIDED**

- .1 The City will supply the Contractor with thirty (30) sets of Contract Documents for construction purposes which includes two (2) sets for record As-built@ purposes.
- .2 The Contractor may obtain additional sets of Contract Documents at the cost of printing, handling and shipping.
- .3 An electronic set of documents will be provided near the end of the Project for purposes of transferring changed information recorded on as-built documents to the electronic record documents.

#### **1.7 SPECIFICATION GRAMMAR**

- .1 Specifications are written in the imperative mood, in an abbreviated form.
- .2 The imperative language of the technical sections is directed to the Contractor, unless specifically noted otherwise.
  - .1 This form of statement requires the Contractor to perform such action or work.
  - .2 Perform all requirements whether stated imperatively or otherwise.

#### **1.8 PERFORMANCE OF THE WORK**

- .1 Substantial Performance of the Work is required for City occupancy as stated in the General Conditions.

#### **1.9 WORK SEQUENCE**

- .1 Construct Work in stages phases to accommodate City's usage requirements during the construction period, coordinate construction schedule and operations with City and Contract Administrator.
- .2 Coordinate Progress Schedule and with Contract Administrator use during construction.

- .3 Maintain fire access and control of fire protection equipment.

**1.10 CITY-SUPPLIED PRODUCTS**

- .1 Obtain the necessary shop drawings from the City and proceed to coordinate details for installation, expedite, receive, unload, install, connect and test the specified equipment, and be responsible for warranty.
- .2 Equipment specifications for pre-purchased items are included at the end of the project specification, printed on blue paper for confirmation only.
- .3 Receive City-supplied Products and equipment F.O.B. and store and process Products and equipment until installation.
- .4 City Responsibilities:
  - .1 Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.
  - .2 Deliver supplier's bill of materials to Contractor.
  - .3 Arrange and pay for delivery to the Place of the Work in accordance with Progress Schedule.
  - .4 Inspect deliveries jointly with Contractor.
  - .5 Submit claims for transportation damage.
  - .6 Arrange for replacement of damaged, defective or missing items.
  - .7 Arrange for manufacturer's field services; arrange for and deliver manufacturer's warranties and bonds to Contractor.
- .5 Contractor Responsibilities:
  - .1 Designate submittals and delivery date for each product in progress schedule.
  - .2 Review shop drawings, product data, samples, and other submittals. Submit to Contract Administrator, notification of any observed discrepancies or problems anticipated due to non-conformance with Contract documents.
  - .3 Receive and unload products at site.
  - .4 Inspect deliveries jointly with City; record shortages, and damaged or defective items.
  - .5 Handle products at site, including uncrating and storage.
  - .6 Protect products from damage, and from exposure to elements.
  - .7 Assemble, install, connect, adjust, and finish products.
  - .8 Arrange for installation inspections required by public authorities.
  - .9 Repair or replace items damaged by Contractor or Subcontractor on site (under their control).
- .6 Schedule of City-supplied Products.
  - .1 .
  - .2 .

**1.11 CONTRACTOR USE OF PREMISES**

- .1 Contractor has unrestricted use of site until Substantial Performance of the Work .

**1.12 USE OF PREMISE BEFORE ACCEPTANCE**

- .1 The City shall have the right to enter and occupy the building in whole or in part for the purpose of placing fittings and equipment or for other use before completion of the Work; if in the opinion of the Contract Administrator such entry and occupation does not prevent or interfere with the Contractor in the performance of the Work within the time specified.
- .2 Such entry and occupation shall not be considered as acceptance or in any way relieve the Contractor from his responsibility to complete the work.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Scheduled progress, start up meetings.
- .2        Documents.
- .3        Close out procedures.

**1.2                RELATED SECTIONS**

- .1        Section 01 32 00 - Construction Progress Documentation
- .2        Section 01 33 00 - Submittal Procedures.

**1.3                COORDINATION**

- .1        Perform coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction Work.

**1.4                CONTRACTOR PROJECT MEETINGS**

- .1        Schedule and administer bi-weekly project meetings throughout progress of Work as determined by Contract Administrator.
- .2        Prepare agenda for meetings.
- .3        Distribute written notice of each meeting four days in advance of meeting date to Contract Administrator and City .
- .4        Provide physical space and make arrangements for meetings.
- .5        Preside at meetings.
- .6        Record minutes. Include significant proceedings and decisions. Identify action by parties.
- .7        Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, affected parties not in attendance, Contract Administrator and City.

**1.5                CONSTRUCTION ORGANIZATION AND START-UP**

- .1        Within fifteen (15) days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2        Senior representatives of the City, Contract Administrator, Contractor, major Subcontractors, field inspectors and supervisors are to be in attendance.
- .3        Establish time and location of meeting and notify parties concerned minimum five (5) days before meeting.

