



## Uniform Fire Code (UFC), 1999

### ARTICLE 64 Stationary Lead-Acid Battery Systems

#### SECTION 6401 SCOPE

The scope of the article applies to all battery types. Including Valve Regulated Lead Acid (VRLA) and gel cell batteries. The definition of "lead-acid battery" includes all "electrochemical cells interconnected to supply a nominal voltage of DC power..." The revision broadens the scope of the article to regulate battery systems over 50 gallons (189.3 L) aggregate capacity reducing the prior 100 gallons (378.5 L) minimum that previously existed. This was done to ensure Article 64 rather than Article 50 applies to these systems per the original intent.

The electrolyte in stationary lead acid battery systems (SLABS) contain sulfuric acid, which is classified as toxic when in concentrations over 12.5 percent (IFCI's *Hazardous Materials Classification Guide*). Previously, Article 80 is applicable to battery systems with an electrolyte capacity between 50 gallons (189.3L) and 100 gallons (378.5L) in occupancies unprotected by sprinklers. The adoption of Article 64 Supplement 1999 more specifically addresses hazards related to battery systems and is now applicable to all systems over 50 gallons (189.3 L). If individual lead-acid batteries with liquid capacity exceeding 20 gallons each shall also comply with Article 80.

#### SECTION 6402 DEFINITIONS

For definitions of BATTERY, LEAD-ACID and BATTERY SYSTEM, STATIONARY LEAD-ACID, see Article 2.

#### SECTION 6403 PERMITS

**6403.1 General.** For a permit to install or operate battery systems with stationary lead-acid batteries, see Section 105.8, permit b.1.

**6403.2 Design Submittals.** Prior to installation, plans shall be submitted and approved.

#### SECTION 6404 INSTALLATION AND MAINTENANCE

**6404.1 General.** Installation and maintenance of battery systems shall be in accordance with nationally recognized standards. See Section 9003, Standards a.2.10 and a.2.11, and Section 6404.

**6404.2 Safety Venting.** Batteries shall be provided with safety venting caps.

**6404.3 Occupancy Separation.** In other than Groups A,E,I and R Occupancies, battery systems shall be located in a room separated from other portions of the building by a minimum one-hour-resistive occupancy separation. In A,E,I and R Occupancies, battery systems shall be located in a room separated from other portions of the building by a two-hour-fire-resistive occupancy separation.

**6404.4 Spill Control.** Each rack of batteries, or group of racks shall be provided with a liquid tight 4-inch (101.6mm) spill-control barrier which extends at least 1 inch (25.4mm) beyond the battery rack in all directions.

**6404.5 Neutralization.** An approved method to neutralize spilled electrolyte shall be provided. The method shall be capable of neutralizing a spill from the largest lead-acid battery to a pH between 7.0 - 9.0.

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**6404.6 Ventilation.** Ventilation shall be provided in accordance with the Mechanical Code and the following:

1. The ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0% of the total volume of the room in accordance with nationally recognized standards,
- or
2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute square foot ( $5.1\text{m}^3/\text{s per m}^2$ ) of floor area of the room.

**6404.7 Signs.** Doors into rooms or buildings containing stationary lead-acid battery systems shall be provided with approved signs. The signs shall state that the room contains lead-acid battery systems, that the battery room contains energized electrical circuits and that the battery electrolyte solutions are corrosive liquids.

**6404.8 Seismic Protection.** Battery systems shall be seismically braced in accordance with the Building Code.

**6504.9 Smoke Detection.** An approved automatic smoke detection system shall be installed in such areas and supervised by an approved central proprietary or remote station service or a local alarm which will give an audible signal at a constantly attended location.