

## **Chapter 1**

### **SCOPE AND ADMINISTRATION**

#### **SECTION 1.1 – GENERAL**

Added Section 1.1.5.1 to read:

**1.1.5.1 Referenced codes.** Whenever reference is made in this code to a building, mechanical, plumbing, or electrical code, such reference shall mean the version of such code as amended and adopted by the City of Santa Clara.

#### **SECTION 101 – SCOPE AND GENERAL REQUIREMENTS**

Amended Section 101.1 to read:

**101.1 Title.** These regulations shall be known as the Municipal Fire and Environmental Code of the City of Santa Clara, hereinafter referred to as “this code.”

#### **SECTION 104 – GENERAL AUTHORITY AND RESPONSIBILITIES**

Added Section 104.12 to read:

**104.12 Standby fire personnel and fire watch personnel.** The fire code official has the authority to require, at no cost to the jurisdiction, standby fire personnel and/or fire watch personnel if in the opinion of the fire code official potentially hazardous conditions or reductions in a life safety feature exist. The owner, agent, or lessee shall provide one or more qualified persons, as required and approved, to be on duty. Such standby fire personnel or fire watch personnel shall be subject to the fire code official’s orders at all times and remain on duty during the times such places are open to the public, when such activity is being conducted, or as required by the fire code official. Fire watch personnel are not employees or agents of the city.

#### **SECTION 105 – PERMITS**

Added Section 105.1.6.2 to read:

**105.1.6.2 Annual Operational Fire Permits.** All fees for annual operational fire permits under the provisions of Sec. 105.6 of this Chapter shall be due and payable at the time of commencement of occupancy and said permit shall expire no later than twelve (12) months after the date of issuance. Fees for the renewal of such permits shall be due and payable upon the expiration of the prior permit. No permit fee paid hereunder shall be refundable by reason of the cessation of occupancy during the permit period. Every annual permit fee that is not paid within a period of thirty (30) days from the time the same became due is hereby declared to be delinquent, and a penalty of 100% or a maximum fine of five-hundred (\$500.00) dollars shall be added to said fee.

Amended Section 105.2 to read:

**105.2 Application.** Applications for a permit required by this code shall be made to the fire code official in such form and detail as prescribed by the fire code official. Applications for permits shall be accompanied by such plans as prescribed by the fire code official. Said application shall be accompanied by a fee in an amount listed in the City of Santa Clara Municipal Fee Schedule.

Added Section 105.4.5 to read:

**105.4.5 Amended construction documents.** Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents. One (1) set of as built drawings (hard-copy) and one (1) electronic format. Electronic submittals shall comply with electronic format submittal guidelines.

Amended Table 105.6.9 to read:

**TABLE 105.6.9  
PERMIT AMOUNTS FOR COMPRESSED GASES**

<b>TYPE OF GAS</b>	<b>AMOUNT (cubic feet at NTP)</b>
Corrosive	200
Flammable (except cryogenic fluids and liquefied petroleum gases)	200
Highly toxic	Any amount
Inert and simple asphyxiate <sup>a</sup>	6,000
Irritant	200
Moderately toxic	20
Other health hazards	650
Oxidizing (including oxygen)	504
Pyrophoric	Any amount
Radioactive	Any amount
Sensitizer	200
Toxic	Any Amount
Unstable (reactive)	Any amount

For SI: 1 cubic foot = 0.02832m<sup>3</sup>.

a. For carbon dioxide used in beverage dispensing applications, see Section 105.6.4.

Amended Section 105.6.17 to read:

**105.6.17 Flammable and combustible liquids.** An operational permit is required:

1. To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the offsite transportation in pipelines regulated by the Department of Transportation (DOTn) nor does it apply to piping systems.
2. To store, handle or use Class I liquids in excess of 5 gallons (19 L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following:
  - 2.1 The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the fire code official, would cause an unsafe condition.
  - 2.2 The storage or use of paints, oils, varnishes or similar flammable mixtures when such liquids are stored for maintenance, painting or similar purposes for a period of not more than 30 days.
3. To store, handle or use Class II or Class IIIA liquids in excess of 25 gallons (95 L) in a building or in excess of 60 gallons (227 L) outside a building, except for fuel oil used in connection with oil burning equipment.
4. To store, handle or use Class IIIB liquids in tanks or portable tanks for fueling motor vehicles at motor fuel-dispensing facilities or where connected to fuel-burning equipment.

**Exception:**

1. Fuel oil and used motor oil used for space heating or water heating.
5. To remove Class I or II liquids from an underground storage tank used for fueling motor vehicles by any means other than the approved, stationary on-site pumps normally used for dispensing purposes.

6. To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed or used.
7. To place temporarily out of service (for more than 90 days) an underground, protected above-ground or above-ground flammable or combustible liquid tank.
8. To change the type of contents stored in a flammable or combustible liquid tank to a material that poses a greater hazard than that for which the tank was designed and constructed.
9. To manufacture, process, blend or refine flammable or combustible liquids.
10. To engage in the dispensing of liquid fuels into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments in accordance with Section 5706.5.4 or to engage in on-demand mobile fueling operations in accordance with Section 5707.
11. To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of motor vehicles, marine craft and other special equipment at commercial, industrial, governmental or manufacturing establishments in accordance with Section 5706.5.4 or to utilize a site for on-demand mobile fueling operations in accordance with Section 5707.

Amended Table 105.6.21 to read:

**TABLE 105.6.21  
PERMIT AMOUNTS FOR HAZARDOUS MATERIALS**

<b>TYPE OF MATERIAL</b>	<b>AMOUNT</b>
Combustible liquids	See Section 105.6.17
Corrosive materials: Gases Liquids Solids	<u>200 cubic feet</u> 55 gallons 500 pounds
Explosive materials	See Section 105.6.15
Flammable materials: Gases Liquids Solids	See Section 105.6.9 See Section 105.6.17 10-pounds
Highly toxic materials: Gases Liquids Solids	Any Amount Any Amount Any Amount
Moderately toxic gas	20 cubic feet
Oxidizing materials Gases Liquids Class 4 Class 3 Class 2 Class 1	504 cubic feet  Any Amount Any Amount Any Amount No Permit Required
Solids Class 4 Class 3 Class 2 Class 1	Any Amount Any Amount Any Amount No Permit Required
Organic Peroxides Liquids Class I Class II Class III Class IV Class V Solids Class I Class II Class III Class IV Class V	Any Amount Any Amount Any Amount Any Amount No Permit Required  Any Amount Any Amount Any Amount Any Amount No Permit Required
Other health hazard Gases Liquids Solids	650 cubic feet 55 gallons 500 pounds
Pyrophoric materials Gases Liquids	Any Amount Any Amount

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Solids	Any Amount
Radioactive materials	
Gases	Any Amount
Liquids	See Section 105.6.50
Solids	See Section 105.6.50
Toxic materials	
Gases	Any Amount
Liquids	Any Amount
Solids	Any Amount
Unstable (reactive) materials	
Gases	
Liquids	
Class 4	Any Amount
Class 3	Any Amount
Class 2	Any Amount
Class 1	Any Amount
Solids	
Class 4	Any Amount
Class 3	Any Amount
Class 2	Any Amount
Class 1	Any Amount
Water reactive materials	
Liquids	
Class 3	Any Amount
Class 2	Any Amount
Class 1	Any Amount
Solids	
Class 3	Any Amount
Class 2	Any Amount
Class 1	Any Amount

For SI: 1 gallon = 3.785 L, 1 pound = 0.454kg.

- a. 20 gallons when Table 5003.1.1(1) Note k applies and hazard identification signs in accordance with Section 5003.5.5 are provided for quantities of 20 gallons or less.
- b. 200 pounds when Table 5003.1.1(1) Note k applies and hazard identification signs in accordance with Section 5003.5 are provided for quantities of 200 pounds or less.

Added Section 105.6.50 to read:

**105.6.50 Radioactive Materials.** To store or handle at any installation more than one microcurie (37,000 becquerel) of radioactive material not contained in a sealed source or more than 1 millicurie (37,000,000 becquerel) of radioactive material in a sealed source or sources, or any amount of radioactive material for which a specific licenses from the Nuclear Regulatory Commission is required.