- .4 Agenda to include following:
  - .1 Appointment of official representative of participants in Work.
  - .2 Schedule of Work, progress scheduling in accordance with Section 013200.
  - .3 Schedule of submission of shop drawings, samples, colour chips in accordance with Section 013300.
  - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences.
  - .5 Delivery schedule of specified equipment in accordance with Section 013200.
  - .6 Site safety and security.
  - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
  - .8 City-furnished Products.
  - .9 Record drawings in accordance with Section 017840.
  - .10 Maintenance material and data in accordance with Section 017840.
  - .11 Take-over procedures, acceptance, and warranties in accordance with Section 017840.
  - .12 Monthly progress claims, administrative procedures, photographs, and holdbacks.
  - .13 Appointment of inspection and testing agencies or firms.
  - .14 Insurances and transcript of policies.
- .5 Comply with Contract Administrator's allocation of mobilization areas of site; for field offices and sheds, for , access, traffic, and parking facilities.
- .6 During construction, coordinate use of site and facilities through Contract Administrator's procedures for intra-project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.
- .7 Comply with instructions of Contract Administrator for use of temporary utilities and construction facilities.
- .8 Coordinate field engineering and layout work with Contract Administrator.

## **1.6 ON-SITE DOCUMENTS**

- .1 Maintain at job site, one copy each of the following:
  - .1 Contract drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed shop drawings.
  - .5 Change orders.
  - .6 Other modifications to Contract.
  - .7 Field test reports.
  - .8 Copy of approved Work schedule.
  - .9 Manufacturers' installation and application instructions.

## **1.7 SCHEDULES**

- .1 Submit preliminary construction progress schedule in accordance with Section 013200 - Construction Progress Documentation to Contract Administrator coordinated with Contract Administrator's project schedule.
- .2 After review, revise and resubmit schedule to comply with revised project schedule.
- .3 During progress of Work revise and resubmit as directed by Contract Administrator.

## **1.8 CONSTRUCTION PROGRESS MEETINGS**

- .1 During course of Work schedule progress meetings monthly .
- .2 Contractor, major subcontractors involved in Work and Contract Administrator and City are to be in attendance.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .5 Agenda to include 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 Maintenance of quality standards.
  - .11 Review proposed changes for affect on construction schedule and on completion date.
  - .12 Review site safety and security issues.
  - .13 Other business.

## **1.9 SUBMITTALS**

- .1 Prepare and issue submittals to Contract Administrator for review.
- .2 Submit requests for payment for review, and for transmittal to Contract Administrator.
- .3 Submit requests for interpretation of Contract Documents, and obtain instructions through Contract Administrator.
- .4 Process substitutions through Contract Administrator.

- .5 Process change orders through Contract Administrator.
- .6 Deliver closeout submittals for review and preliminary inspections, for transmittal to Contract Administrator.

**1.10 COORDINATION DRAWINGS**

- .1 Provide information required by Contract Administrator for preparation of coordination drawings.
- .2 Review and approve revised drawings for submittal to Contract Administrator.

**1.11 CLOSEOUT PROCEDURES**

- .1 Prior to application for Certificate of Substantial Performance, the Contractor shall carefully inspect the Work and ensure that it is complete, that major and minor construction deficiencies are complete and/or corrected and that the building is clean and in condition for occupancy.
- .2 Notify Contract Administrator in writing, when Work is considered ready for Substantial Performance.
- .3 Accompany Contract Administrator on preliminary inspection to determine items listed for completion or correction. During the Contract Administrators inspection, a list of deficiencies will be tabulated and signed by the Contract Administrator.
- .4 Comply with Contract Administrator's instructions for correction of items of Work listed.
- .5 When the Contract Administrator considers that all deficiencies have been corrected and that it appears the requirements of the Contract have been performed including delivery of operation and maintenance manuals, make application for Certificate of Substantial Performance. Refer to The Builder's Lien Act for specifics to application.

**END OF SECTION**



**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Schedules, form, content, submission.
- .2        Critical path scheduling.

**1.2                RELATED SECTIONS**

- .1        Section 013300 - Submittal Procedures.

**1.3                SCHEDULES**

- .1        Schedule Submission
  - .1        Submit initial format of schedules within 10 working days after award of Contract.
  - .2        Submit one (1) () opaque reproduction, plus two (2) copies to be retained by Contract Administrator.
  - .3        Contract Administrator will review schedule and return review copy within 10 days after receipt.
  - .4        Resubmit finalized schedule within 7 days after return of review copy.
  - .5        Submit revised progress schedule with each application for payment.
  - .6        Distribute copies of revised schedule to:
    - .1        Job site office.
    - .2        Subcontractors.
    - .3        Other concerned parties.
  - .7        Instruct recipients to report to Contractor within 10 days, any problems anticipated by timetable shown in schedule.

**1.4                CONSTRUCTION PROGRESS SCHEDULING**

- .1        Submit initial schedule in duplicate within fifteen (15) days after date of City-Contractor Agreement.
- .2        Revise and resubmit as required.
- .3        Submit revised schedules with each Application for Payment, identifying changes since previous version.
- .4        Submit a computer generated horizontal bar chart with separate line for each major portion of Work or operation, identifying first work day of each week.
- .5        Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- .6        Indicate estimated percentage of completion for each item of Work at each submission.

