

**PART 1 GENERAL**

**1.1 Requirements Included**

- .1 Coordinate Work with other Sub Contractors under administration of General Contractor.

**1.2 Description**

- .1 Coordination progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction work, with progress of work of other contractors, under instructions of G.C.

**1.3 Construction Organization and Start-Up**

- .1 Comply with General Contractor's allocation of mobilization areas of site; for field offices and sheds, for, access, traffic, and parking facilities.
- .2 During construction co-ordinate use of site and facilities through General Contractor's procedures for intra-project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.
- .3 Comply with instructions of General Contractor for used of temporary utilities and construction facilities.
- .4 Co-ordinate field engineering and layout work with General Contractor

**1.4 Schedules**

- .1 Submit preliminary construction progress schedule in accordance with Section 01310 to General Contractor co-ordinated with General Contractor'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 General Contractor.

**1.5 Submittals to General Contractor**

- .1 Submit preliminary shop drawings, product data and samples in accordance with Section 013300 for review for compliance with Contract Documents; for field dimensions and clearances, for relation to available space, and for relation to work of other contracts. After review, revise and resubmit for transmittal to Consultant.
- .2 Submit requests for payment for review, and for transmittal to Consultant.
- .3 Submit requests for interpretation of Contract Documents, and obtain instructions through General Contractor.
- .4 Process substitutions and change orders through General Contractor.
- .2 Deliver closeout submittals for review and preliminary inspections, for transmittal to Consultant.

**1.6 Coordination Drawings**

- .1 Provide information required by General Contractor for preparation of coordination drawings.
- .2 Review and approve revised drawings for General Contractor's submittal to Consultant.

**1.7 Close-Out Procedures**

- .1 Notify General Contractor when Work is considered ready for Substantial Performance.
- .2 Accompany General Contractor on preliminary inspection to determine items listed for completion or correction.
- .3 Comply with General Contractor's instructions for correction of items of work listed in executed certificate of Substantial Performance.
- .4 Notify General Contractor for instructions for completion of items of work determined in Consultant's final inspection

**END OF SECTION**

## **PART 1 GENERAL**

### **1.1 Requirements Included**

- .1 Requirements and limitations for cutting and patching the Work.
- .2 Existing slab cutting and patching.
- .3 Existing paving area cutting and patching (due to excavation for new addition). Contractor to perform all underground utilities locates and avoid damage to buried utilities, including but not limited to: electrical conduit, piping, etc.
- .4 Existing exterior wall cutting and patching (shore existing roof truss joists during removal of exterior wall and installation of new steel columns and beams).
- .5 Existing roofing and parapet cutting and patching.

### **1.2 Related Requirements**

- .1 Section 016000 - Material and Equipment.
- .2. Individual Sections: Cutting and patching incidental to work of the section. Advance notification to other sections required.

### **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 elements.
  - .3 Efficiency, maintenance, or safety of any operational element.
  - .4 Visual qualities of sight exposed elements.
- .2 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 Date and time work will be executed.

## **PART 2 PRODUCTS**

### **2.1 Materials**

- .1 Required for original installation.
- .2 Change in materials: Submit request for substitution under provisions of Section 01600.

## **PART 3 EXECUTION**

### **3.1 General**

- .1 Execute cutting, fitting, and patching to complete the Work.
- .2 Fit the 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.

**3.2 Inspection**

- .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.

**3.3 Preparation**

- .1 Provide supports to assure structural integrity of surroundings; 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.

**3.4 Performance**

- .1 Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.
- .2 Employ original installer to perform cutting and patching for weather exposed and moisture resistant elements, and sight exposed surfaces.
- .3 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed without prior approval.
- .4 Restore work with new products in accordance with requirements of Contract Documents.
- .5 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .6 At penetration of fire-rated wall, ceiling, or floor construction, completely seal voids with fire resistant material, full thickness of the construction element.
- .7 Refinish surfaces to match adjacent finishes. For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.

**END OF SECTION**

**PART 1        GENERAL**

Abbreviations may be used on the drawings and in the Project manual. Refer to this Section for interpretations.

