Appendix CD

ELECTRIC VEHICLE READY PROVISIONS-COMMERCIAL OCCUPANCIES

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION CD101
SCOPE

CD101.1 General. These provisions shall be applicable for new construction where electric vehicle (EV) provisions are required.

CD101.2 Intent. This code shall regulate the design, and construction of buildings for the reduction of greenhouse gas emissions and for the efficient production, use and storage of energy over the useful life of each building. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve this objective. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

***User Note**: Intent includes consideration of greenhouse gas emissions as well as both production and storage of energy.*

CD101.3 Additional construction documents. Information on construction documents shall include the following in addition to the details in Section C103.2.

1. Location of designated *EVSE spaces*, *EV-Ready spaces*, and *EV-Capable spaces* in parking facilities.

***User Note**: To assist in enforcement of electric vehicle infrastructure requirements, and to serve as a plan for full installation of EVSE equipment in EV-ready and EV-capable spaces in the future, plans should clearly indicate the intended locations of EV infrastructure.*

SECTION CD102
GENERAL DEFINITIONS

AUTOMATIC LOAD MANAGEMENT SYSTEMS (ALMS). A control system that allows multiple connected *EVSE* to share a circuit or panel and automatically reduce power at each charger, reducing the total connected electrical capacity of all *EVSE*.

ELECTRIC VEHICLE (EV). An automotive-type vehicle 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 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.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, 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*.

***User Note**: Definitions for EV and EVSE are mirrored from NEC-2020 to be useful in defining requirements for electric vehicle infrastructure.*

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

***User Note**: The charging rate for an EVSE space is set at 6.2 kW. This is equivalent to a 30A/208V EVSE. 30 and 32A chargers are the most common Level 2 chargers and the highest capacity chargers that can be installed on a 40A branch circuit. kW is used as the metric to indicate total power delivered rather than the specific combination of Volts and Amps.*

EV CAPABLE SPACE. A vehicular *parking space* that is provided with some of the infrastructure necessary for the future installation of an *EVSE* – such as conduit, raceways, electrical capacity, or signage – or reserved physical space for such infrastructure.

EV READY SPACE. A vehicular *parking space* that is provided with an electrical circuit capable of supporting an installed *EVSE*.

***User Note**: EV Ready and EV Capable definitions do not include requirements for minimum capacity for the branch circuit. Different levels of capacity are appropriate for different EV charging scenarios (charging at different building types, parking types, residential types, business types, times of day, etc.) as well as different levels of penetration of EV charging spaces in a parking lot. Therefore, capacity requirements are set in the code text itself to allow for consistent use of the definitions while the capacity requirements change to match the specific EVCI requirements of the jurisdiction.*

SECTION CD103
ELECTRIC VEHICLE CHARGING

CD103.1 End-use metering categories for electric vehicles.
Electric vehicle charging shall be included in the end-use loads for energy use categories.

***User Note**: Electric Vehicle charging is a transportation load, not a building load, but is often provided through a building electrical service connection. Adding a category for monitoring EV charging separately allows the building load to be measured independently from this non-building load. This will be critical with the wider adoption of Building Performance Standards or other existing building energy use policies as it will allow EV charging to be easily excluded from the building loads for the purposes of regulating actual energy use in buildings.*

CD103.2 Electric vehicle charging infrastructure. Where parking is provided, *EV* charging infrastructure shall be provided in accordance with this section and Table CD103.2.1 based on the total number of parking spaces and rounded up to the nearest whole number. Where more than one parking facility is provided on a *site*, the number of *EV-Capable, EV-Ready,* and *EVSE-Installed Spaces* shall be calculated separately for each parking facility. When 10 or more parking spaces are added to an existing building, only the parking spaces being added are subject to these requirements. *EVSE-Installed Spaces* are permitted to be used to meet requirements for *EV-Ready* and *EV-Capable Spaces*. *EV-Ready Spaces* are permitted to be used to meet requirements for *EV-Capable Spaces.*

Exception: Parking facilities with fewer than 10 spaces.

***User Note**: The EV charging infrastructure requirements have been tailored to different charging scenarios. EV Ready spaces are utilized in residential occupancies where EV owners are more likely to choose specific EVSEs with features that meet their personal, long-term needs.*

EVSE spaces are required for commercial parking lots where shorter parking times are typical and Level 2 or 3 parking is more appropriate. Additionally, while the car connection side of Level 2 EVSE are standard, the grid connection side is not, so utilizing EVSE rather than EV Ready spaces maximizes the utility of parking spaces in commercial lots that have more transient parking.

CD103.2.1 Electric vehicle charging infrastructure parking. The electric vehicle charging infrastructure shall meet the requirements of Table CD103.2.1.

TABLE CD103.2.1
ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REQUIREMENTS

OCCUPANCY	***EVSE SPACES***	***EV READY SPACES***	***EV CAPABLE SPACES***
Group B Occupancies	2%	NA	18%
Group M Occupancies	2%	NA	18%
R-2 Occupancy	NA	20%[a]	NA

All other Occupancies	NA	NA	10%

a. Or one *EV ready space* per *dwelling unit*.

***User Note**: The percentages in Table C405.14 can be adjusted to tailor the requirements for the specific market needs of a jurisdiction. However, the EV Capable space requirements included for all commercial lots recognizes that future needs for EV charging will be much greater than they are now. EV capable spaces avoid the significant cost of parking lot re-trenching, which is one of the largest single costs of EVCI retrofits but only a minor investment in new construction.*

CD103.2.2 EV-Capable Spaces. *EV-Capable Spaces* shall be provided with electrical infrastructure that meets the following requirements:

1. Conduit or approved wiring that is continuous between a junction box or outlet located within 3 feet (914 mm) of the parking space and an electrical panel serving the area of the parking space,
2. The electrical panel to which the conduit connects shall have sufficient dedicated physical space for a dual-pole, 40-amp breaker,
3. The conduit shall be sized and rated to accommodate a 40-amp, 208/240-volt branch circuit and have a minimum nominal trade size of 1 inch,
4. 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”.

CD103.2.3 EV-Ready Spaces. The branch circuit serving *EV-Ready Spaces* shall meet the following requirements:

1. A minimum 40-amp, 208/240-Volt dedicated branch circuit that terminates at a receptacle, junction box or *EVSE* located within 3 feet (914 mm) of the parking space,
2. 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”.

CD103.2.4 EVSE-installed Spaces. The *EVSE* serving *EVSE-installed spaces* shall be capable of supplying not less than 6.2 kW to an *electric vehicle* and shall be located within 3 feet (914 mm) of the parking space.