

# VAULT STUDY

**What is a vault study and what does it entail?** A vault study provides the airport with a detailed and thorough assessment of the airfield lighting vault's electrical distribution system, constant current regulators, mechanical systems, and structure. The assessment is used to determine whether the airfield lighting vault is able to perform its function safely and reliably, in its current state and into the future. Many airfield lighting vaults are forgotten facilities, with each added piece of equipment forced into a smaller and smaller available space, resulting in failure to comply with NEC and OSHA safe working space requirements.

## PURPOSE:

- Identify unsafe working conditions.
- Assess the age, sustainability, and reliability of the electrical and mechanical systems and the vault structure.
- Identify any FAA Advisory Circular and NEC deficiencies.
- Classify and prioritize necessary improvements to support funding initiatives.
- Validate AC 150/5340-26C Safety Board.
- Perform electrical risk assessments to mitigate potential hazards.



## GOALS:

- Increase equipment resiliency and maintainability.
- Identify weak links in the airfield lighting system.
- Recommend updates to airfield lighting system.
- Recommend corrective measures for any NEC and OSHA deficiencies.
- Design new systems with maintenance needs in mind.



## EXAMPLE PROJECT:

**Airfield Rehabilitation Program: Rehabilitate Runway 5-23, Associated Taxiways & Airfield Lighting and Vault (Program 1); Rehabilitate Runway 13-31 & Associated Taxiways (Program 2), Page Field, Ft. Myers, FL:** Design of the electrical systems for Runway 5-23 and Runway 13-31.



As a result of an **AVCON airfield lighting vault study**, funding was provided in Page Field Program 1 and a new airfield lighting vault was designed and constructed. An electrical system Short Circuit/Coordination/Overburden/Arc-Flash study was incorporated into the vault task. Over the last 30+ years AVCON personnel have provided design on more than two dozen new or completely rehabilitated airfield lighting vaults. In addition, these individuals have worked on hundreds of airfield lighting vaults and airfield lighting electrical systems at airports throughout the United States. *References available upon request.*

## STEPS:

A vault study typically includes, but is not limited to, the following steps:

1. Meet with owner and maintenance personnel to discuss maintenance practices and long range goals.
2. Review maintenance records and record drawings.
3. Complete thorough site inspection (interior and exterior) and evaluate equipment operating environment.
4. Perform electrical testing: measure task lighting levels, airfield circuit insulation resistance, CCR input/output characteristics, electrical distribution system characteristics, generator output and performance, etc.
5. Evaluate findings and prepare photographic inventory of the airfield lighting vault equipment, mechanical systems, and structure.
6. Evaluate airfield lighting control and monitoring system (ALCMS).
7. Provide engineering solutions to meet established goals.

