

Custom Engineered Airfield Lighting Field Electrical Center (ALFEC)

Liberty Airport Systems' Airfield Lighting Field Electrical Centers (ALFEC) provide a complete integrated solution to your power and control needs for airfield lighting as well as other buildings and navigational equipment. With over 50 ALFEC installations and 40 years of airfield lighting experience, we are able to provide a customized turn-key solution to meet any airport requirements.

System Application

The ALFEC, also known as an Airfield Lighting Power Center (ALPC), provides a modular, factory assembled, pre-fabricated steel building complete with diesel generator, fuel tank, automatic transfer panel, constant current regulators and other related switchgear cells, fire suppression system and building services. The ALFEC is designed for outdoor installation and can be located adjacent to airport runways.

The ALFEC provides a cost-effective alternative to conventional buildings and are custom designed to meet specific site requirements. ALFECs have been supplied in a wide range of sizes and configurations ranging from 8 ft. wide by 8 ft. long suitable for transporting by aircraft to multiple section buildings up to 24 ft. wide by 70 ft. long.

The ALFEC provides constant current regulated power output for the approach, runway and taxiway lights and other essential circuits. Non-regulated power is also provided for circuits such as low intensity approach lighting, voltage powered strobes and feeders to ILS, Localizer, or other airport buildings. The normal power source is a commercial three phase AC power supply. The power centre includes a secondary power supply comprised of a diesel generator set with automatic engine start and transfer controls for standby or uninterrupted power service.

Secondary power supplies are available for Category I, II or III modes of operation. Category I systems will transfer to standby power within fifteen seconds, whereas Category II and III systems provide uninterrupted service or transfer times less than one second.



Fig. 1 24' x 46' Building divided into Regulator Room, Generator Room and Workshop, c/w 350 KW Prime Power Rated Diesel Generator, 14 Switchgear Regulators, 10 Non-Regulated Cells and Novec-1230 Fire Suppression System.

Benefits

The ALFEC is supplied completely factory-assembled providing the following advantages:

- Custom engineered and designed to suit each airport's requirements.
- Available for incoming voltages from 208 volts to 4160 volts, 50/60 hertz.
- Compact design reduces heating, ventilating and maintenance costs.
- Low profile permits locating the ALFEC close to the runway, reducing cable costs while minimizing obstruction view to pilots.
- Self supporting base allows mounting on compact gravel, concrete pad or caissons.
- Continuously welded construction ensures an air and weather tight seal.
- Reduced field installation time. Arrival at site to completed changeover is normally 1 to 2 weeks.
- Factory assembly provides on schedule delivery (not subject to weather conditions or site delays).
- Factory tested to provide high system quality and reliability. Customer may witness testing ensuring all items are approved prior to arrival at site.
- Single source responsibility providing integrated design, procurement, fabrication and testing.
- Lower overall installed costs.
- Minimal site logistics and coordination.

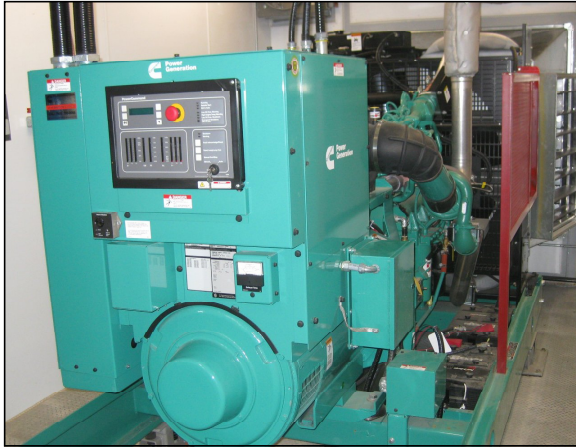


Fig. 2 350KW Prime Power Diesel Generator

Construction Features

The building is an outdoor, modular, weather tight assembly of factory pre-formed steel sheet panels, zinc coated with factory applied finish, colour matched per site requirements. All exterior seams are continuously welded to form an air and water tight seal. Penetrations through exterior walls or roof are made with rigid galvanized steel couplings continuously welded to the steel cladding.

Steel wall panels and roof sections are assembled on a self-supporting structural steel base, suitable for installation on a concrete or gravel pad, caissons or wood sleepers. Clevises are provided at intervals around the base for holding during shipment and for anchoring to concrete pad where required for Seismic Zone 4 installations.

The building is thermally insulated with “foamed in place” polyurethane insulation. The floor, roof and walls of the building can be thermally insulated for a value of RSI 7.0 (R40) or greater to meet extreme arctic or tropical climates. The floor is constructed of welded checkerplate with either a galvanized or painted finish. Interior walls and ceiling are covered with either steel wall panels or a Nualum pre-painted white wall panels.

Full height standard or fire separation walls can be provided to divide the building into different rooms (eg. diesel, regulator, switchgear, workshop). Fire rated, steel doors provide access between the rooms. Exterior insulated doors incorporate pressed steel frames, with thermal break, non-removable hinge pins and arctic weatherstripping, door hold backs, lockable handles and panic hardware. Main entrance doors are large enough to allow removal or addition of new equipment including the diesel generator and transfer system.

Thermostatically controlled heating, cooling and ventilation are provided to ensure reliable operation of the equipment under ambient weather conditions, which may vary with humidity up to 100% and temperatures -40°F to 130°F. Weatherhoods, intake filters and automatically controlled louvers ensure snow and rain remain outside the building. Air Conditioning systems can be provided for extreme hot or humid environments.

The building is provided complete with interior and exterior lighting, receptacles, emergency lighting, and outdoor obstruction lights with photocell control. Fire alarm or suppression systems can be provided complete with heat sensors, smoke detectors, local and remote annunciation and Novec-1230, FM200, Inergen or other fire suppression systems.



Fig. 3 Freedom Series Switchgear Regulators provide constant current to the airfield lighting circuits.

Application Engineering

If you have any unique power or control system requirements or applications, please do not hesitate to contact us. Our engineering staff would be pleased to work with you on finding a cost-effective solution.



Liberty Airport Systems Inc.
C5 - 3375 North Service Road
Burlington ON, Canada L7N 3G2

Tel: 905.631.1597
Fax: 905.631.5387
info@libertyairportsystems.com