

2010 California Fire Code

Fire Code Changes As Related To Hazardous Materials

Presented By:

Mike Benjamin

Hazardous Materials Specialist

Santa Clara County Fire Department



Ch. 4: EMERGENCY PLANNING AND PREPAREDNESS

- §407.2 Material Safety Data Sheets (MSDS) for all hazardous materials shall be readily available on the premises: as a paper copy, or where *approved*, shall be permitted to be readily retrievable by electronic access.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- **§603.3.2 Fuel oil storage inside buildings.**
- 2007 CFC – Maximum amount 660 gallons unless H occupancy.
- **§603.3.2.1 Quantity limits.** One or more fuel oil storage tanks containing Class II or III *combustible liquids* shall be permitted in a building. The aggregate capacity of all such tanks shall not exceed 660 gallons (2498 L).

HOWEVER...

Ch. 6: BUILDING SERVICES AND SYSTEMS

Exemption: The aggregate capacity limit shall be permitted to be increased to 3,000 gallons of Class II or III liquid for storage in protected above-ground tanks complying with 3404.2.9.6, when all of the following conditions are met:

1. The entire 3,000 gallon quantity shall be stored in protected above-ground storage tanks;
2. The 3,000 gallon capacity shall be permitted to be stored in a single tank or multiple smaller tanks; and
3. The tanks shall be located in a room protected by an *automatic sprinkler system* complying with §903.3.1.1.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- **§603.2.3 Applicability of maximum allowable quantity and control area requirements.** The quantity of *combustible liquid* stored in tanks complying with §603.3.2 shall not be counted towards the maximum allowable quantity set forth in Table 2703.1.1(1), and such tanks shall not be required to be located in a *control area*.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- **§603.4.2 Portable outdoor gas-fired heating appliances.**
Portable gas-fired heating appliances located outdoors shall be in accordance with §603.4.2.1 through §603.4.2.3.4.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- §603.4.2.1. Portable outdoor gas-fired heating appliances shall be located in accordance with §603.4.2.1.1 through §603.4.2.1.4.
- §603.4.2.1.1 Prohibited locations.
 1. Inside of any occupancy when connected to the fuel gas container.
 2. Inside of tents, canopies and membrane structures.
 3. On exterior balconies.

Exception: As allowed in §6.17 of NFPA 58.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- **§603.4.2.1.2 Clearance to Buildings.**

Portable outdoor gas-fired appliances shall be located at least 5 feet from buildings.

- **§603.4.2.1.3 Clearance to combustible materials.**

Portable outdoor gas-fired heating appliances shall not be located beneath, or closer than 5 feet to combustible overhangs, awnings, sunshades or similar combustible attachments to buildings.

- **§603.4.2.1.4 Proximity to exits.**

Portable outdoor gas-fired heating appliances shall not be located within 5 feet (1524 mm) of *exits* or *exit discharges*.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- **§603.4.2.2.1 Listed and approved.**

Only *listed* and *approved* portable outdoor gas-fired heating appliances utilizing a fuel gas container that is integral to the appliance shall be used.

- **§603.4.2.2.2 Installation and maintenance.**

Portable outdoor gas-fired heating appliances shall be installed and maintained in accordance with the manufactures instructions.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- §603.4.2.2.3 Tip-over switch.

Portable outdoor gas-fired heating appliances shall be equipped with a tilt or tip-over switch that automatically shuts off the flow of gas if the appliance is tilted more than 15 degrees from the vertical.

- §603.4.2.2.4 Guard against contact.

The heating element or combustion chamber of portable outdoor gas-fired heating appliances shall be permanently guarded so as to prevent accidental contact by *persons* or material.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- **§603.4.2.3 Gas containers**

- **§603.4.2.3.1 Approved containers.**

Only *approved* DOTn or ASME gas containers shall be used.

- **603.4.2.3.2 Container replacement.**

- Replacement of fuel gas containers portable outdoor gas-fired heating appliances shall not be conducted while the public is present.

- **§603.4.2.3.3 Container capacity.**

The maximum individual capacity of gas containers used in connection with portable outdoor gas-fired heating appliances shall not exceed 20 pounds.

