Load Studies for Existing Electrical Panels

Date: January 2, 2023

Last Revised: January 2, 2023

Reason for Policy:
When adding new electrical loads to an existing panel, the National Electrical Code (NEC) requires that verification of existing loads be performed. This policy outlines several paths to comply with this requirement.

Policy Statement:
In order to verify that an existing panel has sufficient capacity to serve new loads, one of the following methods may be used:

1. *Provide calculations*: if calculations demonstrate that the load being removed is more than the load being added, no additional calculations are necessary.
2. *Justify the capacity using existing drawings*: if possible, add the existing and new loads to verify the total will not exceed the panel rating and the upstream circuit breaker.
3. *Analyze a lightly loaded panel*: if you know a panel's capacity, a 'worst case calculation' can confirm there is sufficient capacity. For example, adding a 10 amp load to a 100 amp panel that contains only three 20 amp breakers is sufficient documentation of capacity.
4. *Determine the existing load for an entire building*: Contact UVA-FM Energy and Utilities for peak load data over the previous 12 months.
5. *Metering*: If peak load data is not available, NEC 220.87 allows for calculations by metering for 30 days. The building or space must be occupied and shall include measurement or calculation of the larger heating or cooling load. After seven days of monitoring, if the loads are uniform and it is obvious that there is sufficient capacity for new loads, additional monitoring may not be required. Shortened metering is handled on a case-by-case basis in coordination with the OUBO electrical engineer.