|       |                      |       |                           |
|-------|----------------------|-------|---------------------------|
| AFF   | Above Finished Floor | DIAM  | Diameter                  |
| AD    | Access Door          | DIM   | Dimension                 |
| AP    | Access Panel         | DPR   | Dispenser                 |
| ACFL  | Access Floor         | DS    | Downspout                 |
| ADJT  | Adjustable           | DWG   | Drawing                   |
| ALT   | Alternate            | DF    | Drinking Fountain         |
| AL    | Aluminum             | EF    | Each Face                 |
| ANOD  | Anodized             | ELEC  | Electrical                |
| ASPH  | Asphalt              | EL    | Elevation                 |
| AUTO  | Automatic            | ELEV  | Elevator                  |
| A/VR  | Air/Vapour Retarder  | EQ    | Equal                     |
| BSMT  | Basement             | EXST  | Existing                  |
| BRCG  | Bracing              | EXT   | Exterior                  |
| BIT   | Bituminous           | FB    | Face Brick                |
| BLKG  | Blocking             | FOC   | Face of Concrete          |
| BS    | Both Sides           | FOF   | Face of Finish            |
| BOT   | Bottom               | FOM   | Face of Masonry           |
| BRK   | Brick                | FOS   | Face of Studs             |
| BLDG  | Building             | FSTNR | Fastener                  |
| BBD   | Bulletin Board       | FBRBD | Fibreboard                |
| BUR   | Built-up Roofing     | FBRGL | Fiberglass                |
| CAB   | Cabinet              | FIN   | Finish                    |
| CARP  | Carpet               | FFE   | Finished Floor Elevation  |
| CB    | Catch Basin          | FEC   | Fire Extinguisher Cabinet |
| CLG   | Ceiling              | FHC   | Fire Hose Cabinet         |
| CEM   | Cement               | FPRF  | Fireproofing              |
| CPL   | Cement Plaster       | FLG   | Flashing                  |
| CT    | Ceramic Tile         | FLR   | Floor                     |
| CLR   | Clear                | FD    | Floor Drain               |
| COL   | Column               | FTG   | Footing                   |
| CONC  | Concrete             | FDN   | Foundation                |
| CCB   | Concrete Block       | FUR   | Furring                   |
| CONST | Construction         | GALV  | Galvanized                |
| CONT  | Continuous           | GL    | Glass Glazing             |
| CJT   | Control Joint        | GLB   | Glass Block               |
| CG    | Corner Guard         | GB    | Grab Bar                  |
| CORR  | Corrugated           | GR    | Grade                     |
| CNTR  | Counter              | GVEL  | Gravel                    |
| CFLG  | Counter Flashing     | GWB   | Gypsum Wallboard          |
| CSE   | Course               | HDWD  | Hardwood                  |
| DP    | Dampproofing         | HGT   | Height                    |
| DMT   | Demountable          | HC    | Hollow Core               |
| DIAG  | Diagonal             | HM    | Hollow Metal              |
| INSUL | Insulation           | HORIZ | Horizontal                |
| INTR  | Interior             | REINF | Reinforce                 |
| LAM   | Laminate             | RESIL | Resilient                 |
| LTL   | Lintel               | REV   | Revision                  |
| MH    | Man Hole             | RD    | Roof Drain                |

|       |                       |       |                           |
|-------|-----------------------|-------|---------------------------|
| MFR   | Manufacture           | RFH   | Roof Hatch                |
| MSNRY | Masonry               | RO    | Rough Opening             |
| MO    | Masonry Opening       | RB    | Rubber Base               |
| MAX   | Maximum               | SNT   | Sealant                   |
| MECH  | Mechanical            | SECT  | Section                   |
| MC    | Medicine Cabinet      | SHTHG | Sheathing                 |
| MEMB  | Membrane              | SIM   | Similar                   |
| MET   | Metal                 | SC    | Solid Core                |
| MTFR  | Metal Furring         | SD    | Soap Dispenser            |
| MIN   | Minimum               | SND   | Sanitary Napkin Dispenser |
| MIR   | Mirror                | SNR   | Sanitary Napkin Receptor  |
| MISC  | Miscellaneous         | SPEC  | Specification             |
| MOD   | Modular               | SST   | Stainless Steel           |
| NOM   | Nominal               | STD   | Standard                  |
| NIC   | Not in Contract       | STRL  | Structural                |
| NTS   | Not to Scale          | SUSP  | Suspended                 |
| OC    | On Centre             | TKBD  | Tackboard                 |
| OPG   | Opening               | TLE   | Telephones                |
| OPP   | Opposite              | TER   | Terrazzo                  |
| OPH   | Opposite Hand         | THK   | Thick                     |
| OD    | Outside Diameter      | THR   | Threshold                 |
| OH    | Overhead              | TPH   | Toilet Paper Holder       |
| PNT   | Paint                 | TPTN  | Toilet Partition          |
| PNL   | Panel                 | TPD   | Toilet Paper Dispenser    |
| PTD   | Paper Towel Dispenser | T&G   | Tongue and Groove         |
| PBD   | Particleboard         | TSL   | Top of Slab               |
| PTR   | Paper Towel Receptor  | TST   | Top of Stair              |
| PTN   | Partition             | TB    | Towel Bar                 |
| PLAS  | Plaster               | TYP   | Typical                   |
| PLAM  | Plastic Laminate      | UNFIN | Unfinished                |
| PG    | Plate Glass           | VERT  | Vertical                  |
| PLYWD | Plywood               | VCT   | Vinyl Composite Tile      |
| PE    | Porcelain Enamel      | VIN   | Vinyl                     |
| PCC   | Precast Concrete      | VF    | Vinyl Fabric              |
| PFN   | Pre-finished          | WPF   | Waterproofing             |
| PRF   | Preformed             | WDO   | Window                    |
| QT    | Quarry Tile           | WGL   | Wired Glass               |
|       |                       | WPT   | Working Point             |
|       |                       | WM    | Wire Mesh                 |

**END OF SECTION**

**PART 1 GENERAL**

**1.1 Requirements Included**

- .1 Requirements and procedures for installation of permanent identification labels and markers on process, mechanical, and electrical equipment installations.