- .7 Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by City and required by Allowances.
- .8 Include dates for commencement and completion of each major element of construction.
- .9 Indicate projected percentage of completion of each item as of first day of month.
- .10 Indicate progress of each activity to date of submission schedule.
- .11 Indicate changes occurring since previous submission of schedule:
  - .1 Major changes in scope.
  - .2 Activities modified since previous submission.
  - .3 Revised projections of progress and completion.
  - .4 Other identifiable changes.
- .12 Provide a narrative report to define:
  - .1 Problem areas, anticipated delays, and impact on schedule.
  - .2 Corrective action recommended and its effect.
  - .3 Effect of changes on schedules of other prime contractors.

## **1.5 CASH FLOW SCHEDULE**

- .1 The Contractor shall provide a schedule showing the anticipated monthly cash requirement for the work. The cash amounts shall be carefully estimated to reflect as accurate a forecast as possible.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1      Shop drawings and product data.
- .2      Samples.
- .3      Certificates and transcripts.

**1.2                RELATED SECTIONS**

- .1      Section 013200 - Construction Progress Documentation.
- .2      Section 017810 - Closeout Submittals.

**1.3                ADMINISTRATIVE**

- .1      Submit to Contract Administrator submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2      Work affected by submittal shall not proceed 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 manufactured or produced in SI Metric units, converted values within the metric measurement tolerances are acceptable.
- .5      Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.
- .6      Submittals not stamped, signed, dated, identified as to specific project, and attesting to their being reviewed will be returned without being examined and shall be considered rejected.
- .7      Notify Contract Administrator, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8      Verify field measurements and affected adjacent Work are coordinated.
- .9      Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
- .10     Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator review.
- .11     Keep one reviewed copy of each submission on site.

#### **1.4 SHOP DRAWINGS AND PRODUCT DATA**

- .1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .2 Allow ten (10) days for Contract Administrator's review of each submission.
- .3 Adjustments made on shop drawings by Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Contract Administrator prior to proceeding with Work.
- .4 Make changes in shop drawings as Contract Administrator may require, consistent with Contract Documents. When resubmitting, notify Contract Administrator in writing of any revisions other than those requested.
- .5 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .6 Submissions shall include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 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 other parts of the Work.
- .7 After Contract Administrator's review, distribute copies.
- .8 Submit six (6) prints of shop drawings for each requirement requested in specification Sections or one (1) set of 11" x 17" size or smaller and as Contract Administrator may reasonably request.
- .9 Submit one (1) copy of product data sheets or brochures for requirements requested in specification sections and as requested by Contract Administrator where shop drawings will not be prepared due to standardized manufacture of product.
- .10 Delete information not applicable to project.
- .11 Supplement standard information to provide details applicable to project.
- .12 If upon review by Contract Administrator, no errors or omissions are discovered or if only minor corrections are made, transparency will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and re-submission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

## **1.5 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 Contract Administrator's business address site office.
- .3 Notify Contract Administrator 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 Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Contract Administrator prior to proceeding with Work.
- .6 Make changes in samples which Contract Administrator 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.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Inspection and testing, administrative and enforcement requirements.
- .2        Tests and mix designs.
- .3        Mock-ups.
- .4        Mill tests.
- .5        Equipment and system adjust and balance.

**1.2                RELATED SECTIONS**

- .1        Section 01 45 00 - Quality Control
- .2        This section describes requirements applicable to all Sections within Divisions 02 to 49.

**1.3                INSPECTION BY AUTHORITY**

- .1        Allow Authorities Having Jurisdiction access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2        Give timely notice requesting inspection whenever portions of the Work are designated for special tests, inspections or approvals, either when described in the Contract Documents or when required by law in the Place of the Work.
- .3        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.

**1.4                REVIEW BY CONTRACT ADMINISTRATOR**

- .1        Contract Administrator may order any part of Work to be reviewed if Work is suspected to be not in accordance with Contract Documents.
- .2        If, upon review such work is found not in accordance with Contract Documents, correct such Work and pay cost of additional review and correction.
- .3        If such Work is found in accordance with Contract Documents, City Contract Administrator will pay cost of review and replacement.

**1.5                INDEPENDENT INSPECTION AGENCIES**

- .1        Independent Inspection and Testing Agencies will be engaged by City for purpose of inspecting and testing portions of Work. Cost of such services will be borne by City.
- .2        Provide equipment required for executing inspection and testing by appointed agencies.

- .3 Employment of inspection and 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 testing to ascertain full degree of defect. Correct defect and irregularities as advised by Contract Administrator at no cost to City. Pay costs for retesting and re-inspection.
- .5 Independent inspection will be carried out on the following areas / systems:
  - .1 Compaction testing.
  - .2 Concrete testing.
  - .3 Asphalt testing.
  - .4 Air/vapour barrier and air/vapour barrier and window connections.
  - .5 Membrane and sheet metal roofing.

## **1.6 ACCESS TO WORK**

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

## **1.7 PROCEDURES**

- .1 Notify appropriate agency and Contract Administrator in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay 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.

## **1.8 REJECTED WORK**

- .1 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 Contract Administrator as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, City may deduct from Contract Price the difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Contract Administrator.

