

Definitions:

Electric Vehicle (EV): Any vehicle for on-road use that is powered by an electric motor which may utilize building electrical service as a fuel source.

Electric Vehicle Supply Equipment (EVSE): Electrical circuitry and equipment dedicated to EV charging including conductors, connectors, attachment accoutrements, personnel protection, power outlets, apparatus and equipment installed specifically for the purpose of transferring electricity from building to electric vehicle.

Electric vehicle charging station. “Electric vehicle charging station” means a designated automobile parking space that has a dedicated connection for charging on an electric vehicle by utilizing Electric Vehicle Supply Equipment (EVSE). (underlined is statutory language)

Electric Vehicle Supply Equipment (EVSE) Installed Space: A parking space provided with EVSE equipment for minimum Level 2 electric vehicle charging. (underlined is statutory language)

Electric Vehicle (EV) Ready Space: “Electric Vehicle Ready Space” means a designated automobile parking space that has electrical infrastructure, including but not limited to raceways, cables, electrical capacity, and panelboard or other electrical distribution space necessary for the future installation of an electric vehicle charging station providing at a minimum Level 2 charging. (underlined is statutory language)

Electric Vehicle (EV) Capable Space: “Electric Vehicle Capable Space” means a designated automobile parking space that has a branch circuit capable of supporting the installation of an electric vehicle charging station for Level 2 charging. (underlined is statutory language)

Level 2 Charging Equipment. “Level 2 Charging Equipment” means a device that converts 240-volt AC power into DC power and delivers it to an electric vehicle’s battery.

Parking Facilities. “Parking Facilities” includes parking lots, garages, ramps, or decks used for parking passenger vehicles. (underlined is statutory language)

Section 8.9 Electric Vehicle Charging Facilities

8.9.1 Scoping. In each location where *parking facilities* are provided, the number of parking spaces equipped as *EVSE-Installed space, EV-Ready space, and EV-Capable space* shall be provided in accordance with this section. Where more than one parking facility is provided on a site, EVSE-Installed, EV-Ready, and EV-Capable Spaces shall be calculated separately for each parking facility. Fractions shall be rounded up to the next higher whole number.

Exception: Residential structures with fewer than four dwelling units. (statutory exception)

8.9.1.1 Mixed occupancies and shared occupancies. Where a parking facility is shared by multiple occupancies, the required number of electric vehicle charging facilities shall be provided in proportion to the gross building area of each occupancy classification.

8.9.1.2 Installed Spaces Exceeding Minimums. EVSE Installed spaces that exceed the minimum number of required EVSE Installed spaces may be used to satisfy requirements of EV-Ready and EV-Capable Spaces. Installed EV-Ready spaces that exceed the minimum number of required EV-Ready spaces may be used to satisfy requirements of EV-Capable Spaces.

8.9.1.3 Identification. EVSE Installed spaces shall be identified by permanent signage reading “Electric Vehicle Parking for Charging Only.” EVSE Ready spaces shall be identified by permanent signage reading “Electric Vehicle Parking Only.” Signs shall be installed at the head end of the designated parking stall and mounted such that the sign is between 60 inches and 66 inches above the parking surface. A permanent and visible label shall be posted in a conspicuous place at the service panel to identify each panel space reserved for future EVSE equipment as required for EV-Capable and EV-Ready spaces. Raceway termination points for EV-Capable and EV-Ready spaces shall be labeled as reserved for EVSE Equipment.

8.9.2 Number of Dedicated parking stalls. EVSE-Installed, EV-Ready Spaces and EV-Capable Spaces shall be provided in quantities in accordance with Table 8.9.2. Where the calculation of percent served results in a fractional parking space, it shall round up to the next whole number.

Table 8.9.2 EVSE-Installed, EV-Ready and EV Capable Space Requirements ^{1,2}			
Use	Minimum number or % of EVSE-Installed spaces	Minimum number or % of EV-Ready spaces	Minimum number or % of EV-Capable spaces
Commercial (Groups A, B, E, F, I-2, I-3, I-4, M, R-4, S)	3% EVSE Installed (50+ spaces)	15% EV-Ready	7% EV- Capable
Multi-family (R-1, R-2, R-4, I-1)	5% EVSE Installed (20+ spaces)	15% EV-Ready	15% EV-Capable

Footnotes:

1. Parking spaces dedicated to commercial, or emergency vehicles are exempt. Parking for non-commercial vehicles at the facility are not exempt.
2. Parking serving mixed occupancies on the same property shall be provided with electric vehicle charging facilities as required and in proportion to the building area of each occupancy classification.

