CONSULTING SUPPORT SERVICE (003C5)
Technical Topics

Why We Need Electrical Studies
April 5, 2013

The electrical accident and extended power outage at the VAMC Miami facility in May 2000, caused a major concern about the age and condition of the electrical systems at all VA facilities. As a result, an electrical system study program was initiated.

These studies include short circuit current calculations, coordination plots, and voltage drop and arc flash hazard calculations which can be utilized by the Facility Managers and Capital Asset Managers in prioritizing projects to correct any serious electrical deficiencies and/or code violations found as a result of the studies.

The importance and purposes of each study is stated as following:

1. Short Circuit Current Analysis - the purpose of this analysis is to establish proper interrupting ratings for overcurrent protective devices, so the personnel and equipment are protected when fault occurs.
2. Coordination Analysis - the purpose of this analysis is to ensure the overcurrent protective device settings are appropriate for the expected range of conditions, so power outage can be minimized by isolating faults to the nearest protective device.
3. Voltage Drop Analysis - the purpose of this analysis is to identify power feeders with voltage drop that exceed what NEC will allow.
4. Arc Flash Analysis - the purpose of this analysis is to determine the degree of arc flash hazard at the electrical distribution equipment, so the personnel can be protected from the arc flash hazard with proper protective clothing and equipment as described in NFPA 70E.

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