**1.9 REPORTS**

- .1 Submit four (4) copies of inspection and test reports to Contract Administrator.
- .2 Provide copies to Subcontractor of work being inspected or tested manufacturer or fabricator of material being inspected or tested .

**1.10 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as may be requested.
- .2 The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work shall be appraised by Contract Administrator and may be authorized as recoverable.

**1.11 MOCK-UPS**

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.
- .2 Construct in all locations acceptable to Contract Administrator as specified in specific Section.
- .3 Prepare mock-ups for Contract Administrator's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 Remove mock-up at conclusion of Work or when acceptable to Contract Administrator.
- .6 Mock-ups may remain as part of Work.
- .7 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

**1.12 MILL TESTS**

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

**1.13 EQUIPMENT AND SYSTEMS**

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

**END OF SECTION**



**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Temporary utilities.

**1.2                RELATED SECTIONS**

- .1        Section 01 52 00 - Construction Facilities.
- .2        Section 01 53 00 - Temporary Construction.

**1.3                INSTALLATION AND REMOVAL**

- .1        Provide temporary utilities controls in order to execute work expeditiously.
- .2        Remove from site all such work after use.
- .3        This section describes requirements applicable to all Sections within Divisions 02 to 49.

**1.4                DEWATERING**

- .1        Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

**1.5                WATER SUPPLY**

- .1        Provide continuous supply of potable water for construction use.
- .2        Arrange for connection with appropriate utility company and pay all costs for installation, maintenance and removal.
- .3        Existing permanent water supply system may be used for construction requirements with prior approval of City provided that guarantees are not affected. Pay all costs and make good damage.

**1.6                TEMPORARY HEATING AND VENTILATION**

- .1        Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2        Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3        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.
- .4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .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 Permanent heating system of building, may be used when available. Be responsible for damage to heating system if use is permitted.
- .7 On completion of Work for which permanent heating system is used, replace filters.
- .8 Ensure date of Substantial Performance of the Work and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Contract Administrator.
- .9 Pay costs for maintaining temporary heat, when using permanent heating system.
- .10 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1 Conform with applicable codes and standards.
  - .2 Enforce safe practices.
  - .3 Prevent abuse of services.
  - .4 Prevent damage to finishes.
  - .5 Vent direct-fired combustion units to outside.
- .11 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

## **1.7 TEMPORARY POWER AND LIGHT**

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.
- .2 Arrange for connection with appropriate utility company. Pay all costs for installation, maintenance and removal.

- .3 Provide and pay for temporary power for electric cranes and other equipment requiring temporary power in excess of above noted requirements.
- .4 Provide and maintain temporary lighting throughout project. Ensure level of illumination is not less than 162 lx.
- .5 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Contract Administrator provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than three (3) months.

**1.8 TEMPORARY COMMUNICATION FACILITIES**

- .1 Provide and pay for temporary telephone fax data high speed internet hook up, lines and equipment necessary for own use and use of Contract Administrator.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1      Construction aids.
- .2      Office and sheds.
- .3      Parking.
- .4      Project identification.

**1.2                RELATED SECTIONS**

- .1      Section 01 51 00 - Temporary Facilities.
- .2      This section describes requirements applicable to all Sections within Divisions 02 to 49.

**1.3                REFERENCES**

- .1      CAN/CSA-Z321- 96: Signs and Symbols for the Occupational Environment.

**1.4                INSTALLATION AND REMOVAL**

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

**1.5                SCAFFOLDING**

- .1      Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs.

**1.6                HOISTING**

- .1      Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment.
- .2      Hoists and cranes shall be operated by qualified operator.

**1.7                SIGNS AND ADVERTISEMENTS**

- .1      No signs or advertising shall be allowed or displayed without the approval of the Contract Administrator and City.
- .2      This project will not be used to advertise or promote systems, construction or assembly methods, tools or equipment used and/or incorporated therein without written approval of the Contract Administrator and City.

**1.8                CONSTRUCTION PARKING**

- .1      Parking will provided it does not disrupt performance of Work.

- .2 Provide and maintain adequate access to project site.
- .3 Coordinate all access to site with City.
- .4 Build and maintain temporary roads where indicated or directed by Contract Administrator and provide snow removal during period of Work.
- .5 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.

## **1.9 OFFICES**

- .1 Provide office heated to 22 } degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide a clearly marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors may provide their own offices as necessary. Direct location of these offices.

## **1.10 STORAGE, HANDLING AND PROTECTION**

- .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.
- .3 Handle and store products in a manner to prevent damage, deterioration and soiling and in accordance with manufacturer's recommendations when applicable.
- .4 Store sensitive products in weather tight, climate controlled, enclosures in an environment favourable to Product.
- .5 Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- .6 Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- .7 Store cementitious materials clear of earth or concrete floors, and away from walls.
- .8 Remove and replace damaged products at own expense and to the satisfaction of the Contract Administrator

## **1.11 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities.

- .3 New permanent facilities may be used on approval of Contract Administrator.
- .4 Keep sanitary facilities clean and fully stocked with the necessary supplies at all times.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Site enclosure.
- .2        Guardrails and barriers.
- .3        Weather enclosures.
- .4        Dust tight barriers.
- .5        Protection for off-site and public property.
- .6        Protection of applied finishes and surrounding Work.