**1.2 Related Requirements**

- .1 Section 013300 - Submittals: Product data and samples.
- .2 Section 017839 - Contract Closeout: Project Record Documents.

**1.3 Quality Assurance**

- .1 Comply with CSA B53 project specifications for colours, designations, markings, sizes, and band widths.

**1.4 Submittals**

- .1 Submit typed copy of preliminary schedule of name plates, tag coding, and colour coding for review by Consultant prior to start of work.
- .2 Submit 2 additional final typed copies of schedules for nameplates and valve tags 15 days prior to inspection for Substantial Performance or 5 days prior to date scheduled for instruction of Owner's personnel, whichever is first.
- .3 Incorporate copies of final schedules for nameplates and valve tags into Record Documents, Section 01720.

**1.5 Schedules**

- .1 Nameplate schedules shall list: Pump, control, fire system, alarm system and electrical equipment nameplates.
- .2 Include nameplate designation, manufacturer's nameplate data, equipment and component parts; numbers, location of equipment, and switch location and normal operating position of switch.
- .3 Valve tag schedules shall list each tag by systems. Include reference number, valve location and usage, system identification, colour code, and function, size and valve manufacturer with model number, and normal operating position of valve.

**1.6 Colour Identification Schedules**

- .1 Refer to related systems technical specification.

**PART 2 PRODUCTS**

Not Used.

**PART 3 EXECUTION**

Not Used.

**END OF SECTION**

## **PART 1 GENERAL**

### **1.1 Requirements Included**

- .1 Schedule, form, and content.
- .2 Scheduled revisions

### **1.2 Related Requirements**

- .1 Review PWGSC requirements

### **1.3 Schedules Required**

- .1 Submit the following schedules:
  - .1 Construction Progress Schedule
  - .2 Submittal Schedule for Shop Drawings and Product Data
  - .3 Submittal Schedules for Samples
  - .4 Product Delivery Schedule.

### **1.4 Format**

- .1 Prepare schedule in the form of a horizontal bar chart.
- .2 Provide a separate bar for each trade or operation.
- .3 Provide horizontal time scale identifying the first work day of each week.
- .4 Format for listings: The chronological order of the start of each item of work.
- .5 Identification of listings: By systems description.

### **1.5 Submission**

- .1 Submit initial schedules within fifteen (15) days after award of Contract.
- .2 Submit one (1) opaque reproduction, plus two (2) copies to be retained by the Consultant.
- .3 Consultant will review schedule and return review copy.
- .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 the revised schedule to:
  - .1 Job site office
  - .2 Subcontractors
  - .3 Other concerned parties.
- .7 Instruct recipients to report to the Contractor within 10 days, any problems anticipated by the timetable shown in the schedule.

**1.6 Construction Progress Schedule**

- .1 Include the complete sequence of construction activities.
- .2 Include the dates for the commencement and completion of each major elements of construction, but not limited to the following:
  - .1 Site clearing
  - .2 Site utilities
  - .3 Foundation Work
  - .4 Structural framing
  - .5 Special subcontractor work
  - .6 Equipment Installations (if any within the scope of Base Building work).
  - .7 Finishes (Exterior)
  - .8 Mechanical
  - .9 Electrical
- .3 Show projected percentage of completion of each item as of the first day of the month.
- .4 Indicate progress of each activity to date of submission schedule.
- .5 Show 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.
- .6 Provide a narrative report to define:
  - .1 Problem areas, anticipated delays, and the impact on the schedule.
  - .2 Corrective action recommended and its effect.
  - .3 The effect of changes on schedules of other prime contractors.

**1.7 Submittals Schedule**

- .1 Include schedule for submitting shop drawings, product data, samples.
- .2 Indicate dates for submitting, review time, resubmission time, float time, last date for meeting fabrication schedule.
- .3 Includes dates when delivery will be required for Owner furnished products.
- .4 Include dates when review submittals will be required by the Consultant.

**END OF SECTION**



**PART 1 GENERAL**

**1.1 Requirements Included**

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

**1.2 Related Requirements**

- .1 Section 014000 - Quality Control: Submission of test and mix design mill tests.
- .2 Section 017839 - Project Record Documents: Submission of contract closeout documents.

