

Part 1 General

1.1 INTENT

- .1 Read this Section in conjunction with 26 08 10 - Electrical Starting and Testing - General Requirements and other related electrical starting and testing Sections.

1.2 RELATED SECTIONS

- .1 Commissioning Plan: Section 01 91 13
- .2 Common Work Results For Electrical: Section 26 05 00
- .3 Electrical Starting and Testing - General Requirements: Section 26 08 10
- .4 Electrical Equipment and Systems Demonstration and Instruction: Section 26 08 40

Part 2 Execution

2.1 BASIC ELECTRICAL START-UP AND TESTING

- .1 Energizing Main Electrical System:
 - .1 Prior to energizing main electrical system:
 - .1 Verify supply authority voltage and phase rotation.
 - .2 Megger all feeders and record results on approved test report forms.
 - .2 Testing of Wiring and Wiring Devices:
 - .1 Test conductors at distribution centres and panelboards for insulation resistance to ground (megger test).
 - .2 Test service grounding conductors for ground resistance.
 - .3 Test all wiring devices for correct operation and circuitry.
 - .3 Ground Resistance Testing:
 - .1 Measure ground resistance of ground grids with earth test megger to verify compliance with CSA C22.2 No. 0.4 M1982 and Canadian Electrical Code.
 - .4 Load Balancing:
 - .1 The Contractor shall balance the existing load at the Emergency Distribution panels to ensure that the load unbalance at the Generator (CDP E4A) does not exceed 10%.

- .1 Start load balance testing at E2A and EFN4A. The panel schedules for these two panels indicate possible load unbalance.
 - .2 On each distribution panel ensure that as many loads are turned on as possible.
 - .3 Place an ammeter at the main conductor and measure unbalance.
 - .4 Rearrange single phase conductors as required to obtain balancing at the main conductors.
 - .5 Ensure that load balance at CDP E4A is measured over a period of 24 hours.
 - .6 Ensure that correct phase rotation is performed on any single phase motor loads.
- .5 Load Balance Testing:
 - .1 Perform load tests with as many building loads on as possible prior to Interim Acceptance.
 - .2 Test load balance on all feeders at distribution centres, motor control centres and lighting panelboards.
 - .3 If load unbalance exceeds 10%, reconnect circuits to balance loads. Revise panelboard directories and wiring identification accordingly.
- .6 Starting Motors:
 - .1 Prior to starting motors:
 - .1 Confirm motor nameplate data with motor starter heater overloads, setting of MCP's and sizing of fuses.
 - .2 Verify rotation.
 - .3 Ensure disconnects are installed.
 - .4 Confirm labelling of motors, disconnects and starters.
 - .2 Measure and record operating load amp readings for all three phase motors.
- .7 Automatic Transfer Switch Testing

The contractor after installation, shall in conjunction with the manufacturer provide the services of competent locally based service technicians/project managers to instruct the Installing Contractor, and to coordinate the commissioning of the equipment. They shall assist in placing the equipment into operation and provide instruction, as required, to the person or persons who are delegated to operate the equipment. Commissioning shall include as a minimum the following:

 - .1 Simulation of Utility Power Failure
 - .2 Generator Start-up and Transfer to Generator
 - .3 Load Shedding as applicable

- .4 Utility Power Return
- .5 Generator Cool Down Period Testing
- .6 Isolation Bypass Transfer, with all applicable transfer positions
- .7 As applicable any communication with BMS and Second ATS unit
- .8 Any other commissioning tests recommended by the manufacturer.

END OF SECTION