Design Guide for Electric Metering of Buildings

All building electrical designs must comply with Title 24 and Stanford Facility Design Guidelines (FDG).

Based on the requirements of the 2013 Title 24, the following is the suggested interpretation of those rules as they apply to Stanford buildings.

For all buildings with an electrical service sized for 250 kVA or greater, the following guidelines shall be used:

1. Stanford maintains its own electrical SCADA system which is used for building monitoring and revenue meter reading. All electrical metering must be connected to and be compatible with this system. Contact Stanford SEM Department/Power Systems for details.

2. The main service meter shall be a Schneider/SquareD ION 7330 meter with Ethernet capability, per FDG 16211 and drawings ES-22 (208/102 volt service) or ES-23 (480/277 volt service). The meter shall be located in the main switch board (MSB), with a conduit from the metering compartment to a network connection point determined during project design.

3. Large lab building or data centers shall use a Schneider/SquareD ION 7550 meter for the main with the same installation requirements as above.

4. All feeders in the MSB shall have meters per FDG 16442, sec. 2.4G. Communication cables (RS-485) from these meters shall be wired to the main meter for remote monitoring.

5. To the maximum extent possible, loads on the MSB feeders shall be grouped so that similar loads are fed from the same circuit. Groupings shall comply with Title 24, Table 130.5-B and as follows:
   a. Lighting
   b. HVAC equipment
   c. Water pumps
   d. Plug Loads
   e. Elevators
   f. Other Process loads such as IT or kitchen/café
   g. Renewables sources such as PV
   h. EV Charging stations

6. If loads cannot be separated at the MSB as above, then additional sub-meters shall be provided using the same type of devices as the main feeders, and similarly wired to the main meter.

7. Any large devices (HVAC > 50 kV, plug > 25 kW) must be metered separately.

Proposed equipment and system layout shall be submitted to Stanford for approval.