**1.3 Administrative**

- .1 Submit to Departmental Representative submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in the 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 the submittal shall not proceed until review is complete.
- .3 Review, and sign submittals prior to submission to the Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected.
- .4 Verify field measurements and affected adjacent Work is coordinated with shop drawings and General Contractor. Advise consultant of conflicts prior to final approval of shop drawings.
- .5 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative review of submittals.
- .6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .7 Keep one reviewed copy of each submission on site. Distribute copies of reviewed submissions to all persons involved in that item of work.

**1.4 Shop Drawings and Product Data**

- .1 The term "shop drawings" means drawings, diagrams, illustration, schedules, performance charts, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the Work.
- .2 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 co-ordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .3 Adjustments made on shop drawings by the Departmental Representative are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Departmental Representative prior to proceeding with the Work.
- .4 Make changes in shop drawings as the Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify the Departmental Representative in writing of any revisions other than those requested.
- .5 Submit six (6) prints of shop drawings for each requirement requested in specification Sections and as the Departmental Representative may reasonably request.
- .6 Submit six (6) copies of product data sheets or brochures for requirements requested in specification Sections and as the Departmental Representative may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.
- .7 If upon review by the Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, the transparency will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through the same procedure indicated above, shall be performed before fabrication and installation of work may proceed.

**1.5 Record Drawings**

- .1 After award of Contract the Departmental Representative may provide two (2) sets of drawing prints for the purpose of maintaining record drawings. Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by the Departmental Representative.
- .2 Record locations of concealed components of mechanical and electrical services.
- .3 Depth of various elements of foundation in relation to floor level.
- .4 Horizontal and vertical location of underground utilities and appurtenances concealed in construction, referenced to permanent surface features.
- .5 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
- .6 Field changes of dimension and detail.
- .7 Changes made by Change Order or Change Directive.
- .8 Locations and elevations of permanent benchmarks.
- .9 Identify drawings as "Project Record Copy". All changes must be noted on this Project Record copy as the work proceeds and in chronological order of events. Maintain in new condition and make available for inspection on site by Departmental Representative.
- .10 On completion of Work and prior to final inspection, neatly transfer "as-built" notations to the second set and submit both sets to the Departmental Representative.

**END OF SECTION**

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**PART 1        GENERAL**

**1.1        Section Includes**

- .1        This section specifies general requirements and procedures for contractors submissions of shop drawings, product data, samples and mock-ups to Departmental Representative for review. Additional specific requirements for submissions are specified in individual sections of Divisions 2 through 32.
- .2        Do not proceed with work until relevant submissions are reviewed by Departmental Representative.
- .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        Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submissions.
- .6        Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review of submission, unless Departmental Representative gives written acceptance of specific deviations.
- .8        Make any changes in submissions which Departmental Representative may require consistent with Contract Documents and re-submit as directed by Departmental Representative.
- .9        Notify Departmental Representative, in writing, when re-submitting, of any revisions other than those requested by Departmental Representative.

**1.2        Submission Requirements**

- .1        Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
- .2        Allow 10 days for Departmental Representative review of each submission.
- .3        Accompany submissions with transmittal letter, in duplicate, containing:
  - .1        Date.
  - .2        Project title and number.
  - .3        Contractor's name and address.
  - .4        Identification and quantity of each shopdrawing, product date and sample.

- .5 Other pertinent data.
- .4 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 Contractors 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 adjacent work.
- .5 After Departmental Representative's review, distribute copies.

### **1.3 Shop Drawings**

- .1 Original drawings, or modified standard drawings provided by Contractor, to illustrate details of portions of work, which are specific to project requirements.
- .2 Maximum sheet size: 850 x 1050 mm.
- .3 Submit shop drawings as follows:
  - .1 Submit (8) copies of shop drawings.
- .4 Cross-reference shopdrawing information to applicable portions of Contract Documents.

#### **1.4 Product Data**

- .1 Product Data: Manufacturers catalogue sheets brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.
- .2 Submit 3 copies of product data.
- .3 Sheet size: 215 x 280 mm, maximum of 3 modules.
- .4 Delete information not applicable to project.
- .5 Supplement standard information to provide details applicable to project.
- .6 Cross-reference product data information to applicable portions of Contract Documents.

#### **1.5 Samples**

- .1 Samples: Examples of materials, equipment, quality, finishes, workmanship.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

#### **1.6 Shop Drawings Review**

- .1 The review of shop drawings is for the sole purpose of ascertaining conformance with the general concept. This review shall not mean approval of the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the construction and Contract Documents. Without restricting the generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation of all sub-trades, and for coordination of the work.

**END OF SECTION**

## **PART 1        GENERAL**

### **1.1        Requirements Included**

- .1        Testing, administrative and enforcement requirements.
- .2        Testing and mix designs.