- **§603.4.2.3.4 Indoor storage prohibited.**

Gas containers shall not be stored inside of buildings except in accordance with §3809.9.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- **§606.13 Discharge location for refrigeration machinery room ventilation.** Exhaust from mechanical ventilation systems serving refrigeration machinery rooms containing flammable, toxic or highly toxic refrigerants, **other than ammonia**, capable of exceeding 25 percent of the LFL or 50 percent of the IDLH shall be equipped with *approved* treatment systems to reduce the discharge concentrations to those values or lower.

Ch. 6: BUILDING SERVICES AND SYSTEMS

- §608 Stationary Storage Battery Systems.
- §608.1 Scope.

Stationary storage battery systems having an electrolyte capacity of 50 gallons for flooded lead-acid, nickel cadmium (NiCd) and valve-regulated lead-acid (VRLA), or 1,000 pounds for lithium-ion and lithium metal polymer, used for facility standby power, emergency power or uninterrupted power supplies shall comply with this section and Table 608.1.

- Table 608.1 – Adds column for Lithium Metal Polymer battery requirements.

Ch. 15: FLAMMABLE FINISHES

- §1501 General (Scope)
- §1501.2 Nonapplicability.

This chapter shall not apply to spray finishing utilizing flammable or *combustible liquids* which do not sustain combustion, including:

1. Liquids that have no fire point when tested in accordance with ASTM D 92.
2. Liquids with a flashpoint greater than 95°F in a water-miscible solution or dispersion with a water and inert (noncombustible) solids content of more than 80 percent by weight.

Ch 18: SEMICONDUCTOR FABRICATION FACILITIES

- §1805.2.3.4 Clearances. (Deleted)

Section removed requiring 3 foot clearance for workstations.

- Table 1805.2.2

Maximum quantity of flammable, highly toxic, pyrophoric and toxic combined gasses per workstation changed from "3 cylinders" to "combined aggregate volume of all cylinders at a workstation shall not exceed an internal cylinder volume of 39.6 gallons or 5.25 cubic feet."

Ch. 22: MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

- §2204 DISPENSING OPERATION
- §2204.4.1 Approved containers required.

Class I, II and IIIA liquids shall not be dispensed into a portable container unless such container **does not exceed a 6-gallon (22.7 L) capacity**, is *listed* or of approved material and construction, and has a tight closure with a screwed or spring-loaded cover so designed that the contents can be dispensed without spilling. Liquids shall not be dispensed into portable or cargo tanks.

Ch. 22: MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

○ §2205.2.1 Inspections.

Flammable and *combustible liquid* fuel-dispensing and containment equipment shall be periodically inspected where required by the *fire code official* to verify that it is proper working order and not subject to leakage.

○ §2205.2.2 Repairs and service.

The *fire code official* is authorized to require damaged or unsafe containment and dispensing equipment to be repaired or serviced in an *approved* manner including, but not limited to, equipment that shows signs of physical damage, internal or external corrosion, leakage, brittleness, aging or undue wear and tear.

Ch. 22: MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

- §2206.8 Alcohol blended fuel-dispensing operations.
- §2206.8.1 Approval of equipment.
- §2206.8.2 Change of system contents.
- §2206.8.3 Facility identification.
- §2206.8.4 Marking.
- §2206.8.5 Maintenance and inspection.

Ch. 22: MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

- §2209 HYDROGEN MOTOR FUEL-DISPENSING AND GENERATION FACILITIES.

Ch. 26: WELDING AND OTHER HOT WORK

- §2605.2.1 Cylinders connected for use.

The storage or use of a single cylinder of oxygen and a single cylinder of fuel gas located on a cart shall be allowed without requiring the cylinders to be separated in accordance with Section 2703.9.8 or 2703.10.3.6 when the cylinders are connected to regulators, ready for service, equipped with apparatus designed for cutting or welding and all of the following:

Ch. 26: WELDING AND OTHER HOT WORK

1. Carts shall be kept away from the cutting or welding operation in accordance with Section 2605.5 or fire resistant shields shall be provided.

2. Cylinders shall be secured to the cart to resist movement.

3. Carts shall be in accordance with Section 2703.10.3.

4. Cylinder valves not having fixed hand wheels shall have keys, handles or non-adjustable wrenches on valve stems while the cylinders are in use.

