SECTION 262826

ENCLOSED TRANSFER SWITCH

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Automatic transfer switch.

B. Automatic transfer switch and bypass/isolation switch.

C. Manual transfer switch.

1.2 RELATED SECTIONS

A. Division 03 - Cast-in-Place Concrete: Housekeeping pads.

B. Section 26 05 53 - Electrical Identification: Engraved nameplates.

C. Section 26 32 13 - Packaged Engine-Generator Systems: Testing requirements.

1.3 REFERENCES

A. NFPA 70 - National Electrical Code.

B. NEMA ICS 1 - General Standards for Industrial Control and Systems.

C. NEMA ICS 2 - Standards for Industrial Control Devices, Controllers, and Assemblies.

D. NEMA ICS 6 - Enclosures for Industrial Controls and Systems.

E. NFPA 20 - Standard for installation of Centrifugal Fire Pumps.

F. UL Standard 1008.

1.4 SUBMITTALS

A. Submit under the provisions of Division 01.

B. Product Data: Provide catalog sheets showing voltage, switch size, ratings, and size of switching and overcurrent protective devices, operating logic, short circuit ratings, dimensions, and enclosure details.

C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

1.5 OPERATION AND MAINTENANCE DATA

A. Submit under the provisions of Division 01.

B. Operation Data: Include instructions for operating equipment. Include instructions for operating equipment under emergency conditions when the engine generator is running.

C. Maintenance Data: Include routine preventative maintenance and lubrication schedule. List special tools, maintenance materials, and replacement parts.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with a minimum of three (3) years' documented experience, and with service facilities within 100 miles of Project.

B. Supplier: Authorized distributor of specified manufacturer with minimum three years documented experience.

1.7 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Furnish products listed and classified by UL as suitable for purpose specified and indicated, tested per UL Standard 1008.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products to site under the provisions of Division 01.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to internal components, enclosure, and finish.

1.9 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.10 MAINTENANCE SERVICE

A. Furnish service and maintenance of transfer switch for one year from Date of Substantial Completion.

1.11 MAINTENANCE MATERIALS

A. Provide maintenance materials under the provisions of Division 01.

B. Provide two of each special tool required for maintenance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. ASCO.

B. Caterpillar.

C. Kohler.

D. Onan.

E. Substitutions: Not Permitted.

2.2 AUTOMATIC TRANSFER SWITCH

A. Description: NEMA ICS 2, automatic transfer switch suitable for use as service equipment. Complete factory assembled transfer equipment with electronic control designed for surge voltage isolation, voltage sensors on all phases of both sources and linear operator.

B. Configuration: Electrically operated, mechanically held transfer switch with interlocking and mechanically held contacts.

2.3 AUTOMATIC TRANSFER AND BYPASS/ISOLATION SWITCH

A. Description: NEMA ICS 2, automatic transfer switch with manual bypass switch.

B. Configuration: Draw-out type electrically operated, mechanically held transfer switch with manually operated CONNECTED, TEST, AND DISCONNECTED draw-out positions, and with mechanically operated, mechanically held transfer switch connected to bypass automatic switch in both NORMAL and EMERGENCY positions.

C. Bypass Switch Ratings: Match automatic transfer switch for electrical ratings.

2.4 SERVICE CONDITIONS

A. Service Conditions: NEMA ICS 1.

B. Temperature: 104 degrees F (90) degrees C).

C. Altitude: 3,300 feet (1 000 m).

2.5 RATINGS

A. Voltage: 480 volts, three phase, four-wire, 60 Hz.

B. Switched Poles: 4.

C. Load Inrush Rating: Combination load.

D. Continuous Rating: As noted on the plans.

E. Interrupting Capacity: 100 percent continuous rating.

F. Withstand Current Rating: As noted on plans, when used with molded case circuit breaker.

2.6 PRODUCT OPTIONS AND FEATURES

A. Indicating Lights: Mount in cover of enclosure to indicate NORMAL SOURCE AVAILABLE, ALTERNATE SOURCE AVAILABLE, SWITCH POSITION.

B. Test Switch: Mount in cover of enclosure to simulate failure of normal source.

C. Return to Normal Switch: Mount in cover of enclosure to initiate manual transfer from alternate to normal source.

D. Transfer Switch Auxiliary Contacts: 1 normally open; 1 normally closed.

E. Normal Source Monitor: Monitor each line of normal source voltage and frequency; initiate transfer when voltage drops below 85 percent or frequency varies more than 3 percent from rated nominal value.

F. Alternate Source Monitor: Monitor alternate source voltage and frequency; inhibit transfer when voltage is below 85 percent or frequency varies more than 3 percent from rated nominal value.

G. In-Phase Monitor: Inhibit transfer until source and load are within 0^{o} electrical degrees.

H. Switched Neutral: Non-Overlapping contacts.

2.7 AUTOMATIC SEQUENCE OF OPERATION

A. Initiate Time Delay to Start Alternate Source Engine Generator: Upon initiation by normal source monitor.

B. Time Delay to Start Alternate Source Engine Generator: 0 to 60 seconds, adjustable.

C. Initiate Transfer Load to Alternate Source: Upon initiation by normal source monitor and permission by alternate source monitor.

D. Time Delay Before Transfer to Alternate Power Source: 0 to 60 seconds, adjustable.

E. Initiate Retransfer Load to Normal Source: Upon permission by normal source monitor.

F. Time Delay Before Transfer to Normal Power: 0 to 60 seconds, adjustable; bypass time delay in event of alternate source failure.

G. Time Delay Before Engine Shut Down: 0 to 5 minutes, adjustable, of unloaded operation.

H. Engine Exerciser: Start engine every 7 days; run for 30 minutes before shutting down. Bypass exerciser control if normal source fails during exercising period.

I. Alternate System Exerciser: Transfer load to alternate source during engine exercising period.

2.8 ENCLOSURE

A. Enclosure: ICS 6, Type 1.

B. Finish: Manufacturer's standard gray enamel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify conditions under the provisions of Division 01.

B. Verify that the surface is suitable for transfer switch installation.

3.2 PREPARATION

A. Provide housekeeping pads under the provisions of Divisions 01 and 03.

3.3 INSTALLATION

A. Install transfer switches in accordance with the manufacturer’s instructions.

B. Provide engraved plastic nameplates under the provisions of Section 26 05 53.

3.4 MANUFACTURER'S FIELD SERVICES

A. Prepare and start systems under the provisions of Division 01.

3.5 DEMONSTRATION

A. Provide systems demonstration under the provisions of Division 01.

B. Demonstrate operation of transfer switch in normal, and emergency modes.

END OF SECTION