ADDENDA

ANSI/ASHRAE/IES Addendum n to
ANSI/ASHRAE/IES Standard 90.2-2018

Energy Efficient Design of Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on June 22, 2024, by the Illuminating Engineering Society on May 8, 2024, and by the American National Standards Institute on July 23, 2024.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (https://www.ashrae.org/continuous-maintenance).

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FOREWORD

Addendum n incorporates requirements for electric vehicle supply equipment. Requirements are partially based on a 2021 report prepared by PNNL titled "Electric Vehicle Charging for Residential and Commercial Energy Codes."

Informative Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum n to Standard 90.2-2018

Modify Section 3.1 as shown.

automobile parking space: a space within a *building* or private or public parking lot, exclusive of driveways, ramps, columns, and 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, *electric vehicle supply equipment* (*EVSE*), a rechargeable storage battery, a fuel cell, a photovoltaic array, or other source of electric current. Off-road, self-propelled electric mobile equipment, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, and boats, are not considered electric vehicles.

electric vehicle supply equipment (EVSE): equipment for plug-in power transfer, including the ungrounded, grounded, and equipment grounding conductors, and the *electric vehicle* connectors, attachment plugs, personal protection system and all other fittings, devices, power outlets, or apparatuses installed specifically for the purpose of transferring energy between the premises wiring and the *electric vehicle*.

electric-vehicle-ready space (EV-ready space): an *automobile parking space* provided with a branch circuit and either an outlet or enclosure for connection to *EVSE*.

Add new Section 5.4 as shown.

5.4 Alteration Requirements. When existing *dwelling units* that do not have an *EVSE* installed or an *EV-ready space*, or that do not meet the requirements of Table 7-4, undergo a *substantial energy alteration*, consideration shall be made as to whether installation of electrical conductors, conduit, and junction boxes are practical to support future *EVSE* installation. When a *substantial energy alteration* requires an increase to the building electrical service equipment, future *EV-ready space*(s) shall be included as part of the electrical load calculation for the new equipment.

Add new Section 6.4 as shown.

6.4 Energy Rating Index with Electric Vehicles. Energy utilized for *EV* charging shall be excluded from the *ERI* calculation.

Modify Section 7 as shown.

7.5.4.2 Parking Garages and Parking Lots Serving Multifamily Structures

a. *Parking garages* shall comply with ASHRAE/IES Standard 90.1, Section 9.4.1.2 and Table 9.5.1, if using the Building Area Method, or Section 9.4.1.2 and Table ~~9.6.1~~9.5.2.1-1 if using the Space-by-Space Method.
b. *Parking lots* shall comply with ASHRAE/IES Standard 90.1, Sections 9.4.1.4 and 9.4.2.
c. *Parking garages* and *parking lots* shall comply with Section 7.6.7.

[. . .]

7.6.7 Plug-In Electric Vehicle Charging

7.6.7.1 Where parking is provided, *EVSE*-installed spaces shall be provided and future installation and use of *EVSE* shall be facilitated through the provision of *EV-ready spaces* provided in compliance with Sections 7.6.7.1 through 7.6.7.5 and Section 9.1.9. Where more than one parking facility is provided on a site,

Table 7-4 EVSE Installed and EV-Ready Space Requirements for Multifamily Buildings

Number of Automobile Parking Spaces	Minimum Spaces with EVSE Installed[a]	Minimum EV-Ready Spaces
1 to 9	100%	-
10 to 24	50%	50%
25+	25%	75%

a. *EVSE*-installed spaces that exceed the minimum requirements in the table shall be permitted to be counted as *EV-ready spaces* for table compliance.

EV parking spaces shall be calculated separately for each parking facility. The service panel or subpanel circuit directory shall identify the spaces reserved to support *EV* charging as EV-ready. The raceway location for *EV-ready spaces* shall be permanently and visibly marked as "EV-Ready."

Exception to 7.6.7.1: This section does not apply to *automobile parking spaces* used exclusively for trucks or delivery vehicles.

7.6.7.2 One- to Two-Family Dwellings and Townhouses. For each *dwelling unit*, provide at least one *automobile parking space* with an *EVSE* installed. If there are fewer *automobile parking spaces* than *dwelling units*, all *automobile parking spaces*, if any, shall have an *EVSE* installed.

7.6.7.3 Multifamily Dwellings (three or more units). *EVSE*-installed and *EV-ready spaces* shall be provided in accordance with Table 7-4. Where the calculation of percent served results in a fractional parking space, it shall round up to the next whole number.

7.6.7.4 Electric Vehicle Charging System Capacity. The equipment load(s) on the electrical distribution equipment supplying the branch circuits(s) serving spaces with *EVSE* installed or *EV-ready spaces* shall be capable of supplying not less than 7.4 kVA full continuous load for each space. Where there are ten (10) or more spaces with *EVSE* installed and an *EV* energy management system is used to control the load to each parking space, the electrical distribution equipment supplying the branch circuit(s) shall be capable of supplying not less than 3.8 kVA full continuous load for each space simultaneously with all spaces drawing power and not less than 7.4 kVA full continuous load for each space when not greater than half of all spaces are drawing power.

7.6.7.5 Electric Vehicle Charging Circuit Capacity. Each branch circuit serving multiple *EVSE*-installed spaces, *EV*-ready spaces, or *EV-ready spaces* shall be capable of supplying a minimum capacity of 7.4 kVA continuous duty.

[. . .]

Add new Section 9.1.9 as shown.

9.1.9 Electric Vehicle Charging Verification. Construction documents shall indicate the raceway termination point and proposed location of future *EV* spaces and *EV* chargers. Construction documents shall also provide information about the amperage of future *EVSE*, raceway methods, wiring schematics, and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any onsite distribution transformers, have sufficient capacity to meet the requirements of Section 7.6.7.

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As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

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The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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