8.9.3 EV Capable Spaces. Each EV capable space used to meet the requirements of Section 8.9.2 shall comply with the following:

1. A continuous raceway or cable assembly shall be installed between a junction box or outlet located within 3 feet (914mm) of the EV capable space and electrical distribution equipment.
2. Installed raceway or cable assembly shall be sized and rated to supply a minimum circuit capacity in accordance with Section 8.9.6
3. The electrical distribution equipment to which the raceway or cable assembly connects shall have dedicated space for an overcurrent protection device and electrical capacity to supply a calculated load in accordance with Section 8.9.6.
4. The junction box or outlet and the electrical distribution equipment directory shall be marked "For electric vehicle supply equipment (EVSE)."

8.9.4 EV Ready Spaces. Each branch circuit serving EV ready spaces used to meet the requirements of Section 8.9.2 shall comply with the following:

1. Terminate at an outlet or junction box located within 3 feet (914 mm) of each EV ready space it serves.
2. Have a minimum system and circuit capacity in accordance with 8.9.6.
3. The electrical distribution equipment directory shall designate the branch circuit as "For electric vehicle supply equipment (EVSE)" and the outlet or enclosure shall be marked "For electric vehicle supply equipment (EVSE)."

8.9.5 EVSE Installed Spaces. An installed EVSE with multiple output connections shall be permitted to serve multiple EVSE spaces. Each EVSE installed to meet the requirements of Section 8.9.2, serving either a single EVSE space or multiple EVSE spaces, shall comply with the following:

1. Have minimum system and circuit capacity in accordance with Section 8.9.6.
2. Have a nameplate rating not less than 6.2 kW.
3. Be located within 3 feet (914 mm) of each EVSE space it serves.
4. Be installed in accordance with the equipment manufacturers recommended instructions.

8.9.6 System and circuit capacity. The system and circuit capacity shall comply with this section.

8.9.6.1 Circuits for electric vehicle charging. The service panel shall provide sufficient capacity and space to accommodate the circuit and over-current protective device for each EVSE, EV-Ready and EV-Capable space. Circuits for EVSE, EV-Ready and EV-Capable spaces shall have no other outlets. Termination points for EV-Ready and EV-Capable spaces shall be located where proposed future equipment for such purposes is intended to be installed.

8.9.6.2 System Capacity. The electrical distribution equipment supplying the branch circuit(s) serving each EV capable space, EV ready space, and EVSE space shall have a calculated load of 7.2 kVA or the nameplate rating of the equipment whichever is larger, for each EV capable space, EV ready space, and EVSE Installed space.

8.9.6.3 Circuit Capacity. The branch circuit serving each EV capable space, EV ready space, and EVSE Installed space shall have a rated capacity not less than 40 amperes at 208/240-volt capacity or the nameplate rating of the equipment, whichever is larger.

8.9.7 Accessibility. Not fewer than 5% of the EVSE Installed spaces but not less than one shall be accessible. Not fewer than 5% of EVSE Ready Spaces but not less than one shall be accessible. Accessible vehicle spaces shall comply with the requirements for an accessible parking space where the EVSE is located at the head end of the access aisle.

https://www.energycodes.gov/sites/default/files/2021-07/TechBrief_EV_Charging_July2021.pdf