Added Section 105.6.51 to read:

**105.6.51 Stationary Battery System Serving Fire/Life Safety Systems.** An operational permit is required for stationary storage battery systems providing power to fire and life safety systems.

Added Section 105.6.52 as follows:

**105.6.52 Emergency responder radio coverage system.** An operational permit is required to maintain an emergency responder radio coverage system in accordance with Section 510.

Added Section 105.6.53 to read:

**105.6.53 Outdoor assembly event.** A temporary operational permit is required to operate an outdoor assembly event.

Added Section 105.6.54 to read:

**105.6.54 Christmas Tree Lots or Sale Areas at Retail Businesses.** A temporary operational permit is required to operate a Christmas Tree Lot or Sales Areas at Retail Businesses.

Added Section 105.8 to read:

**105.8 Annual Fire Department Inspection Fees Required.** An annual fire inspection fee shall be paid to the City of Santa Clara for each A, B, E, F, H, I, M, R-1, R-2, R-3.1, and S occupancies in the City and for any R-3 occupancy in the City wherein a home occupation is conducted except for small family day care operations.

Added Section 105.9 to read:

**105.9 Certified Unified Program Agency (CUPA) Fees.** Pursuant to the appointment of the City of Santa Clara as a Certified Unified Program Agency (CUPA) by the California Environmental Protection Agency, the Fire Department is authorized to collect fees associated with the CUPA programs. The CUPA fees will be collected on an annual basis or as specified in the Santa Clara Municipal Fee Schedule.

Added Section 105.10 to read:

**105.10 Review of Building Plans.** The Building Inspection Division shall transmit to the Fire Department a copy of each plan submitted for the construction or alteration of those occupancies classified as A, E, H, I, R-1, R-2 and all buildings classified as a high-rise as defined in the International Building Code as well as other plans when determined by the Fire code official that review by the Fire Department is necessary to ensure and maintain a reasonable degree of fire and life safety.

Added Section 105.10.1 to read:

**105.10.1 Building Inspection Division.** In addition to the foregoing, the Building Inspection Division shall review each application for a building permit for all other occupancies and shall transmit to the Fire Department each such application and its accompanying plans if it is determined that one or more of the following facts exist:

1. All new commercial buildings.
2. Building permit plans including tenant improvements shall be routed to the Fire Department for the following occupancy groups and classifications:
  - 1) Group A: A-1, A-2, A-3, A-4, A-5
  - 2) Group E
  - 3) Group F: F-1
  - 4) Group H: H-1, H-2, H-3, H-4, H-5
  - 5) Group I: I-1, I-2, I-3, I-4
  - 6) Group R: R-1, R-2, R-3.1, R-4
  - 7) Group S; S-1
3. Building Permit plans for tenant improvements for all other occupancies with the exception of R-3 occupancies when the tenant improvements exceed 500 square feet in area.
4. Building Permit plans for spray rooms, spray booth and spraying space as regulated by Chapter 24 of the Santa Clara Municipal Fire and Environmental Code.
5. Fire Department Access shall be reviewed for the following:

- 1) New buildings when any portion of the building is situated more than one hundred fifty (150) feet from a public street.
  - 2) Parking lot layout changes.
  - 3) Vehicle gate installations.
  - 4) Plan developments which include private streets.
6. Hazardous Materials: Building Permit plans including tenant improvements for projects intended for the use, storage or handling of hazardous materials (includes soil remediation utilizing hazardous materials) when the quantities exceed the quantities set forth in Tables 105.6.9, 105.6.11 and 105.6.21.
7. Storage: Building Permit plans which includes storage that may exceed ten (10) feet or includes storage of any height containing: aerosols, plastics, idle pallets, plastic pallets, rubber tires, baled cotton, rolled paper, flammable liquids or similar commodities.

Added Section 105.10.2 to read:

**105.10.2 Transmittal.** When any plans are transmitted under Section 105.10 above, the Fire code official shall review the same and determine what fire and life safety requirements are applicable. The Fire code official shall transmit the results of the plan review to the Building Inspection Division in writing.

Added Section 105.10.3 to read:

**105.10.3 Final Approval.** No final inspection under this code, as to all or any portion of the development, shall be deemed completed and no certificate of occupancy shall be issued unless and until the requirements imposed by this code have been completed and the final approval thereof, by the Fire Department, has been given as provided herein and all inspection fees paid.

## SECTION 106 – INSPECTIONS

Added Section 106.5 to read:

**106.5 Documents.** Any person or party who prevents or attempts to prevent any representative of the Fire Department from examining any relevant books or records in the conduct of his or her official duties under this code shall be in violation of this code.

Added Section 106.6 to read:

**106.6 Evidence.** Any person or party who prevents or interferes with the preservation of evidence of any violation of any of the provisions of this code or of the rules and regulations promulgated pursuant to this code or any other Federal, State, or local law, rule, or regulation shall be in violation of this code.

Added Section 106.7 to read:

**106.7 Interference.** Any person or party who willfully prevents, interferes with, or attempts to hinder in any way the work of any authorized representative of the Fire Department in the lawful enforcement of any provision of this code, or fails to promptly permit entry for the purpose of inspection and examination pursuant to this code shall be in violation of this code.

## SECTION 108 – BOARD OF APPEALS

Amended Section 108.1 to read:

**108.1 Appeals.** Whenever the Fire Chief of the City of Santa Clara or any authorized designee disapproves an application or refuses to grant a permit applied for under the provisions of this Code, or when it is claimed that the provisions of this Code do not apply or that the true intent of meaning of the Code have been misconstrued or wrongly interpreted, the applicant may appeal the decision of the Chief to the City Manager of the City of Santa Clara within seven (7) business days from the date of the decision or interpretation.

Amended Section 108.2 to read:

**108.2 Limitations on authority.** An application for appeal shall be based on a claim that the intent of this code or the rules legally adopted hereunder has been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed. The City Manager shall have no authority to waive requirements of this code.

Strike Section 108.3 (not adopted):

~~**108.3 Qualification.** The board of appeals shall consist of members who are qualified by experience and training to pass on matters pertaining to hazards of fire, explosion, hazardous conditions or fire protection systems, and are not employees of the jurisdiction.~~

## SECTION 109 – VIOLATIONS

Added Section 109.1.1 to read:

**109.1.1 Abatement of Fire and Life Safety Hazards by Fire Code Official.** If any person fails to comply with the orders of the fire code official, or if the fire code official is unable to locate the owner, operator, occupant or other person responsible within a reasonable time, the fire code official or any authorized representative may take such steps as are necessary to abate the hazard for the protection of the public safety. In no event is notice necessary before abatement, when the hazard is a clear and present danger to the public welfare. All costs related to such abatement shall become a lien on the subject property.

Added Section 109.1.2 to read:

**109.1.2 Criminal or Civil Penalty for Violation; Payment of Funds To Account.** Pursuant to the City's prosecutorial discretion, the City may enforce violations of the provisions of this code in any manner authorized by this section or by any other law, including but not limited to issuance of criminal citations, referral to the District Attorney, referral to other appropriate agencies, administrative actions and civil actions.

Added Section 109.1.3 to read:

**109.1.3 Infractions/Misdemeanors.** Any person who violates any of the provisions of this code, any of the provisions of any written authority of the City Manager or his or her duly authorized agents and representatives or any provision of any permit issued pursuant to this code shall be guilty of an infraction/misdemeanor. Each and every day, or any part thereof, during which any such violation is committed, continued or allowed shall be a separate offense.

Added Section 109.1.4 to read:

**109.1.4 Prosecution.** Every violation of this code shall be a misdemeanor; provided, however, that where the City Attorney or his or her duly authorized agents has determined that such action would be in the best interest of justice, the City Attorney may specify in the accusatory pleading, citation or amendment thereto that the violation shall be prosecuted as an infraction.

Added Section 109.1.5 to read:

**109.1.5 Penalty for Infraction.** Each and every violation of this code, which is deemed an infraction, is punishable by:

1. A fine not exceeding two hundred dollars (\$200.00) for the first violation;
2. A fine not exceeding five hundred dollars (500.00) for the second violation of the same or similar provision within one year period; or,
3. A fine not exceeding one thousand dollars (\$1000.00) for each additional violation, after the second, of the same or similar provision of this Chapter within a one year period of the first violation.

