PART 1 - GENERAL

1.1 INTENT

.1 Except where otherwise specified, arrange testing, adjusting, balancing and related requirements specified herein.

.2 If test results do not conform with applicable requirements, repair, replace, adjust or balance equipment and systems. Repeat testing as necessary until acceptable results are achieved.

.3 Provide all labour, materials, instruments and equipment necessary to perform the tests specified.

.4 All tests shall be witnessed by persons designated by the Departmental Representative, who shall also sign the test documentation.

1.2 RELATED WORK

.1 Section 26 05 00 - Common Work Results - for Electrical.

.2 Section 26 96 00 - Starting of Electrical Equipment and Systems.

1.3 MANUFACTURER'S PRODUCTION TEST RECORDS

.1 If requested, submit copies of production test records for production tests required by EEMAC and CSA standards for manufactured electrical equipment.

1.4 SITE TESTING REPORTS

.1 Log and tabulate test results on appropriate test report forms.

.2 Submit forms to Departmental Representative for approval prior to use.

.3 Submit completed test report forms as specified, immediately after tests are performed.

1.5 REFERENCE DOCUMENTS

.1 Perform tests in accordance with:
.1 The Contract Documents.
.2 Requirements of authorities having jurisdiction.
.3 Manufacturer's published instructions.
.4 Applicable CSA, IEEE, IPCEA, EEMAC and ASTM standards.

.2 If requirements of any of the foregoing conflict, notify Departmental Representative before proceeding with test and obtain clarification.

1.6 SEQUENCING AND SCHEDULING

.1 Except where otherwise specified, perform all testing, adjusting, balancing and related requirements specified herein prior to Interim Acceptance of the Work.

.2 Perform voltage testing and adjusting after user occupancy or utilization of facility.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

.1 Provide all equipment and tools necessary to perform testing, adjusting and balancing specified herein and as otherwise required.

PART 3 - EXECUTION

3.1 FIRE ALARM SYSTEM TESTING - GENERAL

.1 Contractor will be responsible for directing verification of fire alarm system installation in accordance with:
.1 CAN/ULC-S537, Standard for Verification of Fire Alarm System Installations; and
.2 Requirements of authority having jurisdiction.

.2 Contractor shall be responsible for:
.1 Installing the devices as shown on contract drawings;
.2 Performing prerequisites to verification procedure; and
.3 Assisting and cooperating with certified company in verification procedure.

3.1 FIRE ALARM SYSTEM TESTING - GENERAL (Cont'd)

.3 Fire alarm verification shall be performed with owner's representative present. Notify the owner's representative five working days before the final verification.

3.2 FIRE ALARM SYSTEM TESTING - VERIFICATION .

.1 The contractor and system manufacturer shall assist and cooperate with the Departmental Representative in verification procedure. The contractor shall provide and pay for the following:

.1 Arrange and ensure that the following parties are present at all times during verification procedures:

.1 Electrical Subcontractor.

.2 Fire alarm system manufacturer's representative.

.2 Provide the following equipment:

.1 Voltmeter.

.2 Sound pressure level meter.

.3 Smoke generator or aerosol test smoke.

.4 Four (4) portable communication devices.

.5 Scaffolding and ladders.

.3 Disassemble and reassemble system components.

.4 Disconnect and reconnect wiring.

.5 Perform required field adjustments.

.6 Repair defective work and replace defective components.

.7 Perform all work and tests on system required by verification procedure.

.2 Do not proceed with verification unless Departmental Representative's representative responsible for directing verification procedure is present.

3.3 TESTING OF WIRING AND WIRING DEVICES

.1 All power and control wiring shall be tested for insulation resistance value with a 1000 volt megger. Resistance values shall be as recommended by cable manufacturer. Test results shall be properly tabulated, signed, dated and submitted with maintenance manuals.

.2 Test service grounding conductors for ground resistance.

.3 Test all wiring devices for correct operation.

3.3 TESTING OF WIRING AND WIRING DEVICES (Cont'd)

.4 Test all receptacles for proper polarity and circuitry.

3.4 LOAD BALANCE TESTING

.1 Perform load tests when as many loads as possible, prior to Interim Acceptance of the Work, are operable.

.2 Turn on all possible loads.

.3 Test load balance on all feeders at distribution centres, motor control centre and panelboards.

.4 If load imbalance exceeds 15%, reconnect circuits to balance loads.

3.5 VOLTAGE TESTING AND ADJUSTING

.1 Test voltage at all panelboards.

.2 Test voltage at motor starters.

.3 Adjust transformer tap settings to compensate for under-voltage or over-voltage conditions, if directed to do so by Departmental Representative.

END