



**SUBJECT**

Electrical Load Capacity Verification Guideline

**PIN: 38**

**Effective: 10/6/1993**

**Revised: 3/17/2017**



**PURPOSE**

In the course of design and review of projects involving additions to existing facilities or remodels, the question of load capacity of existing electrical service frequently arises. It is the responsibility of the electrical engineer of record to provide verification that adequate capacity exists at points in the existing electrical distribution system where additional loads are to be connected. This Policy Intent Notice (PIN) provides a guideline to uniform load calculations.

**POLICY**

The intent of this guideline is to produce uniform load calculations in accordance with the requirements of the California Electrical Code (CEC). The word “panel” as used herein is defined as any panelboard, switchboard, motor control center, distribution panelboard, etc. Transfer switches and transformers are not defined as panels. Refer to CEC Article 100 - Definitions and Article 408 - Switchboards and Panelboards.

For new panels, a schedule with a tabulation of connected loads shall be submitted for review. For existing panels where load is to be added, a load summary shall be provided that details the existing load, loads removed, loads added, net load addition/reduction, and the new load. For new panels and for existing panels with a net load increase, a partial single line diagram shall be provided that shows the ratings of the panel, its feeder, and feeder overcurrent protective device.

OSHPD will require two levels of load capacity verification. Level-one is the panel or branch circuit to which load is being added, its supply conductors, and its overcurrent protective device. Level-two is the next panel which is electrically upstream towards the source from the panel or branch circuit where load is to be added, including its feeder and feeder overcurrent protective device.

**Note:** When load is being added to an essential electrical system panel electrically downstream from the transfer switch, and if the level-two panel is electrically upstream from a transfer switch, level-two load capacity verification must be provided for both the normal panel and the essential electrical system panel feeding the transfer switch.

For level-one panels, the following are acceptable means of determining existing demand load:

- A. For other than where loads consist of primarily x-ray equipment or motors, a minimum three-day (72 hour) recording shall be permitted. A recording ammeter shall be connected to all phases of the service/feeder. The maximum value recorded over this period shall be multiplied by 125% to establish the maximum demand.
- B. A load calculation in accordance with CEC Article 220. The optional method specified in CEC Section 220.87 shall be permitted. Where power demand readings are used, any assumed power factor shall be justified by the electrical engineer.

The recordings under these options shall be performed under the supervision of an electrical engineer, who shall ensure that the timing, duration, and sampling rate of the recordings result in a demand that reflects the true maximum for the service/feeder. Recordings shall be performed within a twelve month period of the date of application to OSHPD.

For level-two panels, the following are acceptable means of verifying load capacity:

- A. Any of the means afforded for level-one panels, described above.
- B. A letter or note on the drawings signed by the electrical engineer of record stating that the level-two panel, its feeder and feeder overcurrent protective device have been checked and that sufficient load capacity exists at this point in the electrical distribution system.

It is not the intent of this PIN to relieve the electrical engineer of the responsibility to perform load capacity verification on all panels, their feeders, and their feeder overcurrent protection devices, upstream from the affected panels, back to the main service entrance, and to the terminals of all separately derived systems, as required by CEC Article 220.

Original signed  
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5/3/17  
Date