https://www.iccsafe.org/wp-content/uploads/21-20604_COMM_EV_Strategy_RPT_v5.pdf

EVSE Requirements from Other Midwest Jurisdictions

EVSE-Installed, EV-Ready and EV Capable Space Requirements			
Occupancy Classification	Minimum number or % of EVSE-Installed spaces	Minimum number or % of EVSE-Ready spaces	Minimum number or % of EVSE-Capable spaces
Madison, WI- Commercial	1% EV- Installed (increase by 1% every 5 years)	10% EV Ready (increase 10% every 5 years, 2021)	-
Madison, WI- Multi-Family	2% EV- Installed	5% EV Ready (increase 10% every 5 years, 2021)	-
Iowa- 2015 IECC, Holding	-	-	-
North Dakota	-	-	-
South Dakota	-	-	-
Michigan	10% EV- Installed	5% EV Ready	10% EV Capable
Illinois (Chicago)- Commercial		20% EV Ready @ 30+ spaces (2020)	
Illinois (Chicago)- Multifamily		20% EV Ready @ 5+ spaces (2020)	
Nebraska	-	-	-
Missouri (St Louis) Commercial	2% EV- Installed	5% EV Ready	
Missouri (St Louis) Multi-Family	2% EV- Installed	5% EV Ready (increases to 10% in 2025)	
Colorado (Denver) Commercial	5% EV- Installed	10% EV Ready	10% EV Capable

EVSE-Installed, EV-Ready and EV Capable Space Requirements

Colorado (Denver) Multi-family	5% EV- Installed	15% EV Ready	80% EV Capable
Colorado (Lakewood) Commercial	2% EV- Installed	13% EV Ready	18% EV Capable (10+ spaces)
Colorado (Lakewood) Multi-family	2% EV- Installed	-	18% EV Capable (10+ spaces)
IEGC- Commercial			4% of total spaces or 8% of employee spaces (where 20+ on-site parking spaces)
IEGC- Multi-Family (R-1, R-2, R-4)			20%



CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

Author/requestor: Karen Gridley

Date: 8/8/2023

Email address: karen.gridley@state.mn.us

Model Code:

Telephone number: 612-296-1902

Code or Rule Section: 8.9.7

Firm/Association affiliation, if any: DLI

Code or rule section to be changed: 8.9.7

Intended for Technical Advisory Group ("TAG"): Electric Vehicle Charging Facilities

General Information

Yes **No**

- | | | |
|--|-------------------------------------|-------------------------------------|
| A. Is the proposed change unique to the State of Minnesota? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| B. Is the proposed change required due to climatic conditions of Minnesota? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| C. Will the proposed change encourage more uniform enforcement? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| D. Will the proposed change remedy a problem? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| E. Does the proposal delete a current Minnesota Rule, chapter amendment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| F. Would this proposed change be appropriate through the ICC code development process? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Proposed Language

1. The proposed code change is meant to:

- change language contained the model code book? If so, list section(s).
- change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
- delete language contained in the model code book? If so, list section(s).
- delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
- add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.
No

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~strike through~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.

8.9.7 Accessibility. Not fewer than 5% of the EVSE Installed spaces but not less than one shall be accessible. Not fewer than 5% of EVSE Ready Spaces but not less than one shall be accessible. Accessible vehicle charging spaces shall comply with ~~the Section 8.9.7.~~

8.9.7.1 Vehicle Space Size. Accessible vehicle charging spaces shall be 132 inches (11 feet) wide and 240 inches (20 feet) long.

8.9.7.2 Vehicle Space Marking. Accessible vehicle charging spaces shall be marked to define the width. Where vehicle spaces are marked with lines, the width measurements of vehicle spaces and adjacent access aisles shall be made from the centerline of the markings.

Exception: Where vehicle spaces or access aisles are not adjacent to another vehicle space or access aisle, measurements shall be permitted to include the full width of the line defining the vehicle space or access aisle.

8.9.7.3 Access Aisle. Accessible vehicle charging spaces shall have an adjacent access aisle complying with Section 8.9.7.3.

8.9.7.3.1 Location. Access aisles shall adjoin an accessible route. Two vehicle charging spaces shall be permitted to share a common access aisle. Access aisles shall not overlap with the vehicular way. Vehicle charging spaces shall be permitted to have access aisles placed on either side of the vehicle charging space.

