

DSA Code Amendment development

## TRACKING

Date Received:

DSA Tracking Number: 00

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Status:

## APPLICABLE CODE

Applicable Code Section(s): CBC, Chapter X Chapter Name

Topic: Electric Vehicle Charging at Public Schools and Community Colleges

## CURRENT CODE LANGUAGE

**5.106.5.6 Electric vehicle (EV) charging at Public Schools and Community Colleges. [DSA-SS]** vehicle infrastructure and electric vehicle charging stations shall comply with Section 5.106.5. and shall be provided in accordance with regulations in the *California Building Code and the California Electrical Code.*

**Exceptions:**

1. On a case-by-case basis where compliance with this section has been demonstrated to be not feasible based upon one of the following conditions, and with concurrence by the Division of the State Architect (DSA), compliance with Section 5.106.5.6 shall not be required.
	1. Where there is no local utility power supply.
	2. Where the local utility is unable to supply adequate power.
	3. The installation of EVCS is impracticable.
2. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with Section 5.106.5.6.

**5.106.5.6.1** **EV capable spaces.** EV capable spaces shall be provided in accordance with Table 5.106.5.1 and the following requirements:

1. Raceways complying with the *California Electrical Code* and no less than 1-inch (25 mm) diameter shall be provided and shall originate at a service panel or a subpanel(s) serving the area and shall terminate in close proximity to the proposed location of the EV capable space and into a suitable listed cabinet, box, enclosure or equivalent. A common raceway may be used to serve multiple EV capable spaces.
2. A service panel or subpanel(s) shall be provided with panel space and electrical load capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuits for each EV capable space, with delivery of 30-ampere minimum to an installed EVSE at each EVCS.
3. The electrical system and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each EV capable space.
4. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE.”.

**TABLE 5.106.5.6.1**

| **TOTAL NUMBER OF PARKING SPACES** | **NUMBER OF REQUIRED EV CAPABLE SPACES** | **NUMBER OF REQUIRED EVCS**2**(EV CAPABLE SPACES PROVIDED WITH EVSE)**2 |
| --- | --- | --- |
| 0-9 | 0 | 0 |
| 10-25 | 4  | 01 |
| 26-50 | 8  | 2  |
| 51-75 | 13  | 3 |
| 76-100 | 17  | 4 |
| 101-150 | 25  | 6 |
| 151-200 | 35  | 9 |
| 201 and over | 20 percent of total1 | 25 percent of EV capable spaces 1 |

1. Calculation for spaces shall be rounded up to the nearest whole number.
2. Each EVCS shall reduce the number of required EV capable spaces by the same number.

**5.106.5.6.4 EVCS for alterations of or additions to parking facilities.** Alterations of or additions to parking facilities shall provide EVCS in compliance with Section 5.106.5.6.4. The installation of infrastructure for EV capable spaces required to be provided without EVSE shall not be required.

**5.106.5.6.4.1 Alterations of and additions to parking facilities.** EVCS shall be provided in accordance with the number indicated in Table 5.106.5.6.1 or minimum power indicated in Table 5.106.5.6.3 when the scope of work includes an increase in power supply to an electric panel serving light fixtures illuminating the parking area or when area containing parking spaces is added to a parking facility. The number of required EVCS shall be based on the total number of existing and new parking spaces in the parking facility.

**5.106.5.6.4.2 Alterations consisting of the installation of photovoltaic systems.** EVCS shall be provided in accordance with the number indicated in Table 5.106.5.6.1 or maximum power indicated in Table 5.106.5.6.3 when a new photovoltaic system is installed in an existing parking facility.

**5.106.5.6.5 Requirement to install EVSE.** Level 2EVSE shall be provided in all existing EV capable spaces to create EVCS when a project is required by *California Administrative Code* Section 4-309 to be submitted for plan approval to the Division of the State Architect. When EVSE is installed in existing EV capable spaces, accessible EVCS shall be provided in accordance with *California Building Code Chapter 11B*.

 **Exception:** Projects in which improvements in parking areas consist only of accessibility improvements are not required to comply with Section 5.106.5.6.5

## SUGGESTED TEXT OF PROPOSED AMENDMENT

**5.106.5.6 Electric vehicle (EV) charging at Public Schools and Community Colleges. [DSA-SS]** vehicle infrastructure and electric vehicle charging stations shall comply with Section 5.106.5. and shall be provided in accordance with regulations in the *California Building Code and the California Electrical Code.*

**Exceptions:**

1. On a case-by-case basis where compliance with this section has been demonstrated to not be ~~not feasible~~ practical ~~based upon one of the following conditions~~, and with concurrence by the Division of the State Architect (DSA), compliance with Section 5.106.5.6 shall not be required. Conditions that are considered not practical include but are not limited to.
	1. Where there is no local utility power supply.
	2. Where the local utility is unable to supply adequate power.
	3. ~~The installation of EVCS is impracticable.~~
2. When the cost to construct the minimum EVCS or install EVSE is greater than X% of the construction cost the project will be permitted to install fewer than the minimum number of EVSC.
3. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with Section 5.106.5.6.

