RECPI-9-21

IECC®: SECTION 202 (New), R404.4 (New), R404.4.1 (New), R404.4.2 (New), R404.4.3 (New), R404.4.4 (New)

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2021 International Energy Conservation Code

Add new definition as follows:

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

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, and electric motorcycles, 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.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). Equipment for plug-in power transfer including the ungrounded, grounded and equipment grounding conductors, and the *electric vehicle* connectors, attached plugs, personal protection system and all other fittings, devices, power outlets or apparatus installed specifically for the purpose of tranferring energy between the premises wiring and the *electric vehicle*.

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

ELECTRIC VEHICLE CAPABLE SPACE (EV CAPABLE SPACE). A designated *automobile parking space* that is provided with electrical infrastructure, such as, but not limited to, raceways, cables, electrical capacity, and panelboard or other electrical distribution equipment space, necessary for the future installation of an *EVSE*.

ELECTRIC VEHICLE READY SPACE (EV READY SPACE). An *automobile parking space* that is provided with a branch circuit and either an outlet, junction box or receptacle, that will support an installed *EVSE*.

Add new text as follows:

R404.4 Electric Vehicle Power Transfer Infrastructure. *Automobile parking spaces* for R-2 occupancies shall be supplied with Electric Vehicle Power Transfer Infrastructure as described in R404.4.1-R404.4.3.

R404.4.1 Quantity. The number of allocated, on-site parking spaces requiring *EVSE Installed* or be *EVSE Capable* shall be as follows:

Total Parking Spaces Provided in Parking Facilities	
EVSE Installed Spaces	10%-minimum 2
EV Capable Spaces	15%-minimum 2
Accessible Parking Spaces	
EVSE Installed Spaces	10%-minimum 1
EV Capable Spaces	15%-minimum 1

These requirements shall not increase the total number of parking spaces. Accessible space requirements shall not contribute to the total number of spaces required. Where more than one parking facility is provided on a site, the number of spaces required shall be calculated separately for each parking facility.

R404.4.2 EV Capable spaces. Each *EV Capable Space* shall comply with the following:

1. A continuous raceway or cable assembly shall be installed between the electrical distribution equipment and a location within 3 feet (914 mm) of the designated *EV capable space*.
2. The raceway or cable assembly shall be capable of supplying the loads specified in R404.4.4 and marked “Reserved for Future Electric Vehicle Supply Equipment (EVSE)”.

R404.4.3 EV Installed spaces. Each *EVSE* installed space shall comply with the following:

1. The *EVSE* shall be installed within 3 feet (914 mm) of the designated *EVSE* Installed Space.

R404.4.4 Minimum charging rate.

1. The *EVSE* shall be capable of charging at a rate not less than 6.6kVA per parking space.

2. When served by an approved automatic load management system, the *EVSE* shall be capable of charging at a rate not less than 3.3kVA per parking space.

Reason: New electric vehicle (EV) sales totaled 488,000 in 2021 and are expected to increase to 2,000,000 by 2026 (Forbes 02/24/2022). The transition to EVs is happening quickly and new housing stock has to adapt to this trend. Currently, 11% of new car buyers are considering EVs.

Cost Impact: The code change proposal will increase the cost of construction.
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EV Capable cost (new construction) - $750 (50' 8-3 NM, dual pole breaker, outlet, trim, labor)

EVSE Installed – EV Capable + $1000 (Level 2 charger, labor)

Installing the EV charging infrastructure post construction would probably double the installed cost. Additionally, installing the charging infrastructure at the time of construction will ensure the proper electrical service size thereby eliminating the need for costly upgrades in the future.

The charging infrastructure coupled with an EV may also be used to reduce costs for backup power systems and self-consumption of onsite photovoltaic generation.