Added Section 109.1.6 to read:

**109.1.6 Penalty for Misdemeanor.** Each and every violation of this code, which is deemed a misdemeanor, is punishable by a penalty of not more than one thousand dollars (\$1,000.00) or by imprisonment in the City or County jail for a period not exceeding six (6) months, or, by both penalty and imprisonment.



Added Section 109.1.7 to read:

**109.1.7 Enforcement Authority.** The following designated employee positions may enforce the provisions of this code by issuance of citations. Peace officers and persons employed in such positions are authorized to exercise the authority provided in Penal Code Section 836.5 and are authorized to issue citations for violations of this code. The designated employee positions are: the City Manager or his or her duly authorized agents and representatives.

Added Section 109.1.8 to read:

**109.1.8 Civil Penalties.** Any person who intentionally, accidentally or negligently violates any provision of this code, any written authority of the City Manager or his or her duly authorized agents and representatives, or any provision of any permit issued pursuant to this code may be civilly liable to the City in the sum of not less than one hundred dollars (\$100.00) but not to exceed one thousand dollars (\$1,000.00) per day for each day in which such violation occurs or continues. The City may petition the municipal or superior court to impose, assess, and recover such sums. The civil penalty provided in this Section excludes inspection costs and abatement costs, is cumulative and not exclusive, and shall be in addition to all other remedies available to the City under state and federal law and local ordinances. Funds collected pursuant to this Section shall be paid to the Fire Prevention and Hazardous Materials Enforcement Fund.

## SECTION 113 – FEES

Added Section 113.6 to read:

**113.6 Re-inspection Fees.** A re-inspection fee as set forth from time to time by City Council resolution may be assessed for each inspection or re-inspection when any portion of work for which inspection is called is not complete or when required corrections have not been completed. This subsection is not to be interpreted as requiring re-inspection fees upon initial rejection of work for failure to comply with the requirements of this code, but as controlling the practice of calling for inspections before work is ready for the inspection or re-inspections or if hazards are not abated in the required timeframe.

Added Section 113.7 to read:

**113.7 Subsequent Review Fees.** When additional reviews of construction drawings are required, either caused by field changes or revisions, or when multiple reviews are needed in order to approve construction drawings, a subsequent review fee may be assessed as set forth from time to time by City Council resolution.

## Chapter 2 DEFINITIONS

### SECTION 104 – GENERAL DEFINITIONS

Added and amended the following definitions:

**CONTINUOUS GAS DETECTION SYSTEM.** A gas detection system where the analytical instrument is maintained in continuous operation and sampling is performed without interruption. Analysis is allowed to be performed on a cyclical basis at intervals not to exceed 30 minutes. In occupied areas where air is re-circulated and not exhausted to a treatment system (e.g. breathing zone), the fire code official may require a cyclical basis at intervals not to exceed 5 minutes. The gas detection system shall be able to detect the presence of a gas at or below the permissible exposure limit in occupiable areas and at or below ½ IDLH (or 0.05 LC 50 if no established IDLH) in unoccupiable areas.

**CORROSIVE LIQUID.** Corrosive liquid is:

1. any liquid which, when in contact with living tissue, will cause destruction irreversible alteration of such tissue by chemical action; or
2. any liquid having a pH of 2 or less or 12.5 or more; or
3. any liquid classified as corrosive by the U.S. Department of Transportation; or
4. any material exhibiting the characteristics of corrosivity in accordance with Title 22, California Code of Regulations §66261.22.

**MODERATELY TOXIC GAS.** A chemical or substance that has a median lethal concentration (LC50) in air more than 2000 parts per million but not more than 5000 parts per million by volume of gas or vapor, when administered by continuous inhalation for an hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each.

**MAXIMUM THRESHOLD QUANTITY (MAX TQ).** Maximum Threshold Quantity (Max TQ) is the maximum quantity of a moderately toxic or toxic gas, which may be stored in a single vessel before a more stringent category of regulation is applied.

**MINIMUM THRESHOLD QUANTITY.** Minimum threshold quantity is the aggregate quantity of highly toxic, toxic or moderately toxic gas in a control area which, due to the minimum aggregate quantities, need only comply with the requirements set forth in Section 6004.1.

**OTHER HEALTH HAZARD MATERIAL.** A hazardous material which affects target organs of the body, including but not limited to, those materials which produce liver damage, kidney damage, damage to the nervous system, act on the blood to decrease hemoglobin function, deprive the body tissue of oxygen or affect reproductive capabilities, including mutations (chromosomal damage), sensitizers or teratogens (effect on fetuses).

**SECONDARY CONTAINMENT.** Secondary containment is that level of containment that is external to and separate from primary containment and is capable of safely and securely containing the material, without discharge, for a period of time reasonably necessary to ensure detection and remedy of the primary containment failure.

**SPILL CONTROL.** That level of containment that is external to and separate from the primary containment and is capable of safely and securely containing the contents of the largest container and prevents the materials from spreading to other parts of the room.

**WORKSTATION.** A defined space or an independent principal piece of equipment using hazardous materials with a hazard rating of 3 or higher as ranked by NFPA 704 here a specific function, laboratory procedure or

research activity occurs. Approved or listed hazardous materials storage cabinets, flammable liquid storage cabinets or gas cabinets serving a work station are included as part of the work station. A work station is allowed to contain ventilation equipment, fire protection devices, detection devices, electrical devices and other processing and scientific equipment.

## **Chapter 3**

### **GENERAL REQUIREMENTS**

#### **SECTION 316 – HAZARDS TO FIRE FIGHTERS**

Added Section 316.7 to read:

**316.7 Roof Guardrails at Interior Courts.** Roof openings into interior courts that are bounded on all sides by building walls shall be protected with guardrails. The top of the guardrail shall not be less than 42 inches in height above the adjacent roof surface that can be walked on. Intermediate rails shall be designed and spaced such that a 12-inch diameter sphere cannot pass through.

**Exception:**

1. Where the roof opening is greater than 600 square feet in area.

## **Chapter 5**

### **FIRE SERVICE FEATURES**

#### **SECTION 503 – FIRE APPARATUS ACCESS ROADS**

Amended Section 503.1 to read:

**503.1 Where required.** Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3 and as per Fire Department Access Road Standards.

Amended Section 503.2.1 to read:

**503.2.1 Dimensions.** Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm) exclusive of shoulders, or as required by Appendix D, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of 13 feet 6 inches (4115 mm).

#### **SECTION 504 – ACCESS TO BUILDING OPENINGS AND ROOFS**

Added Section 504.5 to read:

**504.5 Access Control Devices.** When access control devices including bars, grates, gates, electric or magnetic locks or similar devices, which would inhibit rapid fire department emergency access to within and throughout the building, are installed, such devices shall be approved by the fire code official. All electrically powered access control devices shall be provided with an approved means for deactivation or unlocking from a single location or otherwise approved by the fire code official or his/her designee. Access control devices shall also comply with Chapter 10 Egress.

#### **SECTION 505 – PREMISES IDENTIFICATION**

Added Section 505.3 to read:

**505.3 Site directories.** When required by the fire code official, approved site directories, illustrating and identifying buildings, important site features and access roads shall be installed and maintained at multi-building complexes.

## **Chapter 6**

### **BUILDING SERVICE AND SYSTEMS**

#### **SECTION 601 – GENERAL**

Amended Section 601.2 to read:

**601.2 Permits.** Permits shall be obtained for refrigeration systems, battery systems, fuel tanks connected to emergency or standby power systems, emergency responder radio systems, and solar photovoltaic power systems as set forth in Sections 105.6 and 105.7.

#### **SECTION 604 – EMERGENCY AND STANDBY POWER SYSTEMS**

Added Section 604.2.17 to read:

**604.2.17 Refrigeration systems.** Where treatment, detection, mechanical ventilation, alarm or other electrically operated systems are required for refrigeration systems, such systems shall be provided with an approved standby source of power in accordance with the California Electrical Code.