5. Cylinder valve outlet connections shall conform to the requirements of CGA V-1

6. Cylinder valves shall be closed when work is finished.

7. Cylinder valves shall be closed before moving the cart.

○ **§2605.2.1.1 Individual cart separation.**

Individual carts shall be separated from each other in accordance with Section 2703.9.8.

Ch. 27: HAZARDOUS MATERIALS

- §2701.5.1 Hazardous Materials Management Plan (HMMP). Where required by the *fire code official*, an application for a permit shall include an HMMP. The HMMP shall include a facility site plan designating the following:
 1. Access to each storage and use area.
 2. Location of emergency equipment.
 3. Locations where liaisons will meet emergency responders.
 4. Facility evacuation meeting points.
 5. The general purpose of other areas within the building.
 6. Location of all aboveground and underground tanks and their appurtenances including, but not limited to, sumps, vaults, below-grade treatment systems and piping.
 7. The hazard classes in each area.
 8. Location of all control areas and Group H occupancies.
 9. Emergency exits.

The HMMP shall comply with Health and Safety Code, Chapter 6.95, Sections 25500 through 25545, and Title 19, Division 2, Chapter 3 4.

Ch. 27: HAZARDOUS MATERIALS

- **§2701.5.2 Hazardous Materials Inventory Statement (HMIS).** Where required by the *fire code official*, an application for a permit shall include an HMIS, such as *the Superfund Amendments and Reauthorization Act of 1986 Title III (SARA), Tier II Report* or other *approved* statement. The HMIS shall include the following information:

1. Product name.
2. Component.
3. Chemical Abstract Service (CAS) number.
4. Location where stored or used.
5. Container size.
6. Hazard classification.
7. Amount in storage.
8. Amount in use-closed systems.
9. Amount in use-open systems.

The HMIS shall comply with Health and Safety Code, Chapter 6.95, Sections 25500 through 25545, and Title 19, Division 2, Chapter 4.

Ch. 27: HAZARDOUS MATERIALS

- TABLE 2703.1.1(1) – MAQ'S PER CONTROL AREA OF HAZARDOUS MATERIALS THAT POSE A PHYSICAL HAZARD

- Addition of "Inert Gas" to the table.

Note: Unlimited indoor or outdoor storage amounts.

- §2703.2.1 Design and construction of containers, cylinders and tanks. Containers, cylinders and tanks shall be designed and constructed in accordance with *approved* standards. Containers, cylinders, tanks and other means used for containment of hazardous materials shall be of an *approved* type. Pressure vessels shall comply with the *ASME Boiler and Pressure Vessel Code*.

Ch. 27: HAZARDOUS MATERIALS

○ §2702 DEFINITIONS

SAFETY CAN. An approved container of not more than 5-gallon (19 L) capacity having a spring-loaded lid and spout cover so designed that it will relieve internal pressure when subject to fire exposure.

- **§2703.9.10 Safety Cans.** Safety cans shall be *listed* in accordance with UL 30 when used to increase the *maximum allowable quantities per control area* of flammable or combustible liquids in accordance with Table 2703.1.1(1). Safety cans *listed* in accordance with UL 1313 are allowed for flammable and *combustible liquids* when not used to increase the *maximum allowable quantities per control area* for other hazardous material liquids in accordance with the listing.

Ch. 30 COMPRESSED GASES

- **§3003.7.11 Tube Trailers.** Tube trailers, including those containing compatible *compressed gases*, shall be surrounded by a clear space of not less than 3 feet (914 mm) to allow for maintenance, access and inspection.
- **§3003.7.11 .1 Individual tube trailers containing incompatible materials.** Increased separation distances between individual tube trailers containing incompatible gases shall be provided when required by Section 3003.7.1
- **3003.7.11 .2 Connections.** Piping systems used to connect tube trailers to a user piping system shall not be viewed as an encroachment into the 3-foot (914 mm) clear space.

Ch. 30 COMPRESSED GASES

- **§3006 MEDICAL GAS SYSTEMS**
- **§3006.2 Interior supply location.** 2010 Code - Medical gases shall be stored in areas dedicated to the storage of such gases without other storage or uses. Where containers of medical gases in quantities greater than the permit amount are located inside buildings, they shall be in a 1-hour exterior room, a 1-hour interior room or a gas cabinet in accordance with Section 3006.2.1, 3006.6.2.2 or 3006.2.3-, respectively. Rooms or areas where medical gases are stored in quantities exceeding the maximum allowable quantity per control area as set forth in Section 2703.1 shall be in accordance with the International Building Code for high-hazard Group H occupancies.

