

**SAM HOUSTON STATE UNIVERSITY**

**DIVISION 26 ELECTRICAL SECTION 263000 POWER GENERATING & STORING EQUIP.**

**DESIGN AND CONSTRUCTION STANDARDS**

February 2016

**PART 1: GENERAL**

1.01 Engine Generators

panel fed from an automatic transfer





- D. One-line diagram shall indicate generator size, automatic transfer switch in normal position, feeder sizes and generator main breaker size.
- E. Professional Service Provider (PSP) shall provide pad construction details. PSP is responsible for coordination with Civil/Structural Engineer.

### 3.02 Enclosed Transfer Switches

- A. Normal and emergency circuits feeding into the switch shall be protected by molded case circuit breakers.
- B. The continuous duty ampere rating shall be for the complete downstream load.
- C. Drawings shall indicate location, drawn to scale in the electrical rooms. An alphanumeric designator consistent with the standards of The University shall be applied to the room layout and the single line diagram. The single-line diagram shall show the continuous duty rating, both sources of power with appropriate feeders and the switch shown in the normal operating position.
- D. The PSP shall coordinate with The University on precise sequence of operation, but the minimum baseline requirement shall adhere to the following:
  - 1. Under voltage Sensing : All phases of normal and emergency power shall be monitored with solid state under voltage sensors. When normal load voltage drops to 85% of normal, transfer switch shall initiate emergency generator and transfer when emergency source is at minimum of 90% voltage and proper frequency.
  - 2. Overvoltage Sensing: All phases of normal and emergency power shall be monitored with solid state adjustable overvoltage sensors. These sensors shall be adjustable for pick-up settings from a minimum of 100% to a maximum of 130% (+/- 5%), with a dropout of 5% (+/- 1%) of nominal voltage above the pick-up setting. An adjustable time delay of 0.5 – 2.2 seconds shall be provided.
  - 3. Frequency Sensing: Solid state and adjustable for pickup of +/- 4% to +/-20% of nominal frequency. Dropout shall be +/- 5% of nominal wider than the pick- pick-up frequency bandwidth. The time delay shall be adjustable from 0.1 15 seconds.
  - 4. Retransfer: Retransfer to normal power shall occur when normal source has stabilized to 95% voltage for minimum of 15 minutes. Control shall be adjustable from 0 – 30 minutes. Appropriate controls for cooling down generator shall be provided prior to stopping (factory set at 30 minutes.)