Added Section 604.2.18 to read:

**604.2.18 Repair garages.** Where mechanical ventilation, treatments systems, alarm, detection or other electrically operated systems are required in repair garages for lighter than air fuels, such systems shall be provided with an approved standby source of power in accordance with the California Electrical Code.

#### **SECTION 605 – ELECTRICAL EQUIPMENT, WIRING AND HAZARDS**

Added Section 605.13 to read:

**605.13 Immersion Heaters.** All electrical immersion heaters used in dip tanks, sinks, vats and similar operations shall be provided with approved over-temperature controls and low liquid level electrical disconnects. Manual reset of required protection devices shall be provided.

#### **SECTION 606 – MECHANICAL REFRIGERATION**

Added Section 606.17 to read:

**606.17 Standby power.** Where mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are required, such systems shall be provided with an approved standby source of power in accordance with the California Electrical Code.

## **Chapter 8**

# **INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS**

### **SECTION 806 – DISPLAY INSIDE BUILDINGS**

Amended Section 806.1.1 to read:

**806.1.1 Display inside buildings.** The display of Christmas trees and other decorative vegetation shall be in accordance with the California Code of Regulations, Title 19, Division 1, §3.08 and Sections 806.1 through 806.5.

## **Chapter 9**

### **FIRE PROTECTION SYSTEMS**

#### **SECTION 903 – AUTOMATIC SPRINKLER SYSTEMS**

Amended Section 903.2 to read:

**903.2 Where required.** Approved automatic sprinkler systems in new and existing buildings and structures shall be provided in the locations described in this Section or in Sections 903.2.1 through 903.2.19 whichever is the more restrictive.

For the purposes of this section, firewalls and fire barriers used to separate building areas shall be constructed in accordance with the California Building Code and shall be without openings or penetrations.

1. In other than residential buildings which require the installation of fire sprinklers for all new buildings according to the California Residential Code, an automatic sprinkler system shall be provided throughout all new buildings and structures greater than 1,000 square feet.

**Exception:**

1. Group S-2 or U occupancies used exclusively for vehicle parking and which meet all of the following:
  - a. Noncombustible construction;
  - b. Maximum building area not to exceed 5,000 square feet;
  - c. Structure is open on three (3) or more side;
  - d. Minimum of 10 feet separation from existing buildings unless area is separated by fire walls complying with California Building Code, Section 706.
2. An automatic sprinkler system shall be provided throughout existing Group A, B, E, F, I L, M, S and U buildings and structures, when additions are made that increase the building area to more than 3,600 square feet or that create conditions described in Sections 903.2.1 through 903.2.19.
3. An automatic sprinkler system shall be provided throughout existing Group R occupancies when additions are made and the building area is greater than 3,600 square feet.
4. An automatic sprinkler system shall be provided throughout all new basements regardless of size and throughout existing basements that are expanded by more than 50%.
5. Any change in the character of occupancy or in use of any building with a building area equal to or greater than 3,600 square feet which, in the opinion of the fire code official or building official, would place the building into a more hazardous division of the same occupancy group or into a different group of occupancies and constitutes a greater degree of life safety<sup>1</sup> or increased fire risk<sup>2</sup>, shall require the installation of an approved fire automatic fire sprinkler system.

<sup>1</sup> Life Safety – Increased occupant load, public assembly areas, public meeting areas, churches, indoor amusement attractions, buildings with complex exiting systems due to increased occupant loads, large schools/day-care facilities, large residential care facilities with non-ambulatory

<sup>2</sup> Fire Risks – High-piled combustible storage, woodworking operations, hazardous operations using hazardous materials, increased fuel loads (storage of moderate to highly combustible materials), increased sources of ignition (welding, automotive repair with the use of flammable liquids and open flames).



**Chapter 23**  
**MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES**

**SECTION 2311 – REPAIR GARAGES**

Added Section 2311.7.2.4 to read:

**2311.7.2.4 Supervision and monitoring.** Required gas detection and mechanical ventilation systems shall be electrically supervised and monitored in accordance with Section 5004.10.

Added Section 2311.7.2.5 to read:

**2311.7.2.5 Standby power.** The gas detection system shall have a battery backup or an approved alternate source of power in accordance with NFPA 72.

## **Chapter 33 FIRE SAFETY**

### **SECTION 3304 – PRECAUTIONS AGAINST FIRE**

Added Section 3304.8 to read:

**3304.8 Fire Walls.** When firewalls are required in combustible construction, the wall construction shall be completed (with all openings protected) immediately after the building is sufficiently weather-protected at the location of the wall(s).

### **SECTION 3311 – MEANS OF EGRESS**

Amended Section 3311.1 to read:

**3311.1 Stairways Required.** Each level above the first story in multi-story buildings that require two exit stairways shall be provided with at least two usable exit stairways after the floor decking is installed. The stairways shall be continuous and discharge to grade level. Stairways serving more than two floor levels shall be enclosed (with openings adequately protected) after exterior walls/windows are in place. Exit stairs in new and in existing, occupied buildings shall be lighted and maintained clear of debris and construction materials at all times.

#### **Exception:**

1. For multi-story buildings, one of the required exit stairs may be obstructed on not more than two contiguous floor levels for the purposes of stairway construction (i.e., installation of gypsum board, painting, flooring, etc.).

Added Section 3311.1.1 to read:

**Section 3311.1.1 Required Means of Egress.** All buildings under construction shall have at least one unobstructed means of egress. All means of egress shall be identified in the pre-fire plan see Section 3308.2.

## **Chapter 50**

### **Hazardous Materials - General Provisions**

#### **SECTION 5001 – GENERAL**

Amended Section 5001.2.2.2 to read:

**5001.2.2.2 Health Hazards** The material categories listed in this section are classified as health hazards. A material with a primary classification as a health hazard can also pose a physical hazard.

1. Highly toxic and toxic materials.
2. Corrosive materials.
3. Moderately toxic gas.
4. Other health hazards.

#### **SECTION 5003 – GENERAL REQUIREMENTS**

Added Section 5003.1.5 to read:

**5003.1.5 Toxic, Highly Toxic, Moderately Toxic Gases and Similarly Used or Handled Materials.** The storage, use and handling of toxic, highly toxic and moderately toxic gases in amounts exceeding Table 6004.2 or 6004.3 shall be in accordance with this chapter and Chapter 60. Any toxic, highly toxic or moderately toxic material that is used or handled as a gas or vapor shall be in accordance with the requirements for toxic, highly toxic or moderately toxic gases.

Added Section 5003.1.6 to read:

**5003.1.6 Other Health Hazards.** The storage, use and handling of materials classified as other health hazards including carcinogens, irritants and sensitizers in amounts exceeding 810 cubic feet for gases, 55 gallons for liquids and 5,000 pounds for solids shall be in accordance with Section 5003.

Added Section 5003.1.7 to read:

**5003.1.7 Additional Spill Control and Secondary Containment Requirements.** In addition to the requirements set forth in Section 5004.2. An approved containment system is required for any quantity of hazardous materials that are liquids or solids at normal temperature, and pressure (NTP) where a spill is determined to be a plausible event and where such an event would endanger people, property or the environment. The approved containment system may be required to include a combination of spill control and secondary containment meeting the design and construction requirements set forth in Section 5004.2.

Amended Section 5003.2.2.1 to read:

**5003.2.2.1 Design and Construction.** Piping, tubing, valves, fittings and related components used for hazardous materials shall be in accordance with the following:

1. Piping, tubing, valves, fittings and related components shall be designed and fabricated from materials compatible with the material to be contained and shall be of adequate strength and durability to withstand the pressure, structural and seismic stress, and exposure to which they are subject.
2. Piping and tubing shall be identified in accordance with ASME A13.1 and the Santa Clara County Fire Chiefs Marking Requirements and Guidelines for Hazardous Materials and Hazardous Waste to indicate the material conveyed.

