

SECTION 263313 – BATTERIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. This Section specifies battery inverter equipment for buildings and structures emergency electrical systems.
- 2. Provide all labor, materials, and equipment as necessary to complete all work as indicated on the drawings, and as specified herein for a complete operating system.

- B. Related Sections:

- 1. Applicable sections of Division 26 - Electrical

1.3 SUBMITTALS

- A. Shop Drawings

- 1. Battery inverter systems.

- B. Manuals and Test Data

- 1. Operation and Maintenance Manuals for all major components including instructions for normal operation, routine maintenance requirements, service manuals, and emergency maintenance procedures.
- 2. Test data required in 1.4 Quality Assurance.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

- B. Comply with NFPA 70, “National Electrical Code”

- C. Comply with NFPA 101, "Life Safety"
- D. MIOSHA/OSHA
- E. Perform all normal factory tests with the inverter system fully equipped with required accessories.
- F. Factory test shall be performed at rated load (KW) and power factor. The use of resistive load banks without inductive loads is not acceptable.
- G. A certified factory test report shall be submitted to the Owner prior to the startup of the new inverter system.
- H. Guarantee
 - 1. Furnish full parts and labor warranty to cover the inverter system including all accessories for one year from date of installation.

PART 2 - PRODUCTS

2.1 OVERALL SYSTEM

- A. The system shall be capable of serving a load at the VA and voltage as shown on drawing, for one and a half hours to 87.5 percent of battery voltage, at a 0.8 lagging power factor.
- B. The entire system including inverter, battery charger, transfer equipment, and battery shall be designed for maximum reliability in emergency service and shall be designed with modular construction for easy field replacement. All solid state components shall be rated at twice the actual duty requirements. The system shall be designed to operate from 120, 208, 277 Volt, single phase, 60 Hz service and supply the maintained lighting load under both normal and emergency conditions.
- C. The DC to AC inverter shall be of the solid-state type with ferroresonant output transformer to provide 120/208/277 Volt, single phase, 60 Hz output. The output voltage shall be regulated within plus or minus 5 percent of nominal volts and shall have a sine-wave output with 10 percent nominal THD. Minimum inverter efficiency shall be 80 percent self-protective features shall include automatic 130 percent current limit, short circuit protection, failsafe start-up, automatic low battery shutdown and reverse input polarity protection. The input power and control circuitry shall be separately fused. Output AC circuit breakers shall be provided as noted on drawing.
- D. Transfer equipment shall utilize high quality industrial grade components and shall be designed for maximum life. Control shall be by the inverter logic so the inverter can be started under no load before emergency load is connected. Total transfer or response time from AC failure to inverter supplying the load shall be less than one second.

- E. The instrumentation and controls to determine that the system is operating properly shall include as a minimum a ready-normal power-on-light, charge light, inverter supplying load pilot light, battery voltmeter, ammeter, test switch to check entire system operation, and electrolyte level monitor/alarm.
- F. The entire system shall be enclosed in a free standing, heavy-gauge, sheet-steel enclosure, painted with electrolyte resistant paint, and have a hinged door. The door shall be provided with a semiflush Corbin catalog no. 15751 lock and TEU-1 key. The inverter and battery charger shall be mounted above the battery on isolating shelves in the unit. All components shall be mounted on easily removable chassis with quick disconnect interwiring. The battery shall be arranged for easy maintenance.
- G. Complete schematics and service information shall be included with shop drawings for AC inverter units.
- H. Inverter units must be labeled with the following information: Rated output power/rated time connected load. Nominal output voltage. Date of installation. Input voltage/phase/power.
- I. Acceptable manufacturers of emergency power inverters are: Exide, Holophane, Nife, Siltron, or Chloride.

2.2 CHARGING UNIT

- A. Charger unit shall be labeled with the following information:
 - 1. Float voltage
 - 2. Float current
 - 3. High rate voltage/current
 - 4. High rate drop out voltage
- B. Battery charging equipment shall be a solid state constant voltage constant current device incorporating internal red visual indicators to signal float and high charge mode. Charger shall be equipped with timed automatic equalize charge to periodically bring batteries up to full capacity.

2.3 BATTERIES

- A. Battery unit shall be labeled with the following information:
 - 1. Specific gravity
 - 2. Float voltage
 - 3. Float current
 - 4. High rate voltage/current
 - 5. High rate drop out voltage
 - 6. Battery type
 - 7. Battery date

- B. The batteries shall be of the nickel cadmium type in translucent plastic containers. The batteries shall have an expected life in excess of 25 years and shall be guaranteed for 5-years with an additional 15 year pro rata warranty. The requirements for water additions shall be 3 to 5 years.
- C. Acceptable manufactures of batteries are: Exide, Globe Union, Gould, McGraw Edison, Nife, Chloride.
- D. The average operating temperature range shall be 59 Deg F to 86 Deg F with extreme operating temperatures between 32 Deg F and 100 Deg F.

PART 3 - EXECUTION

Not Used

END OF SECTION 263313