

Electrical Load Calculation

Steps when installing Energy Management Systems (EMS) in a single family or semi-detached dwelling (with or without a secondary suite)



Are you using a certified or accepted Electric Vehicle Energy Management System (EVEMS) or Energy Management System (EMS) model? [View lists of certified/accepted models >](#)

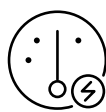
YES



No further calculation needed.

Note the accepted manufacturer & model number in your permit application.

NO



Determine the maximum load calculation.

Step 1

Calculate the demand load. Reference - 2024 Canadian Electrical Code (CEC) Rule 8-106: Use of demand factors.

Step 2

Confirm that the highest ampere rating is not equal to the highest demand load when using single/dual circuit load sharing.

Step 3

Apply load consistently in your calculation: Loads to be of similar nature as applied in the calculated load with the permitted demand factors applied.

Avoid mixing unrelated loads, for example:

AC - Dryer

Hot Tub - Dryer

EVSE - Dryer

Sauna - Dryer

EVSE - Range

Sauna - Induction Cooktop

Hot Tub - Wall Oven

Hot Tub - AC

Hot Tub - EVSE

AC - Electric Water Heater

Step 4

Check and apply specific load rules that are applicable to your project:

Rule 1

Where EVEMS/EMS with main current transformer (CT) monitoring is used for other loads, the demand load can be omitted from the calculated load for the service.

Rule 2

If more than one EVEMS/EMS with CT's installed follow the Manufacturer guidance and 2024 Canadian Electrical Code (CEC) Rule 12-3032 2) 4).

Rule 3

For existing installations and load calculations – permitted unaltered services where higher conductor ampacities were based on a previous code will be grandfathered.

Rule 4

In detached garages – where Electric Vehicle Supply Equipment (EVSE) loads are added to a detached garage, it will be acceptable to control the feeder where main service monitoring CT's are installed.

Rule 5

Augmented loads or demonstrated loads: All installations must be reviewed with a Senior Safety Codes Officer for acceptance.

Step 5



Confirm that the proposed Energy Management System (EMS) meets the [Energy Management System Installation Safety Checklist >](#)



Once you have your electrical permit, email the EMS load calculation to electrical.inspection@calgary.ca with the permit number and address.

For further inquiries, contact Technical Assistance Center (TAC) at electrical.tac@calgary.ca.