

2024 IECC

NBI has submitted proposals into the ICC process to advance the 2024 IECC. The proposed amendments cover a wide range of measures and improve the code by adding additional efficiency, clarifying requirements, and creating greater flexibility for code users and local jurisdictions. Learn more at newbuildings.org/code_policy/2024-iecc-national-model-energy-code-base-codes.

Code Change Title: Electric Vehicles CEPI-146-21 Part I

Summary: Requires EV charging for all commercial building types. Energy Storage Ready C405 Requires commercial and multifamily energy storage readiness.

Add new definitions as follows:

AUTOMOBILE PARKING SPACE (APS). A space within a building or public parking lot, exclusive of driveways, ramps, columns, office and work areas, for the parking of an automobile.

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.

ELECTRIC VEHICLE (EV). An automobile for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a building electrical service, EVSE, a rechargeable storage battery, a fuel cell, a photovoltaic array, or another source of electric current. Plug-in hybrid electric vehicles are electric vehicles having a second source of motive power. Off-road, self-propelled electric mobile equipment, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats and the like, are not considered electric vehicles for this code.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the *electric vehicle* connectors, attachment plugs, personnel protection system, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *electric vehicle*.

EV CAPABLE SPACE. An *automobile parking space* that is provided with infrastructure, such as, but not limited to, raceways, cables, electrical capacity, and panel space, necessary for the future installation of an *EVSE*.

EV READY SPACE. An *automobile parking space* that is provided with an electrical circuit that will support an installed *EVSE*.

ELECTRIC VEHICLE SUPPLY EQUIPMENT INSTALLED (EVSE) SPACE. An automobile parking space that is provided with a dedicated EVSE.

Add new sections as follows:

C405.14 Electric vehicle charging infrastructure. New parking facilities shall be provided with electric vehicle charging infrastructure in accordance with this section and Table C405.14 based on the total number of parking spaces and rounded up to the nearest whole number. EVSE spaces, EV ready spaces and EV capable spaces may be counted toward meeting minimum parking requirements. EVSE spaces may be used to meet requirements for EV ready spaces and EV capable spaces. EV ready spaces may be used to meet requirements for EV capable spaces. Each EVSE space capable of delivering not less than 150kW to an electric vehicle shall be permitted to reduce the total number of EV spaces required by this section by five. Where more than one parking facility is provided on a building site, the number of parking spaces required shall be calculated separately for each parking facility.

TABLE C405.14
ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REQUIREMENTS^c

<u>OCCUPANCY</u>	<u>EVSE SPACES</u>	<u>EV READY SPACES</u>	<u>EV CAPABLE SPACES</u>
<u>Group B Occupancies</u>	<u>20%</u>	<u>NA</u>	<u>30%</u>
<u>Group M Occupancies</u>	<u>10%</u>	<u>NA</u>	<u>10%</u>
<u>R-2 Occupancy^a</u>	<u>25%</u>	<u>NA</u>	<u>75%</u>
<u>All other Occupancies^b</u>	<u>10%</u>	<u>NA</u>	<u>10%</u>

a. Where EV ready spaces are provided in accordance with Section C405.14.3, the requirement for EVSE spaces and EV Capable spaces shall be permitted to be reduced to 0%.

b. Group U, H, S occupancies provided with not less than one EVSE space.

c. Where staff parking is designated, quantities shall be proportionally distributed between public and staff EV charging.

C405.14.1 Electric Vehicle Charging Stations and Systems. Where provided, electric vehicle charging systems shall be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2202. EVSE shall be listed and labeled in accordance with UL 2594. Accessibility to EVSE shall be provided in accordance with IBC Section 1108. Electric vehicle charging infrastructure shall be in accordance with C405.14.

C405.14.2 EV Capable Spaces. EV Capable Spaces shall be provided with electrical infrastructure that conforms to the following requirements:

1. A raceway or cable that is continuous between a junction box or outlet located within 3 feet (914 mm) of the parking space and connected by continuous conduit to an electrical panel serving the area of the parking space
2. The raceway or cable shall be sized and rated to accommodate a minimum 40-amp, 208/240-volt branch circuit, and the raceway shall have a minimum nominal trade size of 1 inch.
3. The electrical panel shall have sufficient load capacity for the design load, or shall be managed by an approved ALMS or building load management program. Design load assumptions shall be documented on the construction documents.
4. The electrical panel to which the raceway or cable ~~conduit~~ connects shall have sufficient dedicated physical space for a 2-pole breaker.
5. The electrical junction box and the electrical panel directory entry for the dedicated space in the electrical panel shall have labels stating “For future *electric vehicle* charging.”

Exception: In parking garages, the raceway or cable required for *EV capable spaces* may be omitted provided the parking garage electrical service has no less than 1.8 kVA of additional reserved capacity per *EV capable space*.

C405.14.3 EV Ready Spaces. Where permitted by Table C405.14, one *EV ready space* shall be provided per *dwelling unit*. The branch circuit serving *EV Ready Spaces* shall conform to the following requirements:

1. Conductors or cables capable of supporting a 40-amp, 208/240-volt circuit,
2. Terminates at a receptacle outlet located within 3 feet (914 mm) of the parking space,
3. A minimum load capacity of 1.8 kVA,
4. The electrical panel directory shall designate the branch circuit as “For electric vehicle charging” and the junction box or receptacle shall be labelled “For *electric vehicle* charging.”

Exception: Where 100% of *automobile parking spaces* are *EV ready spaces* or *EVSE spaces*.

C405.14.4 EVSE Spaces. The *EVSE* serving *EVSE spaces* shall be rated to supply not less than 6.2 kW to an electric vehicle and shall be located within 3 feet (914 mm) of the parking space. An *EVSE* with multiple vehicle connections shall be permitted to serve multiple *EVSE spaces* provided each connection meets the requirements of this section for power delivery and location. An *ALMS* may be used to reduce the total electrical capacity required by *EVSE spaces* provided that all *EVSE spaces* are capable of simultaneously charging at a minimum rate of 1.8 kW.

C405.14.5 Electric Vehicle Charging Loads. The load calculated for Electric Vehicle Charging Loads per Table C405.12.2 Energy Use Categories may be reduced by 50% for

installed EVSE equipped with the capability of programing the charging to occur during utility established off-peak hours.

The adoption rate of electric vehicles is on a steep upward climb, creating the need for electric vehicle charging now and in the near future. The cost of retrofitting parking lots with electric vehicle charging infrastructure (EVCI) is far higher than the cost of installing it as new construction or providing parking spaces with raceways and other low-cost provisions to add EVCI in the future (EV Capable). This proposal includes requirements for EV chargers for some spaces to meet current EV charging needs and requirements for EV capable spaces to provide for cost-effective EV charging retrofits in the future to meet future EV charging needs.