### **1.2        Inspections**

- .1        Refer to PWGSC
- .2        The Owner and the Departmental Representative shall have access to the Work. If parts of the Work are in preparation at locations other than the Place of the Work, access shall be given 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 the law of the Place of the Work.
- .4        If the 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 the inspections or tests satisfactory completed and make such good Work.
- .5        The Departmental Representative may order any part of the Work to be examined if the Work is suspected to be not in accordance with the Contract Documents. If, upon examination such work is found not in accordance with the Contract Documents, correct such work and pay the cost of examination and correction. If such Work is found in accordance with the Contract Documents, the Owner shall pay the cost of examination and replacement.
- .6        The Contractor shall furnish promptly two (2) copies of certificates and inspection reports relating to the Work.

### **1.3        Independent Inspection Agencies**

- .1        The Contractor will appoint and will pay for the services outlined below.
  - .1        Inspection and testing required by construction documents, law, ordinances, rules, regulations or orders of public authorities.
  - .2        Inspection and testing performed exclusively for Contractor's convenience.
  - .3        Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
  - .4        Mill tests and certificates of compliance.
  - .5        Tests specified to be carried out by Contractor under the supervision of the Departmental Representative.
  - .6        Additional tests may be required for rejected work.
- .2        Provide equipment required for executing inspection and testing by the appointed agencies.
- .3        Employment of inspection/testing agencies do not relax the responsibility to perform Work in accordance with the Contract Documents.
- .4        If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to the Owner. Pay costs for re-testing and re-inspection.

### **1.4        Access to Work**

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

**1.5 Procedures**

- .1 Notify the appropriate agency and Departmental Representative in advance of the 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 responsible promptness and in an orderly sequence so as not to cause delay in the 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 PWGSC.
- .2 Remove defective Work, whether the result of poor workmanship, use of defective products or damage and whether incorporated in the Work or not, which has been rejected by the Departmental Representative as failing to conform to the Contract Documents. Replace or re-execute in accordance with the Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacement promptly.
- .4 If in the opinion of the Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by the Contract Documents, the amount of which shall be determined by the Departmental Representative.

**1.7 Reports**

- .1 Submit four (4) copies of test reports to the Departmental Representative.

**1.8 Tests and Mix Designs**

- .1 Furnish tests results and mix design as may be requested. An appointed Testing Agency is to review supplier's mix design and provide approval and recommendations to the Departmental Representative
- .2 The costs of tests and mix designs beyond those called for in the Contract Documents or beyond those required by the law of the Place of Work shall be appraised by the Departmental Representative and may be authorized as recoverable.

**END OF SECTION**

**PART 1 GENERAL**

- 1.1** Refer to PWGSC General Procedures and Standards 2011 Western Region.

**PART 2 PRODUCTS**

Not used.

**PART 3 EXECUTION**

**3.1 Barriers**

- .1 Provide barricades and covered walkways required by governing authorities for public rights-of-way and for access to building.
- .2 Provide barriers around trees and plants designated to remain. Protect from damage.

**3.2 Guard Rails and Barricades**

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

**3.3 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;

**3.4 Dust Tight Screens**

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

**3.5 Scaffolding**

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

**3.6 Hoisting**

- .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.
- .2 Hoist and cranes shall be operated by qualified operators.

**3.7 Dewatering**

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

**3.8 Site Storage/Loading**

- .1 Refer to PWGSC General Procedures and Standards 2011 Western Region.

**3.9 Access to Site**

- .1 Refer to PWGSC General Procedures and Standards 2011 Western Region.

**3.10 Construction Parking**

- .1 Parking will be permitted on site provided it does not disrupt the performance of Work.

**3.11 Sanitary Facilities**



- .1 Provide sufficient sanitary facilities for workers and maintain in clean condition.

**3.12 Water Supply**

- .1 Available adjacent to site.

**3.13 Temporary Heating (if required)**

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside the building must be vented to the outside or be non-flame type. Solid fuel salamanders not permitted.
- .3 Maintain temperatures of minimum ten (10) degrees C in areas where construction is in progress, unless indicated otherwise in specifications.
- .4 Ventilated heated areas keep building free of exhaust or combustion gases.
- .5 The permanent heating system of the building, or portions thereof, may be used upon receiving written permission from the Departmental Representative. Equipment warranty period to commence at time of substantial completion.
- .6 Pay costs for maintaining temporary heat.
- .7 Be responsible for damage to the Work due to failure in providing adequate heat and protection during construction.

**3.14 Temporary Power and Light**

- .1 Arrange for connection with appropriate utility company. Pay all costs for installation, maintenance and removal.
- .2 Temporary power for electric cranes and other equipment requiring in access of above is the responsibility of the contractor.
- .3 Provide and maintain temporary lighting throughout the project. The level of illumination on all floors and stairs shall not be less than 15 foot candles 162 Lx.

