SECTION 263600 - TRANSFER SWITCHES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. This sections is a Division 26 Basic Electrical Materials and Methods section and is part of each Division 26 section making reference to electrical connections for equipment specified herein.

1.02 SCOPE OF WORK

- A. Provide an automatic transfer switch complete with all relays, timers and associated control circuitry to automatically start the generator engines, transfer the load to standby power upon failure of the normal power source, transfer the load back to normal power upon its restoration and stop the generator engines. Transfer switch shall be listed per Underwriter's Laboratories UL-1008 for Total System Load and shall include the following features:
 - 1. NEMA I enclosure with test switch and indication lights.
 - 2. Adjustable time delay in open position for motor load transfer.
 - 3. Rating, number of poles and short circuit withstand capability shall be as shown on the drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Automatic Transfer Switches shall be ASCO 7000, or equal as manufactured by Russelectric or GE Zenith.

2.02 TRANSFER SWITCH

- A. The transfer switch unit shall be electrically operated and mechanically held. The transfer mechanism shall consist of momentarily energized, single solenoid mechanism.
- B. The transfer switch shall be double-throw type, with electrical and mechanical interlocks to prevent both sets of main contacts from being closed at the same time.
- C. The switch shall be positively locked to maintain constant contact pressure. All main contacts shall be silver composition.
- D. Transfer switch utilizing molded case circuit breakers or contactors that are not intended for continuous duty or repetitive switching are not acceptable.

Riverhouse at Odette's 100% Construction - June 25, 2018 Stokes Architecture TRANSFER SWITCHES

263600-1

E. Inspection of all contacts (movable and stationary) shall be possible from the front of the switch without disassembly by operating linkages, and without disconnection of power conductors. A manual operating handle shall be provided for maintenance purposes. The maintenance handle shall permit the operator to stop the contact at any point throughout the entire travel to properly inspect and service the contacts when required.

2.03 CONTROLLER

- A. The automatic transfer switch shall include a control panel with adjustable solid state sensing and timing functions. The following operational characteristics shall be provided:
 - 1. Time delay on loss of normal source for starting generator (0-60 seconds), factory set at 1 second.
 - 2. Time delay on transfer to emergency for controlled loading of generator (0-60 minutes), factory set at 0 minutes.
 - 3. Time delay on retransfer to normal (0-60 minutes), factory set at 30 minutes.
 - 4. Time delay on engine shutdown after retransfer to normal (0-60 minutes), factory set at 5 minutes.
 - 5. Programmable three phasing sensing of the normal and essential sources undervoltage to drop out at 80% and pick up at 90% of rated voltage, and overvoltage to drop out at 115% and pick up at 110% of rated voltage.
 - 6. Programmable frequency sensing of the normal and essential sources under frequency to drop out at 90% and pick up at 95% of rated frequency, and over frequency to drop out at 110% and pick up at 105% of rated frequency.
 - 7. Test switch (momentary type) to simulate failure of normal source.
 - 8. Gold-plated 10 ampere engine-starting contacts (1 P.D.T.).
 - 9. Pilot lights to indicate switch position.
 - 10. Auxiliary contacts (one closed on "Normal" and one closed on "Emergency") rated 10 amps., 250 VAC.
- B. All time delay and sensing functions shall be field adjustable over the ranges indicated and shall operate with minimum drift (not to exceed $\pm 1\%$ of set frequency, $\pm 2\%$ of set voltage and $\pm 10\%$ of set time delay) over the temperature range of -20 degrees to + 70 degrees C. The control panel shall be provided with a protective cover and an isolation plug in the wiring harness to disconnect all the control wires between the control panel and the main transfer panel.

Riverhouse at Odette's 100% Construction - June 25, 2018 Stokes Architecture

TRANSFER SWITCHES

263600-2

2.04 DELAYED TRANSITION

A. Programmable delay in transition where the load is connected to neither of the sources shall be adjustable 0 to 5 minutes, set at 3 seconds.

2.05 BYPASS-ISOLATION

A. If shown on the drawings with bypass, automatic transfer switch assembly shall have bypass-isolation feature to allow manual bypass of the load to either source and permit isolation of the automatic transfer switch from all source and load power conductors. Bypass-isolation shall be manually driven.

2.06 ADDITIONAL FEATURES

- A. A 3-position momentary-type test switch shall be provided for the test/automatic/reset modes. The test position will simulate a normal source failure. The reset position shall bypass the time delays on either transfer to emergency or retransfer to normal.
- B. Auxiliary contacts, rated 10 amps, 250 VAC, shall be provided consisting of one contact closed when the ATS is connected to the normal source, and one contact closed when the ATS is connected to the emergency source.
- C. Gold-plates, rated 10 amps, engine starting contacts.
- D. LED indicating shall be provided, one to indicate when the ATS is connected to the normal source (green), and one to indicate when the ATS is connected to the emergency source (red).
- E. LED indicating lights shall be provided and energized by controller outputs. The lights shall provide true source availability of the normal and emergency sources, as determined by the voltage sensing trip and rest settings of each source.
- F. Communications module shall provide remote interface module to support monitoring of transfer switch and controller. The communications module shall provide status, analog parameters, event logs, equipment settings, and configuration over an embedded web page and open protocol.
- G. Surge Suppression: Provide normal and emergency source SPDs with individually fused metal-oxide varistor (MOVs). The SPDs shall include LED status indication of normal operation, under voltage, power loss, phase loss, or component failure Include Form-C dry contacts for external alarm and monitoring. The SPDs shall comply with UL 1449 standards and requirements.
- H. The transfer switch lugs shall be modified (as required) to accommodate/terminate the conductors shown on the drawings.

Riverhouse at Odette's 100% Construction - June 25, 2018 Stokes Architecture

TRANSFER SWITCHES

PART 3 - EXECUTION

3.01 STARTUP

A. Provide manufacturer's on-site verification of the installation and startup.

3.02 ON-SITE ACCEPTANCE TEST

- A. Provide functional testing of all the transfer switches to verify correct operation under all modes of operation.
- B. Cooperate with the generator manufacturer for the on-site test for the generators.

3.03 TRAINING

A. Provide training for the facility operating personnel covering operation and maintenance of the equipment provided. The training program shall be not less than four hours in duration. Training date shall be coordinated with the Owner.

END OF SECTION 263600

TRANSFER SWITCHES

263600-4