**1.2                RELATED SECTIONS**

- .1        Section 01 51 00 - Temporary Utilities.

**1.3                INSTALLATION AND REMOVAL**

- .1        Provide temporary controls in order to execute Work expeditiously.
- .2        Remove from site all such work after use.

**1.4                SITE ENCLOSURE**

- .1        Provide barriers to prevent unauthorized entry to construction and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- .2        Provide site enclosure as required by Contractor and by regulatory agencies. Security of the site, building contents and construction equipment is the responsibility of the Contractor.
- .3        Erect and maintain temporary enclosures and barricades to maintain the safety of the public and everyone on site.
- .4        Provide protection for plants designated to remain. Replace damaged plants.
- .5        Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

**1.5                GUARD RAILS AND BARRIERS**

- .1        Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2        Provide as required by governing authorities.

**1.6 WEATHER ENCLOSURES**

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

**1.7 DUST TIGHT BARRIERS**

- .1 Provide dust tight barriers and screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

**1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY**

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

**1.9 PROTECTION OF APPLIED FINISHES**

- .1 Provide protection for finished and partially finished surfaces and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Be responsible for damage incurred due to lack of or improper protection.

**1.10 PROTECTION OF SURROUNDING WORK**

- .1 Provide protection for finished and partially finished Work from damage.
- .2 Provide necessary cover and protection.
- .3 Be responsible for damage incurred due to lack of; improper or inappropriate protection.

**END OF SECTION**



**Part 1            General**

**1.1                SECTION INCLUDES**

- .1    Product quality, availability, storage, handling, protection, and transportation.
- .2    Manufacturer's instructions.
- .3    Quality of Work, coordination and fastenings.
- .4    Existing facilities.

**1.2                TERMINOLOGY**

- .1    New: Produced from new materials.
- .2    Re-newed: Produced or rejuvenated from an existing material to like-new condition to serve a new or existing service.
- .3    Defective: A condition determined exclusively by the Contract Administrator.

**1.3                MATERIAL QUALITY**

- .1    Materials, equipment, parts or assemblies (referred to as Material) incorporated in Work: New or Re-newed, not damaged or defective, of best quality (compatible with specification requirements) for purpose intended. If requested, provide evidence as to type, source and quality of Material provided.
- .2    Defective Material, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective Material at own expense and be responsible for delays and expenses caused by rejection.
- .3    Should any dispute arise as to quality or fitness of Material, decision rests strictly with Contract Administrator.
- .4    Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .5    Permanent labels, trademarks and nameplates on Material are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

**1.4                AVAILABILITY**

- .1    Immediately upon signing Contract, review Product delivery requirements and anticipate foreseeable supply delays for any items.
- .2    If delays in supply of Material are foreseeable, notify Contract Administrator of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

- .3 In event of failure to notify Contract Administrator at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Contract Administrator reserves right to substitute more readily available Material of similar character, at no increase in Contract Price or Contract Time.

## **1.5 STORAGE AND PROTECTION**

- .1 Store and protect Material in accordance with manufacturers' instructions.
- .2 Store with seals and labels intact and legible.
- .3 Store sensitive Material in weather tight, climate controlled, enclosures in an environment favourable to Product.
- .4 For exterior storage of fabricated Material, place on sloped supports above ground.
- .5 Cover Material subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Material.
- .6 Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- .7 Provide equipment and personnel to store Material by methods to prevent soiling, disfigurement, or damage.
- .8 Arrange storage of Material to permit access for inspection. Periodically inspect to verify Material are undamaged and are maintained in acceptable condition.

## **1.6 TRANSPORTATION AND HANDLING**

- .1 Transport and handle Material in accordance with manufacturer's instructions.
- .2 Promptly inspect shipments to ensure that Material comply with requirements, quantities are correct, and Material are undamaged.
- .3 Provide equipment and personnel to handle Material by methods to prevent soiling, disfigurement, or damage.

## **1.7 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and building occupants and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

**1.8 MANUFACTURER'S INSTRUCTIONS**

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

**1.9 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. Immediately notify Contract Administrator if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Contract Administrator reserves right to require dismissal from site any workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Contract Administrator, whose decision is final.

**1.10 COORDINATION**

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

**1.11 CONCEALMENT**

- .1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation, inform Contract Administrator if there is interference. Install as directed by Contract Administrator.

**1.12 REMEDIAL WORK**

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

**1.13 LOCATION OF FIXTURES**

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

**1.14 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. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

**1.15 FASTENINGS - EQUIPMENT**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use Type 304 or 316 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

**1.16 PROTECTION OF WORK IN PROGRESS**

- .1 Prevent overloading of any part of the Project.
- .2 Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated, without written approval of Contract Administrator.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1            Recording of subsurface conditions found.

**1.2                REFERENCES**

- .1            City's identification of existing survey control points and property limits.