**3.15 Protection for Off-Site and Property**

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

**3.16 Fire Protection**

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Open and burning rubbish are not permitted on the site.

**3.17 Protection of Building Finishes and Equipment**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screen, covers, and hoarding as required.
- .3 Be responsible for damage incurred due to lack of or improper protection.
- .4 The Contractor is responsible for all water penetrations and leakage into the building and the ensuing costs of replacement of damaged finishes and contents, during the execution of the work.

**3.18 Security**

- .1 Refer to PWGCS.

**3.19 Offices**

- .1 Provide and maintain in clean condition during progress of Work, adequately lighted, heated and ventilated Contractor's office with space for filing and layout of Contract Documents and Contractor's normal site office staff.
- .2 Provide adequate required aid facilities.
- .3 Subcontractors may provide their own offices as necessary. Direct the location of these offices.

**3.20 Equipment/Tool/Materials Storage**

- .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 the least interference with work activities.

**3.21 Project Cleanliness**

- .1 Refer to PWGSC.

**3.22 Installation/Removal**

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

**END OF SECTION**

## **PART 1 GENERAL**

- 1.1 Requirements Included
  - .1 Reference standards
  - .2 Product quality, availability, storage, handling, protection, transportation
  - .3 Manufacturer's instructions.
  - .4 Workmanship, co-ordination, cutting, fastenings.
  - .5 Existing facilities.
- 1.2 Related Requirements
  - .1 Section 014000-Quality Control: Quality control and inspection of Work.

## **PART 2 PRODUCTS**

- 2.1 Material and Product Reference Standards
  - .1 Within the text of specifications, reference may be made to the following standards:

|       |   |
|-------|---|
| ACI   | American Concrete Institute                               |
| AISC  | American Institute of Steel Construction                  |
| ANSI  | American National Standards Institute                     |
| ASTM  | American Society of Testing and Materials                 |
| CEC   | Canadian Electrical Code (published by CSA)               |
| CEMA  | Canadian Electrical Manufacturer's Association            |
| CAN1  | Standards Council of Canada designation for CGA           |
| CAN2  | Standards Council of Canada designation for CGSB          |
| CAN3  | Standards Council of Canada designation for CSA           |
| CAN4  | Standards Council of Canada designation for ULC           |
| CGA   | Canadian Gas Association                                  |
| CGSB  | Canadian General Standards Board                          |
| CISC  | Canadian Institute of Steel Construction                  |
| CLA   | Canadian Lumberman's Association                          |
| CPCA  | Canadian Painting Contractors' Association                |
| CPCI  | Canadian Prestressed Concrete Institute                   |
| CRCA  | Canadian Roofing Construction Association                 |
| CSA   | Canadian Standards Association                            |
| FM    | Factory Mutual Engineering Corporation                    |
| IEEE  | Institute of Electrical and Electronic Engineers          |
| IPCEA | Insulated Power Cable Engineers Association               |
| NAAMM | National Association of Architectural Metal Manufacturers |
| NBC   | National Building Code                                    |
| NEMA  | National Electrical Manufacturers' Association            |
| TTMAC | Terrazzo, Tile and Marble Association of Canada           |
| ULC   | Underwriters' Laboratories of Canada                      |
  - .2 Conform to these standards, in whole or part, as specifically requested in the specifications.
  - .3 If there is question as to whether any product or system is in conformance with applicable

standards, the Departmental Representative reserves the right to have such products or systems tested to prove or disapprove conformance.

.4 The cost for such testing will be born by the Owner in the event of conformance with Contract Documents or by the Contractor in the event of non conformance.

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

## **2.2 Quality**

.1 Refer to PWGSC.

## **2.3 Availability**

.1 Immediately upon signing Contract, review Product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of Products are foreseeable, notify the 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 the event of failure to notify the Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Consultant reserves the right to substitute more readily available products of similar character, at no increase in Contract Price.

## **2.4 Storage, Handling and Protection**

.1 Handle and store Products in a manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's when applicable.

.2 Store packaged or bundle Product in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in the Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in a heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged Products at own expense and to the satisfaction of the Departmental Representative.

## **2.5 Transportation**

.1 Pay costs of transportation of Products required in the performance of Work.

.2 Transportation cost of Products supplied by the Owner will be paid for by the Owner. Unload, handle and store such Products.

# **PART 3 EXECUTION**

## **3.1 Manufacturer's Instructions**

.1 Unless otherwise indicated in the specifications, install or erect Products in accordance

with manufacturer's instructions. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.

.2 Notify the Departmental Representative in writing, of conflicts between the specifications and manufacturer's instructions, so that the Departmental Representative may establish the course of action.

.3 Improper installation or erection of Products, due to failure in complying with these requirements, authorized the Departmental Representative require removal and re-installation at no increase in Contract Price.