3. Readily accessible manual valves or automatic remotely activated fail-safe emergency shutoff valves shall be installed on supply piping and tubing at the following locations:
  1. The point of use.
  2. The tank, cylinder or bulk use.
4. Manual emergency shutoff valves and controls for remotely activated emergency shutoff valves shall be identified and the location shall be clearly visible accessible and indicated by means of a sign.
5. Backflow prevention or check valves shall be provided when the backflow of hazardous materials could create a hazardous condition or cause the unauthorized discharge of hazardous materials.
6. Where gases or liquids having a hazard ranking of:
  1. Health Class 3 or 4
  2. Flammability Class 4
  3. Instability Class 4

in accordance with NFPA 704 are carried in pressurized piping above 15 pounds per square inch gauge (psig)(103 Kpa), an approved means of leak detection, emergency shutoff or excess flow control shall be provided. Where the piping originates from within a hazardous material storage room or area, the excess flow control shall be located within the storage room or area. Where the piping originates from a bulk source, the excess flow control shall be located as close to the bulk source as practical.

**Exceptions:**

1. Piping for inlet connections designed to prevent backflow.
  2. Piping for pressure relief devices.
7. Secondary containment or equivalent protection from spills or leaks shall be provided for piping for liquid hazardous materials and for highly toxic and toxic corrosive gases above threshold quantities listed in Tables 6004.2 and 6004.3. Secondary containment includes, but is not limited to double-walled piping.

**Exceptions:**

1. Secondary containment is not required for toxic corrosive gases if the piping is constructed of inter materials.
  2. Piping under sub-atmospheric conditions if the piping is equipped with an alarm and fail-safe-to-close valve activated by a loss of vacuum.
8. Expansion chambers shall be provided between valves whenever the regulated gas may be subjected to thermal expansion. Chambers shall be sized to provide protection for piping and instrumentation and to accommodate the expansion of regulated materials.

Amend Section 5003.2.2.2 to read:

**5003.2.2.2 Additional Regulation for Supply Piping for Health Hazard Materials.** Supply piping and tubing for gases and liquids having a health hazard ranking of 3 or 4 shall be in accordance with ASME B31.3 and the following:

1. Piping and tubing utilized for the transmission of toxic, highly toxic, or highly volatile corrosive liquids and gases shall have welded or brazed connections throughout except for connections within an exhausted enclosure if the material is a gas, or an approved method of drainage or containment is provided for connections if the material is a liquid.

2. Piping and tubing shall not be located within corridors, within any portion of a means of egress required to be enclosed in fire-resistance-rated construction or in concealed spaces in areas not classified as Group H Occupancies.

**Exception:**

1. Piping and tubing within the space defined by the walls of corridors and the floor or roof above or in concealed space above other occupancies when installed in accordance with Section 415.8.6.3 of the California Building Code as required for Group H, Division 5 Occupancies.
3. All primary piping for toxic, highly toxic and moderately toxic gases shall pass a helium leak test of  $1 \times 10^{-9}$  cubic centimeters/second where practical, or shall pass testing in accordance with an approved, nationally recognized standard. Tests shall be conducted by a qualified "third party" not involved with the construction of the piping and control systems.

Amended Section 5003.3.1 to read:

**5003.3.1 Unauthorized Discharges.** When hazardous materials are released in quantities reportable under state, federal or local regulations or when there is release or a threatened release that presents a threat to health, property or the environment, the fire code official shall be notified immediately in an approved manner and the following procedures required in accordance with Sections 5003.3.1.1 through 5003.3.1.4.

Added Section 5003.5.2 to read:

**5003.5.2 Ventilation Ducting.** Product conveying ducts for venting hazardous materials operations shall be labeled with the hazard class of the material being vented and the direction of flow.

Added Section 5003.5.3 to read:

**5003.5.3 "H" Occupancies.** In "H" occupancies, all piping and tubing may be required to be identified when there is any possibility of confusion with hazardous materials transport tubing or piping. Flow direction indicators are required.

Added Section 5003.9.11 to read:

**5003.9.11 Fire Extinguishing Systems for Workstations Dispensing, Handling or Using Hazardous Materials.** Combustible and non-combustible workstations, which dispense, handle or use hazardous materials, shall be protected by an approved automatic fire extinguishing system in accordance with Section 2703.10, unless otherwise approved.

**Exception:**

1. Internal fire protection is not required for Biological Safety Cabinets that carry NSF/ANSI certification where quantities of flammable liquids in use or storage within the cabinet do not exceed 500ml.

Amended Section 5003.10.4 to read:

**5003.10.4 Elevators utilized to transport hazardous materials.**

**5003.10.4.1** When transporting hazardous materials, elevators shall have no other passengers other than the individual(s) handling the chemical transport cart.

**5003.10.4.2** Hazardous materials liquid containers shall have a maximum capacity of 20 liters (5.28 gal).

**5003.10.4.3** Toxic, moderately toxic, highly toxic, asphyxiate gases, and corrosive gases shall be limited to a container of a maximum water capacity of 1 lb.

**5003.10.4.4** Means shall be provided to prevent the elevator from being summoned to other floors.

Amended Section 5004.2.1 to read:

**5004.2.1 Spill Control for Hazardous Material Liquids.** Rooms, buildings or areas used for storage of hazardous material liquids in individual vessels having a capacity of more than 55 gallons (208 L) or in which aggregate capacity of multiple vessels exceeds 1,000 gallons (3785 L), shall be provided with spill control to prevent the flow of liquids to adjoining areas. Floors in indoor locations and similar surfaces in outdoor locations shall be constructed to contain a spill from the largest single vessel by one of the following methods:

1. Liquid-tight sloped or recessed floors in indoor locations or similar areas in outdoor locations.
2. Liquid-tight floors in indoor locations or similar areas provided with liquid-tight raised or recessed sills or dikes.
3. Sumps and collection systems, including containment pallets in accordance with Section 5004.2.3.
4. Other approved engineered systems.

Except for surfacing, the floors, sills, dikes, sumps and collection systems shall be constructed of noncombustible material, and the liquid-tight seal shall be compatible with the material stored. When liquid-tight sills or dikes are provided, they are not required at perimeter openings having an open-grate trench across the opening that connects to an approved collection system.

## SECTION 5004 – STORAGE

Amended Section 5004.2.2.2 to read:

**5004.2.2.2 Incompatible Materials.** Incompatible materials shall be separated from each other in independent secondary containment systems.

Amended Section 5004.2.3 to read:

**5004.2.3 Containment pallets.** Combustible containment pallets shall not be used inside buildings to comply with Section 5004.2 where the individual container capacity exceeds 55 gallons (208 L) or an aggregate capacity of multiple containers exceeds 1,000 gallons (3785 L) for liquids or where the individual container capacity exceeds 550 pounds (250 kg) or an aggregate of multiple containers exceeds 10,000 pounds (4540 kg) for solids.

Where used as an alternative to spill control and secondary containment for outdoor storage in accordance, with the exception in Section 5004.2, containment pallets shall comply with all of the following:

1. A liquid-tight sump accessible for visual inspection shall be provided;
2. The sump shall be designed to contain not less than 66 gallons (250L);
3. Exposed surfaces shall be compatible with material stored;
4. Containment pallets shall be protected to prevent collection of rainwater within the sump of the containment pallet.

## **Chapter 56**

### **EXPLOSIVES**

#### **SECTION 5601 – GENERAL**

Amended Section 5601.1.3 to read:

**5601.1.3 Fireworks.** The possession, manufacture, storage, sale, handling, and use of fireworks, including those fireworks classified as Safe and Sane by the California State Fire Marshal, are prohibited.

#### **Exceptions:**

1. The storage and handling of fireworks as allowed in Section 5604.
2. Manufacture, assembly and testing of fireworks as allowed in Section 5605 and Health and Safety Code Division 11.
3. The use of fireworks for fireworks displays, pyrotechnics before a proximate audience and pyrotechnic special effects in motion pictures television, theatrical or group entertainment productions as allowed in Title 19, Division 1, Chapter 6 Fireworks reprinted in Section 5608 and Health and Safety Code Division 11.

## **Chapter 57**

### **FLAMMABLE & COMBUSTIBLE LIQUIDS**

#### **SECTION 5704 – STORAGE**

Amended Section 5704.2.7.5.8 to read:

**5704.2.7.5.8 Overfill Prevention.** An approved means or method in accordance with Section 5704.2.9.7.5 shall be provided to prevent the overfill of all Class I, II and IIIA liquid storage tanks. Storage tanks in refineries, bulk plants or terminals regulated by Sections 5706.4 or 5706.7 shall have overfill protection in accordance with API 2350.

