



# **Commercial and Industrial Building Standards Guide**

The intent of this guide is to give applicants, consultants and developers early notification of fire-related standards that are required in the development and construction of their commercial and industrial buildings.

## **Access Roads**

- Interior fire access roads shall be a minimum of 24' feet wide. The horizontal inside turning radius shall be a minimum of 28 feet wide and not less than 100 feet long.
- Fire apparatus roads shall have a vertical clearance of not less than 13.5 feet.
- Fire apparatus roads shall be designed and maintained to support a fire apparatus, not less than 75,000 lbs.
- Dead-end fire access roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus. This turn-around shall have red curbing painted throughout.
- All fire lanes shall be painted red with the words "NO PARKING FIRE LANE" painted in white lettering. Alternative means such as signage can be approved. All areas in front of fire hydrants shall be painted red.
- Traffic calming devices such as speed bumps, speed humps, speed control dips, etc. shall be prohibited unless pre-approved by the fire code official.
- All gates providing access from a road to a driveway shall be located a minimum of 30' from the nearest edge of the road and shall be at least two feet wider than the width of the traffic lane(s) serving the gate.
- All access gates shall be equipped with both the "Knox" and "Opticom" emergency access systems.
- All automatic(electric) gates shall be provided with a battery back-up or manual mechanical disconnect in case of power failure.

## **Address Numbers**

- Address numbers shall be a minimum of 24" high with a 1" stroke. The numbers shall be of contrasting colors to the background and be illuminated.
- Address numbers shall be placed on the front of the building facing the street.
- Where multiple buildings share the same parcel an illuminated "directory map" shall be placed at highly visible entrance locations.

## **Water Supply**

- Requirements for fire flow will be determined by *Appendix B* of the California Fire Code 2019 edition.
- Private fire service mains and appurtenances shall be installed in accordance with the latest edition of NFPA standard # 24.
- All private fire hydrants shall be painted red and have 2-4" and 1-2 ½ outlets.
- Each hydrant shall have a blue reflectorized "bot dot" placed on the middle of the asphalt driveway to signal firefighters of hydrants location.

- Ornamental plants/shrubs shall not be planted so as to visually obstruct or impede hydrant operations.
- Water tanks for fire protection, when authorized shall be installed in accordance with the latest edition of NFPA standard # 22.

### **Automatic Pre-Engineered Fire Protection Systems**

- All wet, dry, foam and clean agent fire sprinkler systems, shall be designed to the latest edition of the NFPA 13 standard.
- Fire sprinkler plans can be designed by a licensed C-16 fire protection contractor then must be reviewed and stamped by a licensed Fire Protection Engineer **before** submitting to County Fire for final approval.
- The minimum Fire Department Connection (FDC) shall be a “bank” of 4 ports of 2½ inch male connections. The FDC(s) must be located on approach to the main entrance and be located within 100 feet of a **public** fire hydrant on the same side of the street.
- Mid-rise buildings shall be provided with a Class 1 standpipe system. All standpipe systems shall comply with the latest edition of NFPA 14.

### **Fire Alarms**

- All fire alarms systems shall be designed to the latest edition of NFPA 72.
- All valves controlling smoke alarms, heat detectors, water supply, sprinkler system water flows, pumps, tanks and critical air pressures shall be electronically supervised and monitored.
- Smoke detectors for HVAC systems shall be located in a serviceable area.
- Each fire sprinkler riser shall have a weather resistant exterior horn/strobe attached near the riser on the building in a highly visible location. Where multiple risers are present in a building, signage indicating which “zone” shall also be painted on the buildings wall.

### **Fire Command Center**

- A fire command center for fire department operations shall be provided. The room shall be separated from the remainder of the building by not less than a 1-hour fire barrier.
- The room shall be a minimum of 200 square feet with a minimum dimension of 10 feet.
- A large site plan listing all pertinent fire control system locations shall be laminated and affixed to the wall.
- PDF version of the site plan shall be provided before certificate of occupancy.
- Voice alarm and public address panels, fire alarm control panel, status indicators and controls for air-handling systems, controls for unlocking stairwell doors and fire pump status indicators shall be located inside the room.

- control panel and a list of at least 2 people who should be called and notified in the event of a fire.
- On projects with more than one building or where the fire code official deems necessary additional Knox boxes may be required.

### **Signage**

- All rooms, closets or doors that lead to main electrical, fire alarm control panels, roof access ladders, elevator controls, boilers, clean agent, fire control rooms or hazardous material areas shall have a sign with red background and 1" white reflectorized lettering designating the hazard posted on the entrance door.
- Hazardous Material placards conforming to NFPA 704 for the specific material contained shall be placed on stationary containers, above ground tanks and at entrances to locations where hazardous materials are stored or dispensed.
- All roll up doors shall have stickers that are 3 feet high and 1" stroke painted in OSHA yellow reflectorized numbers on the inside and outside of each door.

### **Emergency Plans**

- Emergency plans shall be written and posted according to Chapter 4 of the California Fire Code 2019 edition.
- The emergency plan shall be reviewed and approved by County Fire before final certificate of occupancy is issued.
- Employee safety training records and evacuation drills attendance reports shall be made available for review at each annual fire inspection.
- Safety Data Sheets, Hazardous Materials Inventory Statements and Management Plans where applicable, shall be readily available and proper signage posted.
- Responsible persons shall be designated and trained to be liaison personnel for the fire department.