### 3.2 Workmanship

.1 Workmanship shall be the best quality, executed by the workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ any unfit person or anyone unskilled in their required duties. The Departmental Representative reserves the right to require the dismissal from sites, workers deemed incompetent, careless, insubordinate or otherwise objectionable.

.3 Decisions as to the quality or fitness of workmanship in cases of dispute rest solely with the Departmental Representative, whose decision is final.

### 3.3 Coordination

.1 Insure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for co-ordination and placement of openings, sleeves and accessories.

### 3.4 Concealment

.1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation, inform the Consultant if there is a contradictory situation. Install as directed by Departmental Representative.

### 3.5 Cutting and Remedial Work

.1 Refer to PWGSC

### 3.6 Location of Fixtures

.1 Consider the location of fixtures, outlets, and mechanical and electrical as approximate.

.2 Inform the Departmental Representative of a conflicting installation. Install as directed.

### 3.7 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 the affected specification Section.

.4 Space anchors within their load 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.

### 3.8 Protection of Work in Progress

- .1 Adequately protect Work completed or in progress. Work damaged due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the Departmental Representative, at no increase in Contract Price.
- .2 Prevent overloading of any part of the building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Consultant.

### 3.9 Existing Utilities

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

END OF SECTION

**PART 1        GENERAL**

**1.1        Substitution During Construction**

- .1        The Contractor may propose substitutions on condition that either:
  - .1        Previously disclosed data or specified material cannot be provided or incorporated into the work in time allowed due to conditions beyond control of the Contractor, or
  - .2        Owner will benefit by reduced cost or improved project. Owner shall receive full benefit of any cost reduction.
- .2        Requests for substitutions shall include:
  - .1        Statement of cause for request with substantiating documents.
  - .2        Documentary proof of equal or superior quality, delivery time, and costs in form of certified quotation from supplier of both specified and proposed material.
  - .3        Change to Contract value in the form of an ADD or DEDUCT adjustment.
- .3        When requesting a substitution, Contractor shall:
  - .1        Include costs of additional consulting services and related costs required to incorporate the substitution into the work.
  - .2        Refer to PWGSC.
- .4        Requests for substitutions will be subject to approval by the Departmental Representative and acceptance by the Owner. Approved substitutions will be considered in accordance with PWGSC Contract.
- .5        Until a decision is rendered on a proposed substitution, make no change in the execution of the specified work, unless written instructions to do so are issued by the Departmental Representative.
- .6        Substitutions indicated or implied on shop drawings, schedules, samples or proposed in ways other than in the manner heretofore described, and not approved by the Departmental Representative, will be cause for rejection of shop drawings, schedules, or samples. Work previously approved, then found to contain substitutions not accepted, may be rejected in accordance with the terms of the Contract.

**1.2        Documentation of Approved Substitutes**

- .1        Refer to PWGSC.

**END OF SECTION**

**PART 1 GENERAL**

**1.1 Requirements Included**

- .1 Provide testing organization services under provisions specified in Section 01400.

**1.2 Quality Assurance**

- .1 Testing organization: Current member in good standing of AABC certified to perform specified services.
- .2 Comply with applicable procedures and standards of the certification sponsoring association.
- .3 Perform services under direction of supervisor qualified under certification requirements of sponsoring association.

**1.3 Submittals**

- .1 Prior to start of Work, submit name of organization proposed to perform services. Designate who has managerial responsibilities for co-ordination of entire testing, adjusting and balancing.
- .2 Submit documentation to confirm organization compliance with quality assurance provision.
- .3 Submit (3) preliminary specimen copies of each of the report forms proposed for use.
- .4 Fifteen days prior to Substantial Performance, submit (3) copies of final reports on applicable forms.

**1.4 Procedures - General**

- .1 Comply with procedural standards of certifying association under whose standard services will be performed.
- .2 Notify Departmental Representative (3) days prior to beginning of operations.
- .3 Accurately record data for each step.
- .4 Report to Departmental Representative any deficiencies or defects noted during performance of services.

**1.5 Final Reports**

- .1 Organization having managerial responsibility shall make reports.
- .2 Each form shall bear signature of recorder, and that of supervisor of reporting organization.
- .3 Identify each instrument used, and latest date of calibration of each.

**1.6 Contractor Responsibilities**

- .1 Prepare each system for testing.
- .2 Cooperate with testing organization, provide access to equipment and systems.
- .3 Provide personnel, operate systems at designation times, and under conditions required for proper testing, adjusting, and balancing.
- .4 Notify testing organization (7) days prior to time project will be ready for testing.



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**PART 2        PRODUCTS**

Not Used.

**PART 3        EXECUTION**

- 3.1 Preparation
  - .1 Provide instruments required for test.
  - .2 Make instruments available to Departmental Representative to facilitate spot checks during testing.
  - .3 Retain possession of instruments and remove at completion of services.