**1.3                SURVEY REFERENCE POINTS**

- .1            Locate, confirm and protect control points prior to starting site Work. Preserve permanent reference points during construction.
- .2            Require surveyor to replace control points in accordance with original survey control.

**1.4                SURVEY REFERENCE POINTS**

- .1            Existing base horizontal and vertical control points are designated on Drawings.
- .2            Locate, confirm and protect control points prior to starting site Work. Preserve permanent reference points during construction.
- .3            Make no changes or relocations without prior written notice to Contract Administrator.
- .4            Report to Contract Administrator when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5            Require surveyor to replace control points in accordance with original survey control.

**1.5                SURVEY REQUIREMENTS**

- .1            Establish permanent bench marks on site, referenced to established bench marks by survey control points.
- .2            Record locations, with horizontal and vertical data in project record documents.
- .3            Establish lines and levels, locate and lay out, by instrumentation.
- .4            Stake for grading, fill and topsoil placement and landscaping features.
- .5            Stake slopes and berms.
- .6            Establish pipe invert elevations.
- .7            Stake batter boards for foundations.
- .8            Establish foundation column locations and floor elevations.
- .9            Establish lines and levels for mechanical and electrical work.

**1.6 SUBSURFACE CONDITIONS**

- .1 Promptly notify Contract Administrator in writing if discovered surface or subsurface conditions at Place of Work differ materially from those indicated in Contract documents.

**1.7 EXAMINATION**

- .1 Inspect existing conditions, including elements or adjacent Work subject to irregularities, damage, movement, including Work during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of the Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.

**1.8 PREPARATION**

- .1 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .2 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

**1.9 EXISTING SERVICES**

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

**1.10 SURVEY RECORD**

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

**END OF SECTION**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- .1 Requirements and limitations for cutting and patching of Work.

**1.2 RELATED SECTIONS**

- .1 Section 01 32 00 - Construction Progress Documentation: Submittals and scheduling.
- .2 Section 01 61 00 - Product Requirements.
- .3 Section 07 84 00 - Firestopping.
- .4 Individual Product Specification Sections:
  - .1 Cutting and patching incidental to work of the section.
  - .2 Advance notification to other sections of openings required in Work of those sections.
  - .3 Limitations on cutting structural members.

**1.3 SUBMITTALS**

- .1 Submit written request in advance of cutting or alteration which affects:
  - .1 Structural integrity of any element of Project.
  - .2 Integrity of weather exposed or moisture resistant element.
  - .3 Efficiency, maintenance, or safety of any operational element.
  - .4 Visual qualities of sight exposed elements.
  - .5 Work of City or separate contractor.
- .2 Include in request:
  - .1 Identification of Project.
  - .2 Location and description of affected Work.
  - .3 Necessity for cutting or alteration.
  - .4 Description of proposed Work and Materials to be used.
  - .5 Alternatives to cutting and patching.
  - .6 Effect on work of City or separate contractor.
  - .7 Date and time work will be executed.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- .1 Primary Materials: Those required for original installation.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering existing Work, assess conditions affecting performance of work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.

**3.2 PREPARATION**

- .1 Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of project from damage.
- .2 Provide protection from elements for areas which may be exposed by uncovering work.
- .3 Maintain excavations free of water.

**3.3 CUTTING**

- .1 Execute cutting and fitting including excavation and fill to complete the Work.
- .2 Uncover work to install improperly sequenced work.
- .3 Remove and replace defective or non-conforming work.
- .4 Remove samples of installed work for testing when requested.
- .5 Provide openings in the Work for penetration of mechanical and electrical work.
- .6 Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- .7 Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

**3.4 PATCHING**

- .1 Execute patching to complement adjacent Work.
- .2 Fit Materials together to integrate with other Work.
- .3 Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- .4 Employ original installer to perform patching for weather exposed and moisture resistant elements, and sight-exposed surfaces.
- .5 Restore work with new Materials in accordance with requirements of contract documents.



- .6 Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .7 At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00 , to full thickness of the penetrated element.
- .8 Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Progressive cleaning.
- .2        Cleaning prior to acceptance.

**1.2                PROGRESSIVE CLEANING**

- .1        Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .2        Remove waste materials from site at regularly scheduled times or dispose of as directed by Contract Administrator. Do not burn waste materials on site, unless approved by Contract Administrator.
- .3        Clear snow and ice from area of construction, bank or pile snow in designated areas only.
- .4        Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
  - .1        Provide on-site steel framed, hinged lid containers for collection of waste materials and debris.
  - .2        Provide and use clearly marked, separate bins for recycling.
- .6        Remove waste materials from site at regularly scheduled times or dispose of as directed by Contract Administrator. Do not burn waste materials on site, unless approved by Contract Administrator.
- .7        Dispose of waste materials and debris.
- .8        Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .9        Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10       Provide adequate ventilation during use of volatile or noxious substances. Use of enclosure ventilation systems is not permitted for this purpose.
- .11       Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12       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                CLEANING PRIOR TO ACCEPTANCE**

- .1        Prior to applying for Substantial Performance of the Work, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .4 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .5 Clean lighting reflectors, lenses, and other lighting surfaces.
- .6 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .7 Clean and polish surface finishes, as recommended by manufacturer.
- .8 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .10 Remove dirt and other disfiguration from exterior surfaces.
- .11 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .12 Sweep and wash clean paved areas.
- .13 Clean equipment and fixtures to a sanitary condition; replace filters of mechanical equipment.
- .14 Clean roof surfaces, down-spouts, and drainage components.
- .15 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .16 Remove snow and ice from access to facilities.

