



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2021 Washington State Energy Code Development Energy Code Proposal Short Form

For editorial Coordination, Clarifications & Corrections only,
without substantive energy or cost impacts

May 2018

Log No. _____

Code being amended: Commercial Provisions Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section #: C409.4.1 through C409.4.3

Brief Description:

- Clarify C409 metering device, data acquisition system and energy display requirements as they relate to energy consumption (e.g. kWh for electrical energy, BTU or Therms for gas) and consumption rate (kW for electrical, BTU/h or Therms/h for gas). *Require consumption rate for electric meters only*
- Additionally clarify and separate the requirements of the data acquisition system versus the display of stored data by the energy display.

Proposed code change text:

C409.4.1 Meters. Meters and other measurement devices required by this section shall ~~have local displays or~~ be configured to automatically communicate energy data to a data acquisition system and energy display. Source meters may be any digital-type meters. Current sensors or flow meters are allowed for end use metering, provided that they have an accuracy of .+/- 5%. All required metering systems and equipment shall provide at least hourly data that is fully integrated into the data acquisition and display system per the requirements of Section C409. Electrical meters shall be capable of and configured to communicate data to the data acquisition system and energy display for both consumption (e.g. kWh) and consumption rate (e.g. kW). Other meters and measurement devices shall be capable of and configured to communicate data to the data acquisition system for consumption.

C409.4.2 Data acquisition system. The data acquisition system shall store the data from the required meters and other sensing devices in a single database for a minimum of 36 months. For each energy supply and end use category required by C409.2 and C409.3, it shall provide energy consumption logged in one-hour or less intervals and energy consumption rate logged in ten-minute or less intervals. Data from the data acquisition system shall be viewable via the energy display per the requirements of C409.4.3. ~~real-time energy consumption data and logged data for any hour, day, month or year.~~

C409.4.3 Energy display. For each building subject to Section C409.2 and C409.3, either a single visible display in a location with ready access, or a single web page or other electronic document available for access to building operation and management personnel or to a third-party energy data analysis service shall be provided in the building; for metering data acquisition systems and energy displays monitored by a third-party energy data analysis service, building operation and management personnel shall retain access to the metering data acquisition system and energy display available for access to building operation and management personnel. The display shall graphically numerically provide the current energy consumption rate and energy consumption total for each whole building energy source and plus each end use category as well as the total consumption and peak values for any day, week, month and year. The energy

display shall also graphically and numerically display logged data from the data acquisition system for energy consumption and energy consumption rate for each whole building energy source and each end use category for any selected day, week, month, or year.

~~The display shall graphically provide the current energy consumption rate for each whole building energy source, plus each end use category, as well as the total and peak values for any day, week, month and year.~~

Purpose of code change:

C409.4.1 Edits:

1. **Edits in Red:** The current inclusion of “local display” regarding *meters* (plural) in the first sentence of C409.4.1 seemingly conflicts with the requirements for a “visible display in a location with ready access, or a single web page or other electronic document”. The intent of this section in whole appears to be to have metering data from multiple meters be accessible in a single location; local displays on multiple meters does not match the intent of this section.
2. **Edit in Blue:** Logging interval requirements moved to C409.4.2 – see comments regarding edits of C409.4.2
3. **Edits in Green:** In the current draft, the term “energy consumption rate” is only included once (under C409.4.3). However, the current draft also includes references to “total and peak values” under C409.4.3. The inclusion of “consumption rate” and “peak values” appears to require meters to track consumption rate (e.g. kW for electrical, BTU/h or Therms/h per for gas). Based on feedback received at the 2021-08-20 energy TAG meeting, tracking and monitoring of consumption rate for gas meters was unrealistic. This edit clarifies consumption rate metering is only required for Electric metering.

C409.4.2 Edits:

1. **Edits in Blue:** Energy consumption (e.g kWh) and energy consumption rate (e.g. kW) logging requirements should be clearly defined. The current draft indicates “at least hourly data” in section C409.4.1. While energy consumption in an hourly interval can still provide meaningful data for review, energy consumption rate in an hourly interval may not provide much meaningful data (e.g. a boiler cycling on and off every 10 minutes would likely not be apparent with hourly data).
2. **Edits in Orange:** This edit is meant to keep energy data acquisition requirements in the data acquisition section, and display of said data in the energy display section and remove redundancy.

C409.4.3 Edits:

1. **Edits in Red:** This edit is intended remove redundant language, clarify the apparent intent of the section (a single display where energy data can be displayed) and ensure that building operation and management personnel retain access to the energy data when said data is monitored by a third-party.
2. **Edits in Green:** *Graphically* displaying the current energy consumption rate and energy consumption is not particularly meaningful (as this value would be a single data point). For current/real-time data, a numerical display of these values is more clear. See additional edits below for display of historical/logged data.
3. **Edits in Orange:** This edit clarifies and separates the requirements between the data acquisition system, and the subsequent display of the stored data by the energy display. Furthermore, this edit requires that stored data be accessible both graphically and numerically (as numerical data is useful for more in depth analysis, and ensures that those viewing the data graphically can see values associated with the graphical display)
4. **Edit in Blue:** Removes duplicate sentence from current draft.