**END OF SECTION**

**PART 1        GENERAL**

**1.1        Materials**

- .1        Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

**1.2        Cleaning During Construction**

- .1        Provide on-site metal containers for collection of waste materials, and debris.
- .2        Dispose of waste materials, and debris off site.
- .3        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        Project Cleanliness**

- .1        Maintain the work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Owner or other Contractors.
- .2        Remove waste material and debris from the site at the end of each working day.
- .3        Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

**1.4        Final Cleaning**

- .1        Remove grease, dust dirt, stains, labels, fingerprints, and other foreign materials, from interior and exterior finished surfaces including glass and other polished surfaces.
- .2        Clean lighting reflectors, lenses, and other lighting surfaces.
- .3        Remove snow and ice from access to building.
- .4        Remove waste materials from the site at regularly scheduled times or dispose of as directed by the Departmental Representative. Do not burn waste materials on site, unless approved by the Departmental Representative.
- .5        Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6        Leave the work broom clean before the inspection process commences.
- .7        Clean and polish glass, mirrors, hardware, mechanical and electrical fixtures. Replace broken scratched or disfigured glass.
- .8        Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors and ceilings.
- .9        Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .10       Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .11       Broom clean and wash exterior walks, steps, and surfaced areas.
- .12       Remove dirt and other disfiguration from exterior surfaces.
- .13       Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment and clean roofs, downspouts, and drainage systems.

**END OF SECTION**

**PART I        GENERAL**

1.1    Related Requirements

- .1    Section 013300 - Submittals: Shop drawings, photographs.
- .2    Section 014000 - Quality Control: Test and inspect reports.

1.2    Quality Assurance

- .1    Instructions and data to be prepared by personnel experienced in maintenance and operation of described products.

**PART 2        PRODUCTS**

2.1    Format

- .1    Organize data in the form of an instructional manual. Refer to PWGSC.

2.2    Contents – Each Volume

- .1    Table of Contents: Provide title of project; names, addresses, and telephone numbers of Departmental Representative and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- .2    Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

2.3    Submission

- .1    Refer to PWGSC

**PART 3        EXECUTION**

3.1    Record Documents and Samples

- .1    Maintain at the site for Contractor, Owner and Departmental Representative use, 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    Label and file in accordance with Section number listings in Table of Contents of this Project Manual.

- .3    Maintain Record Documents in a clean, dry and legible condition.

- .4    Keep Record Documents and samples available for inspection by Consultant.

3.2    Recording As-Built Conditions

- .1    Record information on a set of blue line opaque drawings, and in a copy of a Project

Manual.

- .2 Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
  - .3 Record information concurrently with construction progress. Do not conceal work until required information is recorded.
  - .4 Contract Drawings and shop drawings: Legibly mark each item to record actual construction, including:
    - .1 Measure 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 and any field changes of dimension and detail.
    - .4 Changes made by addenda and change orders.
    - .5 Details not on original Contract Drawings.
    - .6 References to related shop drawings and modifications.
  - .5 Specifications: Legibly mark each item to record actual construction, including:
    - .1 Manufacturer, trade name, and catalog number of each project actually installed, particularly optional items and substitute items.
    - .2 Changes made by Addenda, Change Orders and Field Orders.
  - .6 Other Documents: Maintain manufacturer's certifications, inspection certifications, field test records, and authority having jurisdiction certifications required by individual specifications sections.
- 3.3 Warranties and Bonds
- .1 Separate each warranty or bond with index tab sheets keyed to the 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 (10) days after completion of the applicable item of work.
  - .4 Date of beginning of time of warranty shall be determined after the Date of Substantial Performance is determined.
  - .5 Verify that documents are in proper form, contain full information, and are notarized.
  - .6 Co-execute submittals when required.
  - .7 Retain warranties and bonds until time specified for submittal.

**END OF SECTION**

## **PART 1 GENERAL**

### **1.1 Requirements Included**

- .1 Procedures for demonstration and instruction of equipment and systems to Owner's personnel.

### **1.2 Related Requirements**

- .1 Section 016600-Testing, Adjusting, and Balancing of Systems.
- .2 Section 017839-Project Record Documents: Operation and Maintenance Data.
- .3 Individual Sections: Demonstrating systems and equipment.

### **1.3 Description**

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

### **1.4 Quality Control**

- .1 When specified in individual Sections, require manufacturer to provide authorized representative to demonstrate operation of equipment and systems, instruct Owner'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 Owner'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 a list of persons present.

### **1.6 Conditions for Demonstrations**

- .1 Equipment has been inspected and put into operation in accordance with Section 01600.
- .2 Testing, adjust, and balance has been performed in accordance with Section 01660 and equipment and systems are fully operational.
- .3 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 conditions for demonstration and instructions comply with requirements, and that designated personnel are present.

### **3.2 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 equipment designated location.
- .2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction, and review contents of manual in detail.
- .4 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.

**END OF SECTION**