An approved means or method in accordance with Section 5704.2.9.7.6 shall be provided to prevent the overfilling of Class IIIB liquid storage tanks connected to fuel-burning equipment inside buildings.

#### **Exception:**

1. Outside aboveground tanks with a capacity of 1320 gallons (5000 L) or less need only comply with Section 5704.2.9.7.5 Item 1 sub-item (1.1).

Added Section 5704.2.7.5.9 to read:

**5704.2.7.5.9 Automatic Filling of Tanks.** Systems that automatically fill flammable or combustible liquid tanks shall be equipped with overfill protection, approved by the fire code official that sends an alarm signal to a constantly attended location and immediately stops the filling of the tank. The alarm signal and automatic shutoff shall be tested on an annual basis and records of such testing shall be maintained on-site for a period of five (5) years.

#### **SECTION 5707 – ON-DEMAND MOBILE FUELING**

Added Section 5707 to read:

##### **Section 5707 - On-Demand Mobile Fueling**

**5707.1 General.** On-demand mobile fueling operations that dispense Class I, II, and III liquids into the fuel tanks of motor vehicles shall comply with Sections 5707.1 through 5707.7.

#### **Exception:**

1. Fueling from an approved portable container in cases of an emergency or for personal use.

**5707.1.1 Approval required.** Mobile fueling operations shall not be conducted without first obtaining a permit and approval from the fire code official. Mobile fueling operations shall occur only at approved locations.

**5707.2 Mobile fueling vehicle.** An on-demand mobile fueling vehicle shall be one of the following:

1. A tank vehicle complying with NFPA 385 that has chassis-mounted tanks or containers where the aggregate cargo capacity does not exceed 1200 gallons (4542 L).
2. A vehicle with one or more chassis-mounted tanks or containers that do not exceed 110 gallons (415 L) individual capacity and having an aggregate capacity that does not exceed 1200 gallons (4542 L).
3. A vehicle that carries a maximum of 60 gallons (227 L) of motor fuel in metal safety cans listed in accordance with UL 30 or other approved metal containers each not to exceed 5 gallons (19 L) in capacity.



The mobile fueling vehicle shall comply with the requirements of all local, state and federal requirements. Mobile fueling vehicles with a chassis-mounted tank in excess of 110 gallons (415 L) shall comply with the requirements of Section 5706.6, Section 5707, and NFPA 385.

The mobile fueling vehicle and its equipment shall be maintained in good repair. Safety cans and approved metal containers shall be secured to the mobile fueling vehicle except when in use.

**5707.3 Required documents.** Documents developed to comply with Sections 5707.3.1 through 5707.3.3 shall be updated as necessary by the owner of the mobile fueling operation and shall be maintained in compliance with Section 107.3.

**5707.3.1 Safety and emergency response plan.** Mobile fueling operators shall have an approved written safety and emergency response plan that establishes policies and procedures for fire safety, spill prevention and control, personnel training and compliance with other applicable requirements of this code.

**5707.3.2 Training records.** Training records of operators shall be maintained. Mobile fueling vehicle operators shall possess evidence of training on proper fueling procedures and the safety and emergency response plan.

**5707.3.3 Site plan.** A site plan shall be developed for each location at which mobile fueling occurs. The site plan shall be in sufficient detail to indicate: all buildings, structures, lot lines, property lines, and appurtenances on site and their use or function; all uses adjacent to the lot lines of the site; fueling locations, the locations of all storm drain openings and adjacent waterways or wetlands; information regarding slope, natural drainage, curbing, impounding and how a spill will be retained upon the site property; and the scale of the site plan.

**5707.4 Mobile fueling areas.** Mobile fueling shall not occur on public streets, public ways, or inside buildings. Fueling on the roof level of parking structures or other buildings is prohibited.

**5707.4.1 Separation.** Mobile fueling shall not take place within 25 feet (7620 mm) of buildings, property lines, or combustible storage.

**Exception:**

1. The fire code official shall be authorized to decrease the separation distance for dispensing from metal safety cans or other approved metal containers in accordance with Section 5707.2.

When dispensing operations occur within 15 feet (4572 mm) of a storm drain, an approved storm drain cover or an approved equivalent method that will prevent any fuel from reaching the drain shall be used.

**5707.4.2 Sources of ignition.** Smoking, open flames, and other sources of ignition shall be prohibited within 25 feet (7620 mm) of fuel dispensing activities. Signs prohibiting smoking or open flames within 25 feet (7620 mm) of the vehicle and the point of fueling shall be prominently posted on the mobile fueling vehicle. The engines of vehicles being fueled shall be shut off during fueling.

**5707.5 Equipment.** Mobile fueling equipment shall comply with Sections 5707.5.1 through 5707.5.5.

**5707.5.1 Dispensing hoses and nozzles.** Where equipped, the dispensing hose shall not exceed 50 feet (15 240 mm) in length. The dispensing nozzles, hoses and appurtenances shall be of an approved and listed type.

**5707.5.2 Break-away device.** A listed break-away device shall be provided at the nozzle.

**Exception:**

1. Mobile fueling vehicles equipped with an approved brake interlock tied to the nozzle holder that prohibits movement of the mobile fueling vehicle when the nozzle is removed from its holder.

**5707.5.3 Shut off valve and fuel limit.** Mobile fueling vehicles shall be equipped with a listed shutoff valve assembly and a fuel limit switch set to a maximum of 30 gallons (116 L).

**5707.5.4 Fire extinguisher.** An approved portable fire extinguisher complying with Section 906 with a minimum rating of 4-A:80-B:C shall be provided on the mobile fueling vehicle with signage clearly indicating its location.

**5707.5.5 Spill kit.** Mobile fueling vehicles shall contain a minimum 5 gallon (19 L) spill kit of an approved type.

**5707.6 Operations.** Mobile fueling vehicles shall be constantly attended during fueling operations with brakes set and warning lights in operation. Mobile fueling vehicles shall not obstruct emergency vehicle access roads.

**5707.6.1 Dispensing hose.** Where equipped, mobile fueling vehicles shall be positioned in a manner to preclude traffic from driving over the dispensing hose. The dispensing hose shall be placed on an approved reel or in an approved compartment prior to moving the mobile fueling vehicle.

**5707.6.2 Drip control.** Operators shall place a drip pan or an absorbent pillow under the nozzle to catch drips and under each fuel fill opening prior to and during dispensing operations.

**5707.6.3 Nighttime deliveries.** Nighttime deliveries shall only be made in areas deemed adequately lighted by the fire code official.

**5707.6.4 Vehicle lights.** The mobile fueling vehicle flasher lights shall be in operation while dispensing operations are in progress.

**5707.6.5 Safety cones.** Safety cones or barriers shall be employed as warning devices to highlight the vehicle fueling area.

**5707.6.6 Bonding.** A means for bonding the mobile fueling vehicle to the motor vehicle shall be provided. Such bonding means shall be employed during fueling operations.

**5707.6.7 Spill reporting.** Spills shall be reported in accordance with Section 5003.3.1.

**5707.7 Training.** Mobile fueling vehicles shall be operated only by designated personnel who are trained on proper fueling procedures and the safety and emergency response plan. The vehicle operator training shall be approved by the fire code official.

## **Chapter 58**

### **Flammable Gases and Flammable Cryogenic Fluids**

#### **SECTION 5803 – GENERAL REQUIREMENT**

Added Section 5803.3 to read:

**5803.3 Mobile fueling of hydrogen vehicles.** Mobile fueling of hydrogen vehicles is prohibited unless approved by the fire code official.

## Chapter 60 Highly Toxic and Toxic Compressed Gases

### SECTION 6004 – HIGHLY TOXIC, TOXIC AND MODERATELY TOXIC COMPRESS GASES INCLUDING THOSE USED IN REFRIGERANTS

Amended Chapter 6004 title to read:

**Section 6004.** Highly Toxic, Toxic and Moderately Toxic Compressed Gases Including Those Used as Refrigerants

Added Section 6004.1 to read:

**6004.1 General.** Materials stored and used as a gas whether or not the material meets the definition of a compressed gas, and meets the definition of a highly toxic, toxic and moderately toxic gas shall comply with Section 6004.

