

**PART 1**      **GENERAL**

**1.1**            **SCOPE OF WORK**

- .1      Testing and commissioning are called for throughout the individual specifications. This does not relieve this trade from providing all testing and commissioning necessary to ensure that systems and equipment operate as required and that they interface with other systems and equipment as required.

**1.2**            **SECTION INCLUDES**

- .1      Commissioning of all building electrical systems and component including:
  - .1      Testing and adjustment.
  - .2      Demonstrations and Training.
  - .3      Instructions of all procedures for Departmental personnel.
  - .4      Updating as-built data.
  - .5      Coordination of Operation and Maintenance material.

**1.3**            **RELATED SECTION**

- .1      Section 01 77 00 - Closeout Procedures.
- .2      Section 26 05 00 - Common Work Results - Electrical.

**1.4**            **REFERENCES**

- .1      CSA (Canadian Standards Association).
- .2      Underwriters Laboratories of Canada.

**1.5**            **QUALITY ASSURANCE**

- .1      Provide qualified trades persons, certified testing agencies, factory trained and approved by the Departmental Representative.
- .2      Submit the names of all personnel to be used during the Commissioning activities for Departmental Representative's Approval.

**1.6**            **COMMISSIONING**

- .1      The purpose of the commissioning process is to fully test all building systems including architectural, mechanical and electrical components and operating procedures by challenging these systems to realistic operation conditions.
- .2      The Commissioning activities shall be coordinated by the General Contractor.

- .3 Commissioning activities for the electrical systems must have available up to date as-built drawing information and accurate Operations and Maintenance Manuals. These documents shall be a major part of this activity.
- .4 Contractor shall be responsible to update all documentation with information and any changes duly noted during the Commissioning exercise.
- .5 Contractor shall arrange for all outside suppliers, equipment manufacturers, test agencies and others as identified in the commissioning sections of this specification. The cost associated with this requirement shall be included as part of the tender price.

#### **1.7 SUBMITTALS**

- .1 A commissioning document shall be prepared by the Departmental Representative prior to conducting these activities for use by the Commissioning Team.
- .2 The electrical sub-contractor shall be responsible for ensuring all activities are properly documented in this manual and coordinated through the General Contractor.
- .3 As-built drawings and data books must be available two weeks prior to commissioning for review and use by the Departmental Representative and Commissioning Team prior to the start of the commissioning activities.

#### **1.8 PREPARATION**

- .1 Provide test instruments required for all activities as defined in the commissioning documents.
- .2 Verify all systems are in compliance with the requirements of the commissioning documents prior to the pre-commissioning check out operation.
- .3 Confirm all scheduled activities have identified personnel available.
- .4 Where systems or equipment do not operate as required, make the necessary corrections or modifications, re-test and re-commission.

#### **1.9 SYSTEM DESCRIPTION**

- .1 Perform all start up operations, control adjustment, trouble shooting, servicing and maintenance of each item of equipment as defined in the commissioning documentation.
- .2 Departmental Representative will provide list of personnel to receive instructions and will coordinate their attendance at agreed upon times.
- .3 Prepare and insert additional data in the operations and maintenance manuals and update as-built drawings when need for additional data becomes apparent during the commissioning exercise.
- .4 Where instruction is specified in the commissioning manual, instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.

- .5 Conduct presentation on premises. Departmental Representative will provide space.

#### **1.10 FINAL REPORT**

- .1 This trade shall assemble all testing data and commissioning reports and submit them to the Departmental Representative.
- .2 Each form shall bear signature of recorder, and that of supervisor of reporting organizer.

#### **1.11 SCHEDULE OF ACTIVITIES**

- .1 Commissioning activities shall be conducted based on pre-established schedule with all members of the commissioning team.
- .2 In addition, there will be two meetings held through the contract duration to introduce the parties of the commissioning team, establish the schedules and deadlines for the various activities and review the Commissioning Manual.
- .3 Adhering to the established schedule is very important as the coordination and scheduling of the participants will be difficult to alter once this is established. Close coordination of this schedule is important.
- .4 In the event project cannot be commissioned in the allotted time slot, the contractor shall pay for all costs associated with assembling the Commissioning Team at a later date. If the contractor has not performed his duties to reach commissioning stage as outlined earlier, he will incur all expenses of other trades and the Commissioning Team due to his non-compliance.

**END OF SECTION**