**5.106.5.6.1****~~EV capable spaces.~~** ~~EV capable spaces shall be provided in accordance with Table 5.106.5.1 and the following requirements:~~

1. ~~Raceways complying with the~~ *~~California Electrical Code~~* ~~and no less than 1-inch (25 mm) diameter shall be provided and shall originate at a service panel or a subpanel(s) serving the area and shall terminate in close proximity to the proposed location of the EV capable space and into a suitable listed cabinet, box, enclosure or equivalent. A common raceway may be used to serve multiple EV capable spaces.~~
2. ~~A service panel or subpanel(s) shall be provided with panel space and electrical load capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuits for each EV capable space, with delivery of 30-ampere minimum to an installed EVSE at each EVCS.~~
3. ~~The electrical system and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each EV capable space.~~
4. ~~The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE.”.~~

**~~TABLE 5.106.5.6.1~~**

| **~~TOTAL NUMBER OF PARKING SPACES~~** | **~~NUMBER OF REQUIRED EV CAPABLE SPACES~~** | **~~NUMBER OF REQUIRED EVCS~~**~~2~~**~~(EV CAPABLE SPACES PROVIDED WITH EVSE)~~**~~2~~ |
| --- | --- | --- |
| ~~0-9~~ | ~~0~~ | ~~0~~ |
| ~~10-25~~ | ~~4~~  | ~~01~~ |
| ~~26-50~~ | ~~8~~  | ~~2~~  |
| ~~51-75~~ | ~~13~~  | ~~3~~ |
| ~~76-100~~ | ~~17~~  | ~~4~~ |
| ~~101-150~~ | ~~25~~  | ~~6~~ |
| ~~151-200~~ | ~~35~~  | ~~9~~ |
| ~~201 and over~~ | ~~20 percent of total~~~~1~~ | ~~25 percent of EV capable spaces~~ ~~1~~ |

1. ~~Calculation for spaces shall be rounded up to the nearest whole number.~~
2. ~~Each EVCS shall reduce the number of required EV capable spaces by the same number.~~

**~~5.106.5.6.2 Electric vehicle charging stations (EVCS).~~** ~~EVSE capable spaces shall be provided with EVSE to create EVCS shall be provided in the number indicated in Table 5.106.5.6.1 and shall comply with Section 5.106.5.6.2. EVCS shall be serviced by Level 2 or Direct Current Fast Charging (DCFC) EVSE, or with EVSE in any combination of Level 2 and DCFC. Accessible EVCS shall be provided in accordance with~~ *~~California Building Code Chapter 11B~~*~~.~~

**~~5.106.5.6.2.1 Reduced number of EV capable spaces.~~** ~~The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces indicated in Table 5.106.5.6.1 by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.~~

**~~5.106.5.6.2.2 Multiple Connectors.~~** ~~EVSE with multiple vehicle connectors capable of charging multiple EVs simultaneously shall be permitted if the electrical load capacity required by Section 5.106.5.6.1 for each EV capable space is accumulatively supplied to the EVSE.~~

**~~5.106.5.6.2.3 Use of automatic load management systems (ALMS).~~** ~~ALMS shall be permitted for EVCS. installed in accordance with Section 5.106.5.6.2. When ALMS is installed, the required electrical load capacity specified in Section 5.106.5.6.1 for each EVCS may be reduced when serviced by an EVSE controlled by an ALMS. Each EVSE controlled by an ALMS shall deliver a minimum 30 amperes to an EV when charging one vehicle and shall deliver a minimum 3.3 kW while simultaneously charging multiple EVs.~~

**~~5.106.5.6.3 EVCS alternative compliance.~~** ~~In lieu of compliance with Section 5.106.5.6.2,~~ EVCS shall be provided with Level 1, Low Power Level 2, Level 2, DCFC or any combination of Level 1, Low Power Level 2, Level 2, DCFC EVSE such that the total power supplied by the combination of EVSE meets the minimum power indicated in Table 5.106.5.6.3, based on the total number of actual parking spaces in each parking facility.

**TABLE 5.106.5.6.3**

| **NUMBER OF PARKING SPACES** **IN A PARKING FACILITY** | **MINIMUM TOTAL POWER (KVA)** **REQUIRED FOR EVCS** |
| --- | --- |
| ~~0~~1-9 | 0 |
| 10-25 | 7 |
| 26-50 | 14 |
| 51-75 | 20 |
| 76-100 | 27 |
| 101-150 | 40 |
| 151-200 | 60 |
| 201 and over | Total required KVA=P×.05×6.6Where P=Parking spaces in facility |

**5.106.5.6.4 EVCS for alterations of or additions to parking facilities.** Alterations of or additions to parking facilities shall provide EVCS in compliance with Section 5.106.5.6.4. ~~The installation of infrastructure for EV capable spaces required to be provided without EVSE shall not be required.~~

**~~5.106.5.6.4.1 Alterations of and additions to parking facilities.~~** EVCS shall be provided in accordance with the ~~number indicated in Table 5.106.5.6.1 or~~ minimum power indicated in Table 5.106.5.6.3~~. when the scope of work includes an increase in power supply to an electric panel serving light fixtures illuminating the parking area or~~ when an area containing parking spaces is added to a parking facility. The ~~number of~~ power required for EVCS shall be based on the total number of existing and new parking spaces in the parking facility.