8.9.7.3.2 Width. Access Aisles serving accessible vehicle charging spaces shall be 60 inches minimum in width.

8.9.7.3.3 Length. Access aisles shall extend the full length of the vehicle charging space they serve.

8.9.7.3.4 Marking. Access aisles shall be marked so as to discourage parking in them and be provided with the designation “no parking.” The “no parking” designation shall be provided on a vertically posted sign centered at the head end of the access aisle a maximum of 96 inches from the head of the access aisle, and be mounted 60 inches minimum and 66 inches maximum above the floor of the access aisle, measured to the bottom of the sign. Where access aisles are marked with lines, the width measurements of access aisles and adjacent vehicle charging spaces shall be made from the centerline of the markings.

Exceptions:

1. A vertically posted sign indicating no parking shall not be required where the sign would obstruct a curb ramp or accessible pedestrian route. In this case, the no parking designation shall be provided on the surface of the access aisle.
2. A vertically posted sign indicating no parking shall not be required where parking spaces and access aisles are enclosed or otherwise protected from the elements. In this case, the no parking designation shall be provided on the surface of the access aisle.
3. Where access aisles or vehicle spaces are not adjacent to another access aisle or vehicle space, measurements shall be permitted to include the full width of the line defining the access aisle or parking space.

8.9.7.5 Ground Surface. Accessible vehicle charging spaces and access aisles shall be stable, firm and slip resistant, and shall have surface slopes not steeper than 1:48.

Deleted: requirements for an accessible parking space where the EVSE is located at the head end of the access aisle

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8.9.7.6 Identification. Accessible vehicle charging spaces shall be identified by a sign that includes the phrases “Designed for Disability Access” along with “Use Last”, or a sign that includes the International Symbol of Accessibility along with the words “Use Last”. The symbol and the words shall be permitted to be either on separate signs or placed together on a single sign. Signs shall be vertically posted and centered at the head end of the accessible vehicle charging space a maximum of 96 inches (2440 mm) from the head of the parking space, and be mounted 60 inches (1525 mm) minimum and 66 inches (1676 mm) maximum above the floor of the parking space, measured to the bottom of the lowest sign.

Exceptions:

1. A vertically posted sign shall not be required where the sign would obstruct a curb ramp or accessible pedestrian route. In this case, the designation shall be provided on the surface of the Accessible vehicle charging space.
2. A vertically posted sign shall not be required where vehicle spaces and access aisles are enclosed or otherwise protected from the elements. In this case, the designation shall be provided on the surface of the Accessible vehicle charging space.
3. Parallel vehicle charging spaces shall have a vertically posted sign located on the side, at the head end of the parking space.

8.9.7.7 Accessible route. An Accessible route complying with Chapter 4 of the Minnesota Accessibility Code shall be provided that connects the access aisles serving Accessible vehicle charging stalls to the clear floor or ground space at the accessible EVSE charger, and from the clear floor or ground space at EVSE charger to an accessible building entrance within the same site. Where EVSE charging stations are within covered or enclosed parking structures a minimum vertical clearance of 98 inches shall be maintained throughout the vehicular route to the accessible vehicle charging space and access aisle.

Exception: In installations on existing sites where it is technically infeasible to provide a fully compliant accessible route to an accessible building entrance due to existing site constraints, an accessible route to an accessible building entrance shall be provided to the maximum extent technically feasible.

8.9.7.8 Operable parts. Operable parts on EVSE chargers including, but not limited to, the connector, card readers, electronic user interfaces, switches and buttons including the emergency start/stop button shall comply with Sections 8.9.7.8.

8.9.7.8.1 Clear Floor Space. A clear floor space complying with Section 305 of the Minnesota Accessibility Code shall be provided on the user interface side of the equipment..

8.9.7.8.2 Height. Operable parts shall be placed within one or more of the reach ranges specified in Section 308 of the Minnesota Accessibility Code. The height to the operable parts shall be measured from the surface of the clear floor space adjacent to the user interface side of the equipment.

8.9.7.8.3 Operation. Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist.

8.9.7.9 Charging Cables. The EVSE shall incorporate a cord management system that prevents cable slack from accumulating on the ground within the access aisle, accessible route and clear floor space at the EVSE equipment.

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4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.

It is possible that this proposed change would be more appropriately located within Minnesota Rule 1341, The Minnesota Accessibility Code. A reference to this proposed language could remain in this Rule Section 8.9.7.9 referring people to Minnesota Rule 1341.

