

## Chapter E 511

## COMMERCIAL GARAGES, REPAIR AND STORAGE

E 511.01	Scope	E 511.06	Equipment above hazardous areas
E 511.02	Hazardous areas	E 511.07	Battery-charging equipment
E 511.03	Wiring and equipment in hazardous areas	E 511.08	Electric vehicle charging
E 511.04	Sealing		
E 511.05	Wiring in spaces above hazardous areas		

**E 511.01 Scope.** These occupancies shall include locations used for service and repair operations in connection with self-propelled vehicles (including passenger automobiles, busses, trucks, tractors, etc.) in which volatile flammable liquids or flammable gases are used for fuel or power, and locations in which more than 3 such vehicles are or may be stored at one time.

*Note:* For further information regarding classification of garages, refer to the NFPA Standard for Garages (No. 88).

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 511.02 Hazardous areas.** Classification under chapter E 500. (1) For each floor at or above grade, the entire area up to a level 18 inches above the floor shall be considered to be a class I, division 2 location.

(2) For each floor below grade, the entire area up to a level 18 inches above the bottom of outside doors or other openings which are at or above grade level shall be considered to be a class I, division 2 location. Where adequate positive-pressure ventilation is provided, the administrative authority may judge that the hazardous location extends up to a level of only 18 inches above each such floor.

(3) Any pit or depression below floor level shall be considered to be a class I, division 2 location which shall extend up to said floor level, except that an individual unventilated pit or depression may be judged by the administrative authority to be a class I, division 1 location.

(4) Adjacent areas in which hazardous vapors are not likely to be released such as stock rooms, switchboard rooms and other similar locations, having floors elevated at least 18 inches above adjacent garage floor, or separated therefrom by tight curbs or partitions at least 18 inches high, shall not be classed as hazardous.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 511.03 Wiring and equipment in hazardous areas.** Within hazardous areas as defined in section E 511.02, wiring and equipment shall conform to applicable provisions of chapter E 501.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 511.04 Sealing.** Approved seals conforming to the requirements of section E 501.05 shall be provided, and subsection E 501.05 (2) (b) shall apply to horizontal as well as to vertical boundaries of the defined hazardous areas. Raceways embedded in a masonry floor or

buried beneath a floor shall be considered to be within the hazardous area above the floor if any connections or extensions lead into or through such area.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 511.05 Wiring in spaces above hazardous areas.** (1) All fixed wiring shall be in metallic raceways or shall be type MI or type ALS cable. Cellular metal floor raceways may be used only for supplying ceiling outlets or extensions to the area below the floor, but such raceways shall have no connections leading into or through any hazardous area above the floor. No electrical conductor shall be installed in any cell, header or duct which contains a pipe for steam, water, air, gas, drainage, or other service except electrical.

(2) For pendants, flexible cord suitable for the type of service and approved for hard usage shall be used.

(3) For connection of portable lamps, motors or other utilization equipment, flexible cord suitable for the type of service and approved for extra hard usage shall be used.

(4) When a circuit which supplies portables or pendants includes an identified grounded conductor as provided in chapter E 200, receptacles, attachment plugs, connectors, and similar devices shall be of polarized type, and the identified conductor of the flexible cord shall be connected to the screw shell of any lampholder or to the identified terminal of any utilization equipment supplied.

(5) When a pendant is used to supply a portable lamp or utilization equipment, the female portion of a polarized pin-plug connector or equivalent shall be attached to the lower end of the pendant, and the male portion shall be attached to the cord for the portable. The connector shall be designed to break apart readily in any position, and shall be suspended at a level not less than that specified in section E 511.02. Attachment plug receptacles in fixed position shall be located above the level specified in section E 511.02.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 511.06 Equipment above hazardous areas.** (1) Equipment which is less than 12 feet above floor level, and which may produce arcs, sparks or particles of hot metal, such as cutouts, switches, receptacles, charging panels, generators, motors, or other equipment having make and break or sliding contacts, shall be of totally-enclosed type or shall be provided with suitable guards or screens to prevent escape of sparks or hot metal particles.

(2) Lamps, lampholders and fixtures for fixed lighting which are located over lanes through which vehicles are commonly driven or which may otherwise be exposed to physical damage, shall be located not less than 12 feet above floor level unless of totally-enclosed type or provided with suitable guards, screens or covers to prevent escape of sparks or hot metal particles.

(3) Portable lamps shall be equipped with handle, lampholder, hook and substantial guard attached to the lampholder or handle. All exterior surfaces which might come in contact with battery terminals, wiring terminals or other objects shall be of non-conducting material or shall be effectively protected with insulation. Lampholders shall be of unswitched type, and shall not provide means for plug-in of attachment plugs. Outer shell shall be of moulded composition or other

material approved for the purpose, and metal-shell, lined lampholders, either of switched or unswitched type, shall not be used. Unless the lamp and its cord are supported or arranged in such a manner that they cannot be used in the hazardous areas classified in section E 511.02, they shall be of a type approved for such hazardous locations.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 511.07 Battery-charging equipment.** Battery chargers and their control equipment, and batteries being charged shall not be located within hazardous areas classified in section E 511.02. Tables, racks, trays, and wiring shall, in addition, conform to the provisions of chapter E 480.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 511.08 Electric vehicle charging.** (1) Flexible cords used for charging shall be suitable for the type of service and approved for extra hard usage. Their current carrying capacity shall be adequate for the charging current.

(2) Connectors shall have a rating not less than the current carrying capacity of the cord, and in no case less than 50 amperes.

(3) Connectors shall be so designed and installed that they will break apart readily at any position of the charging cable, and live parts shall be guarded from accidental contact. No connector shall be located within a hazardous area defined in section E 511.02.

(4) Where plugs are provided for direct connection to vehicles, the point of connection shall not be within a hazardous area as defined in section E 511.02, and where the cord is suspended from overhead, it shall be so arranged that the lowest point of sag is at least 6 inches above the floor. Where the vehicle is equipped with an approved plug which will readily pull apart, and where an automatic arrangement is provided to pull both cord and plug beyond the range of physical damage, no additional connector is required in the cable or at the outlet.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.