#### **1.4 FINAL PRODUCT CLEANING**

- .1 Execute final cleaning prior to final project assessment.
- .2 Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- .3 Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- .4 Replace filters of operating equipment.
- .5 Clean site; sweep paved areas, rake clean landscaped surfaces.

- .6 Remove waste and surplus materials, rubbish, and construction facilities from the site.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1    Inspections and declarations.
- .2    Closeout submittals
- .3    Operation and maintenance manual format.
- .4    Contents each volume.
- .5    Record documents and samples.
- .6    Record documents.
- .7    Final survey.

**1.2                RELATED SECTIONS**

- .1    Section 01 33 00 - Submittal Procedures.
- .2    Section 01 78 40 - Maintenance Requirements.
- .3    Section 01 79 00 - Demonstration and Training.

**1.3                INSPECTIONS AND DECLARATIONS**

- .1    Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1    Notify Contract Administrator in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
  - .2    Request Contract Administrator's Inspection.
- .2    Contract Administrator's Inspection: Contract Administrator and Contractor will perform inspection of Work to identify defects or deficiencies. Correct defective and deficient Work accordingly.
- .3    Completion: submit written certificate that following have been performed:
  - .1    Work has been completed and inspected for compliance with Contract Documents.
  - .2    Defects have been corrected and deficiencies have been completed.
  - .3    Equipment and systems have been tested, adjusted and balanced and are fully operational.
  - .4    Certificates required by authorities having jurisdiction have been submitted.
  - .5    Operation of systems have been demonstrated to City's personnel.
  - .6    Work is complete and ready for Final Inspection.

- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Contract Administrator. If Work is deemed incomplete by Contract Administrator, complete outstanding items and request reinspection.
- .5 Declaration of Substantial Performance: when Contract Administrator considers deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for Substantial Performance of the Work.
- .6 Commencement of Warranty Periods: the date of Substantial Performance of the Work shall be the date for commencement of the warranty period.
- .7 Final Payment: When Contract Administrator consider final deficiencies and defects have been corrected and it appears requirements of Contract have been completed, make application for final payment.
- .8 Payment of Hold-back: After issuance of certificate of Substantial Performance of the Work, submit an application for payment of hold-back amount.

#### **1.4 CLOSEOUT SUBMITTALS**

- .1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .2 Copy will be returned after final inspection, with Contract Administrator's comments.
- .3 Revise content of documents as required prior to final submittal.
- .4 Two weeks prior to Substantial Performance of the Work, submit to the Contract Administrator, Four final copies of operating and maintenance manuals in Canadian English.
- .5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .6 If requested, furnish evidence as to type, source and quality of products provided.
- .7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .8 Pay costs of transportation.

#### **1.5 OPERATION AND MAINTENANCE MANUAL FORMAT**

- .1 Organize data in the form of an instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

- .4 Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- .5 Arrange content by under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: Manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

## **1.6 CONTENTS - EACH VOLUME**

- .1 Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- .2 Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 20 pound white paper, in three parts as follows:
  - .1 Part 1: Directory, listing names, addresses, and telephone numbers of Consultant, Contractor, Subcontractors, and major equipment suppliers.
  - .2 Part 2: Operation and maintenance instructions, arranged by system and subdivided by MASTERFORMAT Division and Section numbers. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    - .1 Significant design criteria.
    - .2 List of equipment.
    - .3 Parts list for each component.
    - .4 Operating instructions.
    - .5 Maintenance instructions for equipment and systems.
    - .6 Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
    - .7 Mark each sheet of product data to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable data; general advertising
  - .3 Part 3: Project documents and certificates, including the following:
    - .1 Shop drawings and product data.
    - .2 Air and water balance reports.
    - .3 Certificates.
    - .4 Originals of warranties and bonds.

## **1.7 RECORDING ACTUAL SITE CONDITIONS**

- .1 Record information on set of black line opaque drawings, and within the Project Manual, provided by Contract Administrator.
- .2 Annotate with coloured felt tip marking pens, maintaining separate colours for each major system, for recording changed information.
- .3 Record information concurrently with construction progress. Do not conceal Work of the Project until required information is accurately recorded.
- .4 Contract drawings and shop drawings: legibly mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by change orders.
  - .6 Details not on original Contract Drawings.
  - .7 References to related shop drawings and modifications.
- .5 Specifications: legibly 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.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

## **1.8 RECORD DOCUMENTS AND SAMPLES**

- .1 In addition to requirements in General Conditions, maintain at the site for Contract Administrator City one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to the Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.



- .3 Label record documents and file in accordance with section number listings in List of Contents of the Project Manual. Label each document "RECORD DOCUMENTS" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Contract Administrator.

