

I had a contractor call and asked what the electrical hazard classification would be in the repair garage. The answer is in the National Electrical Code Section 511.3. In short, if ventilation meeting the air changes required in the NEC is provided the hazard classification areas becomes unclassified per 511.3 repair garages. If ventilation is not provide the area 18" above the floor and within 18" of the ceiling shall be classified as Class I Division 2.

The code requirements for CNG is in the International Fire Code Chapters 22, 27, 30 and NFPA 52.

If you get any additional questions please call 918-596-9689.

NFPA 70 National Electrical Code ® 2008 Edition

511.3 Area Classification, General. Where Class I liquids or gaseous fuels are stored, handled, or transferred, electrical wiring and electrical utilization equipment shall be designed in accordance with the requirements for Class I, Division 1 or 2 hazardous (classified) locations as classified in accordance with 500.5 and 500.6, and this article. A Class I location shall not extend beyond an unpierced wall, roof, or other solid partition that has no openings. [30A:8.3.5, 8.3.2]

A Parking Garages. Parking garages used for parking or storage shall be permitted to be unclassified.

FPN: For further information, see NFPA 88A-2007, Standard for Parking Structures, and NFPA 30A-2008, Code for Motor Fuel Dispensing Facilities and Repair Garages.

B Repair Garages, With Dispensing. Major and minor repair garages that dispense motor fuels into the fuel tanks of vehicles, including flammable liquids having a flash point below 38°C (100°F) such as gasoline, or gaseous fuels such as natural gas, hydrogen, or LPG, shall have the dispensing functions and components classified in accordance with Table 514.3(B)(1) in addition to any classification required by this section. Where Class I liquids, other than fuels, are dispensed, the area within 900 mm (3 ft) of any fill or dispensing point, extending in all directions, shall be a Class I, Division 2 location.

C Major Repair Garages. Where flammable liquids having a flash point below 38°C (100°F) such as gasoline, or gaseous fuels such as natural gas, hydrogen, or LPG, will not be dispensed, but repair activities that involve the transfer of such fluids or gases are performed, the classification rules in (1), (2), and (3) shall apply.

1 Floor Areas.

(a) Ventilation Provided. The floor area shall be unclassified where there is mechanical ventilation providing a minimum of four air changes per hour or one cubic foot per minute of exchanged air for each square foot of floor area. Ventilation shall provide for air exchange across the entire floor area, and exhaust air shall be taken at a point within 0.3 m (12 in.) of the floor.

(b) Ventilation Not Provided. The entire floor area up to a level of 450 mm (18 in.) above the floor shall be classified as Class I, Division 2 if the ventilation does not comply with 511.3(C)(1)(a).

2 Ceiling Areas. Where lighter-than-air gaseous fueled vehicles, such as vehicles fueled by natural gas or hydrogen, are repaired or stored, the area within 450 mm (18 in.) of the ceiling shall be considered for classification in accordance with (a) and (b).

(a) Ventilation Provided. The ceiling area shall be unclassified where ventilation is provided, from a point not less than 450 mm (18 in.) from the highest point in the ceiling, to exhaust the ceiling area at a rate of not less than 0.3 m³/min/m² (1 cfm/ft²) of ceiling area at all times that the building is occupied or when vehicles using lighter-than-air gaseous fuels are parked below this area.

(b) Ventilation Not Provided. Ceiling areas that are not ventilated in accordance with 511.3(C)(2)(a) shall be classified as Class I, Division 2.

3 Pit Areas in Lubrication or Service Room. Any pit, below grade work area, or sub floor work area shall be classified as provided in (a) or (b).

(a) Ventilation Provided. The pit area shall be a Class I, Division 2 location where there is mechanical ventilation providing a minimum of six air changes per hour.

(b) Ventilation Not Provided. Where ventilation is not provided in accordance with 511.3(C)(3)(a), any pit or depression below floor level shall be a Class I, Division 1 location that extends up to the floor level.

D Minor Repair Garages. Where flammable liquids having a flash point below 38°C (100°F) such as gasoline, or gaseous fuels such as natural gas or hydrogen, will not be dispensed or transferred, the classification rules in (D)(1), (D)(2), and (D)(3) shall apply to the lubrication and service rooms.

1 Floor Areas. Floor areas in minor repair garages without pits, belowgrade work areas, or subfloor work areas shall be unclassified. Where floor areas include pits, belowgrade work areas, or subfloor work areas in lubrication or service rooms, the classification rules in (a) or (b) shall apply.

(a) **Ventilation Provided.** The entire floor area shall be unclassified where there is mechanical ventilation providing a minimum of four air changes per hour or one cubic foot per minute of exchanged air for each square foot of floor area. Ventilation shall provide for air exchange across the entire floor area, and exhaust air shall be taken at a point within 0.3 m (12 in.) of the floor.

(b) **Ventilation Not Provided.** The floor area up to a level of 450 mm (18 in.) above any unventilated pit, belowgrade work area, or subfloor work area and extending a distance of 900 mm (3 ft) horizontally from the edge of any such pit, belowgrade work area, or subfloor work area, shall be classified as Class I, Division 2.

2 Ceiling Areas. Where lighter-than-air gaseous fuels (such as natural gas or hydrogen) will not be transferred, such locations shall be unclassified.

3 Pit Areas in Lubrication or Service Room. Any pit, belowgrade work area, or subfloor work area shall be classified as provided in (a) or (b).

(a) **Ventilation Provided.** Where ventilation is provided to exhaust the pit area at a rate of not less than 0.3 m³/min/m² (1 cfm/ft²) of floor area at all times that the building is occupied, or when vehicles are parked in or over this area and where exhaust air is taken from a point within 300 mm (12 in.) of the floor of the pit, belowgrade work area, or subfloor work area, the pit shall be unclassified. [30A:7.4.5.4. Table 8.3.1]

(b) **Ventilation Not Provided.** Where ventilation is not provided in accordance with 511.3(D)(3)(a), any pit or depression below floor level shall be a Class I, Division 2 location that extends up to the floor level.

E Modifications to Classification.

1 Specific Areas Adjacent to Classified Locations. Areas adjacent to classified locations in which flammable vapors are not likely to be released, such as stock rooms, switchboard rooms, and other similar locations, shall be unclassified where mechanically ventilated at a rate of four or more air changes per hour, or designed with positive air pressure, or where effectively cut off by walls or partitions.

2 Alcohol-Based Windshield Washer Fluid. The area used for storage, handling, or dispensing into motor vehicles of alcohol-based windshield washer fluid in repair garages shall be unclassified unless otherwise classified by a provision of 511.3. [30A:8.3.5, Exception]