Need and Reason

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)

This proposed change is needed for a number of reasons. First because Minnesota Accessibility Code Rule 1341 requires sites, buildings, structures, facilities, elements and spaces within the boundary of a site to be accessible to persons with disabilities. EVSE facilities are elements within sites and therefore must be accessible. Second, EVSE facilities are a distinctly different element than accessible parking space. Therefore design criteria for accessible parking stalls should not be used for the design of accessible electric vehicle charging spaces. After completing their extensive research and data gathering, the U.S. Access Board provides this guidance that differentiates the needs of accessible EVSE facilities vs. accessible parking:

"...there are some significant differences in use that warrant EV charging spaces be treated differently from parking spaces.

EV charging requires drivers with disabilities to exit their vehicle, traverse to the charger, and carry the connector back to their vehicle charging inlet (which may be on the opposite side of where they enter/exit their EV). Since EV's do not have a standard location for the vehicle charging inlet, maneuverability around the entire EV is needed. Also, as DCFC cables get heavier and shorter to achieve faster charging, EV's need to be parked in a way that aligns the vehicle charging inlet with the charger, which could conflict with the orientation needed for a driver with a disability to use the access aisle.

By contrast, a driver with a disability can use an accessible parking space as long as the vehicle is oriented with the access aisle; a person with a disability could either pull-in or back-in to the parking spot to get the access aisle on the appropriate side. The additional space provided by an access aisle is needed only by the person with a disability (who may be either a driver or passenger) and additional space on the opposite side of the vehicle is usually not needed.

Because of this fundamental difference in use, [the U.S. Access Board guidance] differentiates between parking and EV charging, and primarily focuses on the needs of an EV driver with a disability." Source: [U.S. Access Board \(access-board.gov\)](https://www.access-board.gov)

2. Why is the proposed code change a reasonable solution?

This is a reasonable change because there are currently no technical design guidelines in the proposed rule for how to design accessible EVSE vehicle spaces. There currently is no nationally recognized model code or Federal rule. However, this proposed change incorporates criteria from the most recent Federal guideline on the matter, as well as from guidelines currently in use by other Minnesota State Agencies. Modeling this proposed language after these guidelines will help ensure consistency in design as more EVSE facilities are developed and installed.

3. What other factors should the TAG consider?

None

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.

There may be a cost increase in some cases to comply with requirements to provide an accessible route and clear floor space requirements, depending on existing site conditions.

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.

The cost will be offset by ensuring the public welfare for persons with disabilities who drive electric vehicles to participate in the community equally as stated in the purpose of the Minnesota Building Code Administrative Rule. When all people can participate in the community, they support the economy by patronizing the places providing the accommodations provided for in the proposed change.

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.
Business and government units. When the State is the owner of a site providing EVSE facilities the people of Minnesota will bear the cost.
4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain.
No
5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed \$25,000 for any one small business or small city ([Minn. Stat. § 14.127](#))? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.
No.

Regulatory Analysis

1. What parties or segments of industry are affected by this proposed code change?

Architects, engineers, building owners, developers, EVSE equipment manufacturers, the disabled public that require accessible EVSE facilities.

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.

No

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?

The cost or consequence of not adopting the proposed code change is that persons with disabilities who drive electric vehicles will not have access to EVSE equipment and not be able to participate in their communities.

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.

There currently are no federal or state regulations or requirements that are enforceable. Only the optional guidelines mentioned earlier. The International Code Council (ICC) has some limited scoping in their upcoming 2024 IBC, and the ANSI A117.1 is developing some very limited design criteria for their next edition of the A117.1 Accessibility Standard. There is currently no estimated date as to when the next edition of the A117.1 will be finished. The language in this proposed change draws on all of these resources, as well as certain requirements found in the existing Minnesota Accessibility Code Rule 1341 for elements related to EVSE equipment and vehicle spaces such as accessible route, floor or ground surfaces, signage, operable parts and clear floor space. The intent is to be as consistent with emerging guidance from nationally recognized model guidelines as possible. Especially the U.S. Access Boards guidance since it is the most current and well researched data at this point in time, with their most recent update published in July of 2023.

***Note: Incomplete forms may be returned to the submitter with instruction to complete the form. Only completed forms can be considered by the TAG.