**1.9 FINAL RECORD DOCUMENTS**

- .1 Prior to Substantial Performance of the Work, the marked up information from the record documents to a master set of drawing and specification provided by the Contract Administrator, as follows:
  - .2 Mark revised documents as "RECORD DOCUMENTS". Include all revisions, with special emphasis on mechanical, electrical, structural steel, and reinforced concrete.
  - .3 Submit completed record documents to Contract Administrator.

**1.10 FINAL SURVEY**

- .1 Contractor shall arrange and pay for a location Certificate. This Location Certificate shall be submitted prior to application for occupancy permit.
- .2 Inaccurate or neglectful information shall become a liability of the Contractor.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1    Equipment and systems.
- .2    Materials and finishes.
- .3    Spare parts.
- .4    Maintenance manuals.
- .5    Special tools.
- .6    Storage, handling and protection.

**1.2                RELATED SECTIONS**

- .1    Section 01 78 10 - Closeout Submittals.

**1.3                EQUIPMENT AND SYSTEMS**

- .1    Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2    Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3    Include installed colour coded wiring diagrams.
- .4    Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5    Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6    Provide servicing and lubrication schedule, and list of lubricants required.
- .7    Include manufacturer's printed operation and maintenance instructions.
- .8    Include sequence of operation by controls manufacturer.
- .9    Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10   Provide installed control diagrams by controls manufacturer.

- .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports.
- .15 Additional requirements: As specified in individual specification sections.

#### **1.4 MATERIALS AND FINISHES**

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

#### **1.5 SPARE PARTS**

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store where directed.
- .4 Receive and catalogue all items. Submit inventory listing to Contract Administrator. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

#### **1.6 MAINTENANCE MATERIALS**

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store where directed.
- .4 Receive and catalogue all items. Submit inventory listing to Contract Administrator. Include approved listings in Maintenance Manual.

- .5 Obtain receipt for delivered products and submit prior to final payment.

**1.7 SPECIAL TOOLS**

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store where directed.
- .4 Receive and catalogue all items. Submit inventory listing to Contract Administrator. Include approved listings in Maintenance Manual.

**1.8 STORAGE, HANDLING AND PROTECTION**

- .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 to satisfaction of Contract Administrator.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Procedures for demonstration and instruction of Products, equipment and systems to City's personnel.
- .2        Seminars and demonstrations.

**1.2                RELATED SECTIONS**

- .1        This section describes requirements applicable to all Sections within Divisions 02 to 49.

**1.3                DESCRIPTION**

- .1        Demonstrate operation and maintenance of equipment and systems to City's personnel two weeks prior to date of substantial performance.
- .2        City will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

**1.4                COMPONENT DEMONSTRATION**

- .1        Manufacturer to provide authorized representative to demonstrate operation of equipment and systems.
- .2        Instruct City's personnel, and provide written report that demonstration and instructions have been completed.

**1.5                SUBMITTALS**

- .1        Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Contract Administrator's approval.
- .2        Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .3        Give time and date of each demonstration, with list of persons present.

**1.6                CONDITIONS FOR DEMONSTRATIONS**

- .1        Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

**Part 2            PRODUCTS**

Not used.

**Part 3 EXECUTION**

**3.1 PREPARATION**

- .1 Verify that suitable conditions for demonstration and instructions are available.
- .2 Verify that designated personnel are present.
- .3 Prepare agendas and outlines.
- .4 Establish seminar organization.
- .5 Explain component design and operational philosophy and strategy.
- .6 Develop equipment presentations.
- .7 Present system demonstrations.
- .8 Accept and respond to seminar and demonstration questions with appropriate answers.

**3.2 PREPARATION OF AGENDAS AND OUTLINES**

- .1 Prepare agendas and outlines including the following:
  - .1 Equipment and systems to be included in seminar presentations.
  - .2 Name of companies and representatives presenting at seminars.
  - .3 Outline of each seminar's content.
  - .4 Time and date allocated to each system and item of equipment.
  - .5 Provide separate agenda for each system

**3.3 SEMINAR ORGANIZATION**

- .1 Coordinate content and presentations for seminars.
- .2 Coordinate individual presentations and ensure representatives scheduled to present at seminars are in attendance.
- .3 Arrange for presentation leaders familiar with the design, operation, maintenance and troubleshooting of the equipment and systems. Where a single person is not familiar with all aspects of the equipment or system, arrange for specialists familiar with each aspect.
- .4 Coordinate proposed dates for seminars with City and select mutually agreeable dates.

**3.4 EXPLANATION OF DESIGN STRATEGY**

- .1 Explain design philosophy of each system. Include following information:
  - .1 An overview of how system is intended to operate.
  - .2 Description of design parameters, constraints and operational requirements.
  - .3 Description of system operation strategies.
  - .4 Information to help in identifying and troubleshooting system problems.

**3.5 DEMONSTRATION AND INSTRUCTIONS**

- .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, , servicing, and maintenance of each item of equipment at scheduled times, at the designated location.
- .2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.
- .3 Review contents of manual in detail to explain all aspects of operation and maintenance.
- .4 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.

**END OF SECTION**