Ch. 34: FLAMMABLE AND COMBUSTIBLE LIQUIDS

- **§3404.2.9.1 Existing noncompliant installations.** Existing above-ground tanks shall be maintained in accordance with the code requirements that were applicable at the time of installation. Above-ground tanks that were installed in violation of code requirements applicable at the time of installation shall be made compliant or shall be removed in accordance with Section 3404.2.14, regardless of whether such tank has been previously inspected.

Ch. 34: FLAMMABLE AND COMBUSTIBLE LIQUIDS

- **§3404.2.15 Maintenance.** Above-ground tanks, connected piping and ancillary equipment shall be maintained in a safe operating condition. Tanks shall be maintained in accordance with their listings. Damage to above-ground tanks, connected piping or ancillary equipment shall be repaired using materials having equal or greater strength and *fire resistance* or the equipment shall be replaced or taken out of service.

Ch. 35: FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS

- §3506 FLAMMABLE CRYOGENIC FLUIDS & §3507
METAL HYDRIDE STORAGE SYSTEMS

Added to address address specific hazards to hydrogen storage as a cryogen and in metal hydride systems.

Ch. 40: OXIDIZERS, OXIDIZING GASES AND OXIDIZING CRYOGENIC FLUIDS

- §4002 DEFINITIONS

LIQUID OXYGEN ABULATORY CONTAINER. A container used for liquid oxygen not exceeding 0.396 gallons (1.5 liters) specifically designed for use as a medical device as defined by 21 USC Chapter 9 that is intended for portable therapeutic use and to be filled from its companion base unit (a liquid oxygen home container).

LIQUID OXYGEN HOME CARE CONTAINER. A container used for liquid oxygen not exceeding 15.8 gallons (60 liters) specifically designed for use as a medical device as defined by 21 USC Chapter 9 that is intended to deliver gaseous oxygen for therapeutic use in a home environment.

Ch. 40: OXIDIZERS, OXIDIZING GASES AND OXIDIZING CRYOGENIC FLUIDS

○ §4002 DEFINITIONS.

OXIDIZER.

Definition of oxidizer and definitions of Class 1-4 updated.

OXIDIZING CRYOGENIC FLUID. An oxidizing gas in the cryogenic state.

Ch. 40: OXIDIZERS, OXIDIZING GASES AND OXIDIZING CRYOGENIC FLUIDS

- **§4006 LIQUID OXYGEN IN HOME HEALTH CARE.**
- **§4006.1 General.** The storage and use of liquid oxygen (LOX) in home health care in Group I-1, I-4 and R occupancies shall comply with Sections 4006.2 through 4006.6, or shall be stored and used in accordance with Chapter 27.

Ch. 40: OXIDIZERS, OXIDIZING GASES AND OXIDIZING CRYOGENIC FLUIDS

- **§4006 LIQUID OXYGEN IN HOME HEALTH CARE.**

Labeling and notification requirements.

- **§4006 .6.2 Premises signage.** Where required by the *fire code official*, each *dwelling unit* or *sleeping unit* shall have an *approved* sign indicating that the unit contains liquid oxygen home care containers.

- **§4006 .6.7 Fire department notification.** Where required by the *fire code official*, the liquid oxygen seller shall notify the fire department of the locations of liquid oxygen home care containers.

Ch. 41: PYROPHORIC MATERIALS

- §4106 Silane Gas – Section removed.

- Requirements captured in CGA G-13 – (2006)

*Storage and Handling of Silane and Silane Mixtures
(an American National Standard)*

Changes To Note

- MSDSheets allowed in electronic form.
- Up to 3,000 gallons of fuel oil allowed inside of buildings.
- Allow for the requirement of repair or replacement of damaged equipment at fuel dispensing operations.
- Change of information collected in the HMMP and HMIS.
- Safety cans can be used to increase quantities.

Changes To Note

- Legally installed above-ground tanks do not need to meet current code.
- Requirements for home oxygen use.

What Was Missed

- No relief from the requirements for sprinkler coverage in Type II dry cleaning plants.