The minimum threshold quantity for highly toxic, toxic and moderately toxic gases, vapors and mists for indoor and exterior storage and use are set forth in Table 6004.1.

Amended and Added Table 6004.1 to read:

**Table 6004.1**  
**Minimum Threshold Quantities for Highly Toxic, Toxic and Moderately Toxic Gases**

Highly Toxic	0
Toxic	10 cubic feet
Moderately Toxic	20 cubic feet

Amended Section 6004.1.1 to read:

**6004.1.1 Special limitations for indoor storage and use by occupancy.** The indoor storage and use of highly toxic, toxic and moderately toxic gases in certain occupancies shall be subject to the limitations contained in Sections 6004.1.1.1 through 6004.1.1.3.

Amended Section 6004.1.1.1 to read:

**6004.1.1.1 Group A, E, I or U occupancies.** Toxic, highly toxic and moderately toxic gases shall not be stored or used within Group A, E, I or U occupancies.

**Exception:**

1. Cylinders not exceeding 20 cubic feet (0.556m<sup>3</sup>) at normal temperature and pressure (NTP) are allowed within gas cabinets or fume hoods.

Amended Section 6004.1.1.2 to read:

**6004.1.1.2 Group R occupancies.** Toxic, highly toxic and moderately toxic gases shall not be stored or used in Group R occupancies.

Amended Section 6004.1.1.3 to read:

**6004.1.1.3 Offices, retail sales and classrooms.** Toxic, highly toxic and moderately toxic gases shall not be stored or used in offices, retail sales or classroom portions of Group B, F, M or S occupancies.

**Exception:**

1. In classrooms of Group B occupancies, cylinders with a capacity not exceeding 20 cubic feet (0.566 m<sup>3</sup>) at NTP are allowed in gas cabinets or fume hoods.

Amended Section 6004.1.2 to read:

**6004.1.2 Gas cabinets.** Gas cabinets containing highly toxic, toxic and moderately toxic gases shall comply with Section 5003.8.6 and the following requirements:

1. The average ventilation velocity at the face of gas cabinet access ports or windows shall not be less than 200 cubic feet per minute (1.02 m/s) with a minimum of 150 feet per minute (0.76 m/s) at any point of the access port or window.
2. Gas cabinets shall be connected to an exhaust system.
3. Gas cabinets shall not be used as the sole means of exhaust for any room or area. The maximum number of cylinders located in a single gas cabinet shall not exceed three, except that cabinets containing cylinders not exceeding 1 pound (0.454 kg) net contents are allowed to contain up to 100 cylinders.

Gas cabinets required by Section 6004.2 or 6004.3 shall be equipped with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Alternative fire-extinguishing systems shall not be used.

Amended Section 6004.1.3 to read:

**6004.1.3 Exhausted enclosures.** Exhausted enclosures containing highly toxic, toxic or moderately toxic gases shall comply with Section 5003.8.5 and the following requirements:

1. The average ventilation velocity at the face of the enclosure shall not be less than 200 feet per minute (1.02 m/s) with a minimum of 150 feet per minute (0.76 m/s).
2. Exhausted enclosures shall be connected to an exhaust system.
3. Exhausted enclosures shall not be used as the sole means of exhaust for any room or area.

Exhausted enclosures required by Section 6004.2 or 6004.3 shall be equipped with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Alternative fire-extinguishing system shall not be used.

Added Section 6004.1.4 to read:

**6004.1.4 Automatic Shut-Off Valve.** An automatic shut-off valve, which is of a fail-safe to close design, shall be provided to shut off the supply of highly toxic gases for any of the following:

1. Activation of a manual fire alarm system.
2. Activation of the gas detection system.
3. Failure of emergency power.
4. Failure of primary containment.
5. Seismic activity.
6. Failure of required ventilation.
7. Manual activation at an approved remote location.

Added Section 6004.1.5 to read:

**6004.1.5 Emergency Control Station.** Signals from emergency equipment used for highly toxic gases shall be transmitted to an emergency control station or other approved monitoring station, which is continually staffed by trained personnel.

Added Section 6004.1.6 to read:

**6004.1.6 Maximum Threshold Quantity.** Toxic gases stored or used in quantities exceeding the maximum threshold quantity in a single vessel per control area or outdoor control area shall comply with the additional requirements for highly toxic gases of Section 6004 of this code.

Moderately toxic gases stored or used in quantities exceeding the maximum threshold quantity in a single vessel per control area or outdoor control area shall comply with the additional requirements for toxic gases of Section 6004 of this code.

The following formula shall be used to calculate the maximum threshold quantity:

$$\text{Max TQ (pounds)} = \text{LC}_{50} \text{ (ppm)} \times 2 \text{ lb.}$$

For gas mixtures containing one or more toxic, highly toxic or moderately toxic components, the  $\text{LC}_{50}$  shall be calculated using CGA Standards P-20 and P-23.

Added Section 6004.1.7 to read:

**6004.1.7 Reduced Flow Valve.** All containers of materials other than lecture bottles containing Highly Toxic material and having a vapor pressure exceeding 29 psia shall be equipped with a reduced flow valve when available. If a reduced flow valve is not available, the container shall be used with a flow-limiting device. All flow limiting devices shall be part of the valve assembly and visible to the eye when possible; otherwise, they shall be installed as close as possible to the cylinder source.

Added Section 6004.1.8 to read:

**6004.1.8 Fire Extinguishing Systems.** Buildings and covered exterior areas for storage and use areas of materials regulated by this Chapter shall be protected by an automatic fire sprinkler system in accordance with NFPA 13. The design of the sprinkler system for any room or area where highly toxic, toxic and moderately toxic gases are stored, handled or used shall be in accordance with Section 5004.5.

Added Section 6004.1.9 to read:

**6004.1.9 Local Gas Shut Off.** Manual activation controls shall be provided at locations near the point of use and near the source, as approved by the fire code official. The fire code official may require additional controls at other places, including, but not limited to, the entry to the building, storage or use areas, and emergency control stations. Manual activated shut-off valves shall be of a fail-safe-to-close design.

Added Section 6004.1.10 to read:

**6004.1.10 Exhaust Ventilation Monitoring.** For highly toxic gases and toxic gases exceeding threshold quantities, a continuous monitoring system shall be provided to assure that the required exhaust ventilation rate is maintained. The monitoring system shall initiate a local alarm. The alarm shall be both visual and audible and shall be designed to provide warning both inside and outside of the interior storage, use, or handling area.

Added Section 6004.1.11 to read:

**6004.1.11 Emergency Response Plan.** If the preparation of an emergency response plan for the facility is not required by any other law, responsible persons shall prepare, or cause to be prepared, and filed with the fire code official, a written emergency response plan. If the preparation of an emergency response plan is required by other law, a responsible person shall file a copy of the plan with the fire code official.

Added Section 6004.1.12 to read:

**6004.1.12 Cylinder Leak Testing.** Cylinders shall be tested for leaks immediately upon delivery and again immediately prior to departure. Testing shall be approved by the fire code official in accordance with appropriate nationally recognized industry standards and practices, if any. Appropriate remedial action shall be immediately undertaken when leaks are detected.

Added Section 6004.1.13 to read:

**6004.1.13 Inert Gas Purge System.** Gas systems shall be provided with dedicated inert gas purge systems. A dedicated inert gas purge system may be used to purge more than one gas, provided the gases are compatible. Purge gas systems inside buildings shall be located in an approved gas cabinet unless the system operates by vacuum demand.

Added Section 6004.1.14 to read:

**6004.1.14 Seismic Shutoff Valve.** An automatic seismic shut-off valve, which is of a fail-safe to close design, shall be provided to shutoff the supply of highly toxic, toxic and moderately toxic gases with an LC<sub>50</sub> less than 3000 parts per million upon a seismic event within 5 seconds of a horizontal sinusoidal oscillation having a peak acceleration of 0.3G (1.47m/sec<sup>2</sup>) and a period of 0.4 seconds.