**5.106.5.6.4.2 Alterations consisting of the installation of photovoltaic systems.** EVCS shall be provided in accordance with the ~~number indicated in Table 5.106.5.6.1 or maximum~~ minimum power indicated in Table 5.106.5.6.3 for parking spaces covered by the newly installed PV, when a new photovoltaic system is installed in an existing parking facility.

**5.106.5.6.5 Requirement to install EVSE.** ~~Level 2~~EVSE in accordance with Section 5.106.5.6.1 shall be provided in all existing EV capable spaces to create EVCS when a new building is constructed or placed on site, or an alteration project reaches the cost threshold required by *California Administrative Code* Section 4-309 to be submitted for plan approval to the Division of the State Architect~~.~~ ~~When EVSE is installed in existing EV capable spaces, accessible EVCS shall be provided in accordance with~~ *~~California Building Code Chapter 11B~~*~~.~~

**Exception:** Projects in which improvements in parking areas consist only of accessibility improvements are not required to comply with Section 5.106.5.6.5

## CODE TEXT IF ADOPTED

**5.106.5.6 Electric vehicle (EV) charging at Public Schools and Community Colleges. [DSA-SS]** vehicle infrastructure and electric vehicle charging stations shall comply with Section 5.106.5. and shall be provided in accordance with regulations in the *California Building Code and the California Electrical Code.*

**Exceptions:**

1. On a case-by-case basis where compliance with this section has been demonstrated to not be practical, and with concurrence by the Division of the State Architect (DSA), compliance with Section 5.106.5.6 shall not be required. Conditions that are considered not practical include but are not limited to.
	1. Where there is no local utility power supply.
	2. Where the local utility is unable to supply adequate power.
	3. When the cost to construct the minimum EVCS or install EVSE is greater than X% of the construction cost the project will be permitted to install fewer than the minimum number of EVSC.
2. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with Section 5.106.5.6.

**5.106.5.6.1** EVCS shall be provided with Level 1, Low Power Level 2, Level 2, DCFC or any combination of Level 1, Low Power Level 2, Level 2, DCFC EVSE such that the total power supplied by the combination of EVSE meets the minimum power indicated in Table 5.106.5.6.3, based on the total number of actual parking spaces in each parking facility.

**TABLE 5.106.5.6.3**

| **NUMBER OF PARKING SPACES** **IN A PARKING FACILITY** | **MINIMUM TOTAL POWER (KVA)** **REQUIRED FOR EVCS** |
| --- | --- |
| 01-9 | 0 |
| 10-25 | 7 |
| 26-50 | 14 |
| 51-75 | 20 |
| 76-100 | 27 |
| 101-150 | 40 |
| 151-200 | 60 |
| 201 and over | Total required KVA=P×.05×6.6Where P=Parking spaces in facility |

**5.106.5.6.4 EVCS for alterations of or additions to parking facilities.** Alterations of or additions to parking facilities shall provide EVCS in compliance with Section 5.106.5.6.4. EVCS shall be provided in accordance with the minimum power indicated in Table 5.106.5.6.3 when an area containing parking spaces is added to a parking facility. The power required for EVCS shall be based on the total number of existing and new parking spaces in the parking facility.

**5.106.5.6.4.2 Alterations consisting of the installation of photovoltaic systems.** EVCS shall be provided in accordance with minimum power indicated in Table 5.106.5.6.3 for parking spaces covered by the newly installed PV, when a new photovoltaic system is installed in an existing parking facility.

**5.106.5.6.5 Requirement to install EVSE.** EVSE in accordance with Section 5.106.5.6.1 shall be provided in all existing EV capable spaces to create EVCS when a new building is constructed or placed on site, or an alteration project reaches the cost threshold required by *California Administrative Code* Section 4-309 to be submitted for plan approval to the Division of the State Architect.

**Exception:** Projects in which improvements in parking areas consist only of accessibility improvements are not required to comply with Section 5.106.5.6.5

## STATEMENT OF REASONS

DSA proposes to Add exception 1(d). DSA has found that the cost to install EV chargers may be cost prohibitive, often exceeding $100,000 for one charger. This may place an undue burden on projects. DSA has found that if a parking facility cost $1,000,000 to construct, and the 2 EV chargers would cost $120,000 to install, the 12% cost added for purely EV chargers. DSA has determined that projects can reduce the total number of EV chargers to get the cost of EV charging to X% of the project cost.

DSA seeks to remove language related to EV capable spaces, and the creation of electric vehicle charging stations from EV capable spaces. The alternative compliance, or power method, will be the only method public schools and community colleges will determine the amount of EV charging that is required to be installed. The power method is equivalent to the method being removed; however, it does not require EV capable spaces to be provided.

Removing the EV capable spaces will remove confusion from the code, it also removes the requirement to provide infrastructure that may never be used.

## DSA COMMENTS

This item is related to Items X and X.