

AUTOMATIC LOAD MANAGEMENT SYSTEM (ALMS). A system designed to manage load across one or more Electric Vehicle Supply Equipment (EVSE) to share electrical capacity and/or automatically manage power at each connection point.

ENERGY MANAGEMENT SYSTEM. A system consisting of any of the following: a monitor(s), communications equipment, a controller(s), a timer(s), or other device(s) that monitors and /or controls an electrical load or a power production or storage source.

Example 1:

Construction documents shall provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at **all required EV spaces at the full rated amperage** of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit.

Example 2:

When Level 2 EVSE is installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least **3.3 kW simultaneously to each EV charging station (EVCS)** served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes and installed EVSE shall have a capacity of not less than 30 amperes. ALMS shall not be used to reduce the minimum required electrical capacity to the required EV capable spaces

Example 3:

Where an electric vehicle load management system is installed, the maximum number of EVSE parking spaces that may be connected to the same electrical circuit in the building is as shown in Table 427.3.

TABLE 427.3 MAXIMUM NUMBER OF EVSE PER CIRCUIT BREAKER RATING

Minimum Circuit Breaker Rating (AMPS)	Maximum number of EVSE per Circuit
20	1
30	2
40	4
50	5
60	6
70	7
80	8
90	10
100	11
125	14
150	17

Example 4:

Automatic Load Management [OPTIONAL]:

- (a) The intent of sizing EVSE electrical service to provide 40 Amps at 208 or 240 Volts to at least 20% of the charging ports simultaneously is to provide the option to utilize Automatic Load-Management Systems to provide Level 2 EV charging to 100% of parking spaces in the future, as described in NEC 625.41 (2014).

A listed Automatic Load Management system manages the available capacity in a safe manner, such as allocating 40 Amps at 208 or 240 Volts to vehicles to 20% of the total number of EV Charging Stations simultaneously or allocating 8 Amps to vehicles to 100% of parking spaces at once, or similar. Given the capacity required by this Section, individual EV chargers may be installed in up to 20% of parking spaces before an EV load management system is necessary.

Multi-Unit Residential/Commercial - EV Infrastructure Summary Table

	CORE	PROGRESSIVE
ELECTRICAL CAPACITY	208/240V capacity, 40A breaker per port	208/240V capacity, minimum of 40A breaker per port
PANELS	Space to accommodate one 40A breaker, per port, for 20% of spaces	Space to accommodate one 40A breaker at least, per port, for 50% of spaces
PARKING SPACES & EV CAPABILITY (DEEDED)	EV-ready Infrastructure for 20% of total spaces. Subpanels within 100ft of each EV stall	EV-ready Infrastructure for 50% of total spaces. Subpanels within 100ft of each EV stall
PARKING SPACES & EV CAPABILITY (NON-DEEDED)	EV-ready Infrastructure for 20% of total spaces	EV-ready Infrastructure for 50% of total spaces
AUTOMATIC LOAD MANAGEMENT	No difference	No difference
ESTIMATED COST AS A PERCENTAGE OF TOTAL CONSTRUCTION COST (RESIDENTIAL/COMMERCIAL)	0.27 % - 0.35 %	0.67 % - 0.87 %

625.42. Rating. The power transfer equipment shall have sufficient rating to supply the load served. Electric vehicle charging loads shall be considered to be continuous loads for the purposes of this article. Service and feeder shall be sized in accordance with the product rating. Where an automatic load management system is used, the maximum equipment load on a service and feeder shall be the maximum load permitted by the automatic load management system.