Added Section 6004.2 to read:

**6004.2 Indoor Storage and Use.** The indoor storage or use of highly toxic, toxic and moderately toxic gases shall be in accordance with Sections 6004.2.1 through 6004.2.2.10.4.

Added Section 6004.2.1 to read:

**6004.2.1 Applicability.** The applicability of regulations governing the indoor storage and use of highly toxic, toxic, and moderately toxic gases shall be as set forth in Sections 6004.2.1.1 through 6004.2.1.5.

Added Section 6004.2.1.1 to read:

**6004.2.1.1 Quantities Not Exceeding the Maximum Allowable Quantity per Control Area.** The indoor storage or use of highly toxic, toxic and moderately toxic gases in amounts exceeding the maximum allowable quantity per control area set forth in Table 5003.1.1(2) shall be in accordance with Sections 5001, 5003, 6001, 6004.2.1.4 and 6004.2.1.5.

Added Section 6004.2.1.4 to read:

**6004.2.1.4 Quantities not exceeding minimum threshold quantity per control area.** The indoor storage or use of highly toxic, toxic and moderately toxic gases in amounts not exceeding the minimum threshold quantity per control area set forth in Table 6004.1 shall be in accordance with Sections 6001, and 6004.1 and Chapter 50.

Added Section 6004.2.1.5 to read:

**6004.2.1.5 Quantities exceeding the minimum threshold quantity per control area.** The indoor storage or use of highly toxic, toxic and moderately gases in amounts exceeding the minimum threshold quantity per control area set forth in Table 6004.1 shall be in accordance with Sections 6001, 6004.1, 6004.2 and Chapter 50.

Amend Section 6004.2.2 to read:

**6004.2.2 General Indoor Requirements.** The general requirements applicable to the indoor storage and use of highly toxic and toxic compressed gases shall be in accordance with Sections 6004.2.2.1 through 6004.2.2.10.4.

Moderately toxic gases with an LC<sub>50</sub> less than or equal to 3000 parts per million shall comply with the requirements for toxic gases in Sections 6004.2.2.1 through 6004.2.2.10.4

Moderately toxic gases with an LC<sub>50</sub> more than 3000 parts per million but not greater than 5000 parts per million and exceeding the maximum threshold quantity, as determined by 6004.1.6, shall comply with the requirements for toxic gases in Sections 6004.2.2.1 through 6004.2.2.7.

Amended Section 6004.2.2.7 to read:

**6004.2.2.7 Treatment Systems.** The exhaust ventilation from gas cabinets, exhausted enclosures and gas rooms and local exhaust systems required in Section 6004.2.2.4 and 6004.2.2.5 shall be directed to a treatment system. The treatment system shall be utilized to handle the accidental release of gas and to process exhaust ventilation. The treatment system shall be designed in accordance with Sections 6004.2.2.7.1 through 6004.2.2.7.5 and Section 510 of the California Mechanical Code.

**Exceptions:**

1. Highly toxic, toxic and moderately toxic gases storage. A treatment system is not required for cylinders, containers and tanks in storage when all of the following are provided:
  - 1.1. Valve outlets are equipped with gas-tight outlet plug or caps.
  - 1.2. Hand wheel-operated valves have handles secured to prevent movement.
  - 1.3. Approved containment vessels or containment systems are provided in accordance with Section 6004.2.2.3.

Amended Section 6004.2.2.10.2 to read:

**6004.2.2.10.2. Alarms.** The gas detection system shall initiate a local alarm and transmit a signal to a constantly attended control station when a short-term hazard condition is detected. The alarm shall be both visual and audible and shall provide warning both inside and outside the area where the gas is detected. The audible alarm shall be distinct from all other alarms.

Amended Section 6004.3 to read:

**6004.3 Outdoor Storage and Use.** The outdoor storage or use of highly toxic, toxic and moderately toxic gases shall be in accordance with Sections 6004.3.1 through 6004.3.4. The minimum threshold quantity for highly toxic, toxic and moderately toxic gases for outdoor storage and use are set forth in Table 6004.1.

Amended Section 6004.3.1 to read:

**6004.3.1 Applicability.** The applicability of regulations governing the outdoor storage and use of highly toxic, toxic, and moderately toxic gases shall be as set forth in Sections 6004.3.1.1 through 6004.3.1.5.

Amended Section 6004.3.1.1 to read:

**6004.3.1.1 Quantities Not Exceeding the Maximum Allowable Quantity per Control Area.** The outdoor storage or use of highly toxic and toxic gases in amounts exceeding the threshold quantity per control area set forth in Table 5003.1.1(4) shall be in accordance with Sections 5001, 5003, 6001, 6004.1, 6004.3.1.4 and 6004.3.1.5.

Amended Section 6004.3.1.4 to read:

**6004.3.1.4 Quantities not exceeding the minimum threshold quantity per control area.** The outdoor storage or use of highly toxic, toxic and moderately toxic gases in amounts not exceeding the minimum threshold quantity per control area set forth in Table 6004.1 shall be in accordance with Sections 6001, 6004.1 and Chapter 50.

Added Section 6004.3.1.5 to read:

**6004.3.1.5 Quantities exceeding the minimum threshold quantity per control area.** The outdoor storage or use of highly toxic, toxic and moderately toxic gases in amounts exceeding the minimum threshold quantity per control area set forth in Table 6004.1 shall be in accordance with Sections 6001, 6004.3 and Chapter 50.

Amended Section 6004.3.2 to read:

**6004.3.2 General outdoor requirements.** The general requirements applicable to the outdoor storage and use of highly toxic, toxic and moderately toxic gases shall be in accordance with Sections 6004.3.2.1 through 6004.3.2.4.

Moderately toxic gases with an LC<sub>50</sub> equal to or less than 3000 parts per million shall comply with the requirements for toxic gases in Sections 5001, 5003, 6001, 6004.1 and 6004.3.



Moderately toxic gases with an LC<sub>50</sub> more than 3000 parts per million but not greater than 5000 parts per million and exceeding the maximum threshold quantity, as determined by 6004.1.6, shall comply with the requirements for toxic gases in Sections 5001, 5003, 6001, 6004.1 and 6004.3.2.1 through 6004.3.2.4.

Moderately toxic gases shall not be considered as toxic gases for maximum allowable quantities determinations under Table 5003.1.1(4).

Amended Section 6004.3.3 to read:

**6004.3.3 Outdoor Storage Weather Protection for Portable Tanks and Cylinders.** Weather protection in accordance with Section 5004.13 shall be provided for portable tanks and cylinders located outdoors and not within gas cabinets or exhausted enclosures. The storage area shall be equipped with an approved automatic sprinkler system in accordance with Section 5004.5.

## **Chapter 64**

### **Pyrophoric Materials**

#### **SECTION 6405 – USE**

Added Section 6405.3.1 to read:

**6405.3.1 Silane distribution systems automatic shutdown.** Silane distribution systems shall automatically shut down at the source upon activation of the gas detection system at levels above the alarm level and/or failure of the ventilation system for the silane distribution system.

## Chapter 80 Reference Standards

### SECTION 5803 – REFERENCE STANDARDS

Added and Amended Chapter 80 to read:

**CGA**

<b>Standard Reference #</b>	<b>Title</b>	<b>Referenced in Code Section #</b>
C-7 (2011)	Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers	5303.4.2, 5503.4.2
G-7 (2014)	Guide to Labeling and Marking of Compressed Gas	As Applicable
G-13 (2015)	Storage and Handling of Silane and Silane Mixtures	6404.1, 6404.2, 6405.3
P-1 (2000)	Safe Handling of Compressed Gases in Containers	5305.7
ANSI/P-18 (2013)	Standard for Bulk Inert Gas Systems	5501.1
S-1.1 (2011)	Relief Device Standards-Part 1-Cylinders for Compressed Gases	5303.3.2, 5503.2
S-1.2 (2009)	Pressure Relief Device Standards-Part 2-Cargo And Portable Tanks for Compressed Gases	5303.3.2, 5503.2
S-1.3 (2008)	Pressure Relief Device Standards-Part 3-Stationary Storage containers for Compressed Gases	5303.3.2, 5503.2
V-1 (2013)	Standard for Gas Cylinder Valve Outlet and Inlet Connections	3505.2.1