### **Fire Department Communication System**

- An approved two-way "bi-directional antenna" system designed and installed per NFPA 72 as referenced in CFC Chapter 80 shall be provided.

## **Emergency Responder Radio Coverage Systems**

Within the construction industry the practice of constructing “concrete tilt-up” buildings, now compose most new construction types within industrial areas. This type of construction frequently blocks firefighter’s ability to communicate to incident commanders and fellow firefighters via their hand-held two-way radios. New buildings of this type shall install radio repeater “booster” systems known as Emergency Responder Radio Coverage Systems (ERRCS) and/or Public Safety Radio Coverage Systems (PSRCS) within San Diego County Fire Protection District jurisdiction.

### **System Design**

- Systems shall be designed in accordance with the 2019 California Fire Code Section 510.5 through 510.5.4 and NFPA 1221. The minimum qualifications of the system designer and lead installation personnel shall include both of the following:
- A valid FCC-issued general radio operator’s license.
- Certification of in-building system training issued by an approved organization or school, or a certificate issued by the manufacturer of the equipment being installed.

### **Plan Submittals**

- A California licensed Fire Protection Engineer shall perform a third-party review, approve and wet stamp the proposed system before it is submitted to San Diego County Fire Protection District for final approval. 3-sets of shop drawings, calculations and associated product cut sheets shall then be submitted to 5510 Overland Avenue Suite 250 San Diego, CA 92123.

### **Installation and Acceptance Test**

- Before a certificate of occupancy is granted, the general contractor or building owner shall have the radio system tested by County Fire Inspectors to verify that firefighter’s two-way coverage is acceptable in not less than 95% of **every** floor.

### **Maintenance**

- All ERRCS shall be required to be inspected, tested and any necessary maintenance performed on an annual basis by a licensed FCC radio inspector.

The image shows two fire department connections (FDCs) installed on a gravel surface. Each FDC is a vertical pipe with a horizontal outlet pipe at the top, featuring four male outlets. The FDCs are protected by yellow bollards. In the background, there is a chain-link fence with a sign that reads "NOTICE OF VIOLATION".

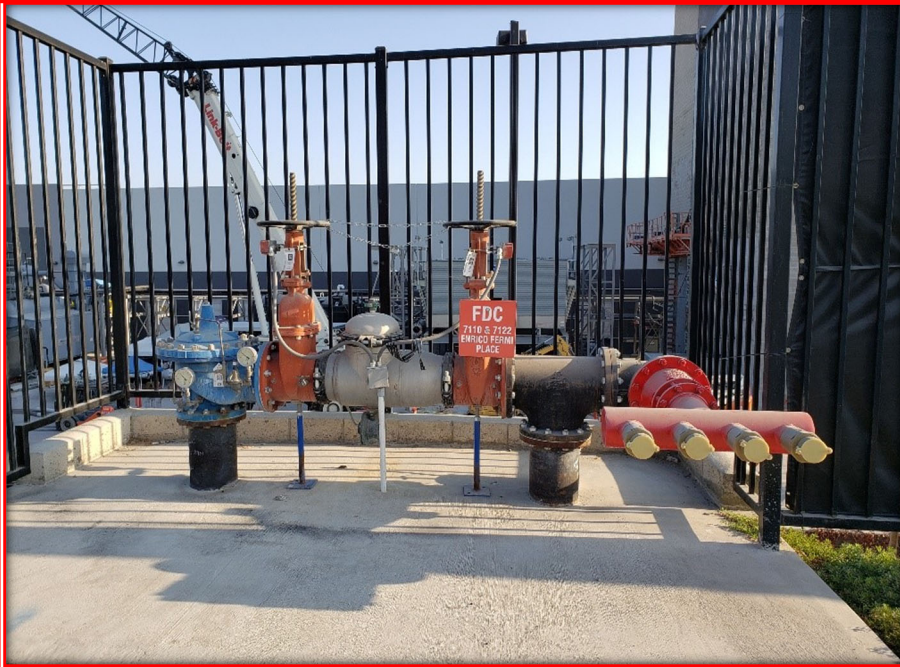
**FIRE DEPARTMENT CONNECTIONS (FDC) SHALL HAVE 4 - 2 ½" MALE OUTLETS AND HAVE BOLLARDS TO PREVENT VEHICULAR DAMAGE.**

**FDC'S MUST HAVE A PUBLIC FIRE HYDRANT LOCATED WITHIN 100' ON THE SAME SIDE OF THE ROAD.**

**FIRE HYDRANTS SHALL HAVE  
2 - 4" OUTLETS AND 1 - 2 ½" OUTLET.  
ALL ON-SITE PRIVATE HYDRANTS  
SHALL BE PAINTED RED.**



# Fire Department Connection Signage



**ALL FDC'S  
MUST HAVE  
ADDRESS  
SIGNAGE.**

**THE SIGNAGE  
SHALL BE A  
RED  
BACKGROUND  
WITH WHITE  
4"  
REFLECTORIZED  
LETTERING**





SPRINKLER  
WATER FLOW  
ZONE

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

EXTERIOR FIRE ALARM HORN/STROBES  
AND FIRE SPRINKLER WATER FLOW BELLS

ZONE

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8



**ROLL-UP DOORS SHALL BE NUMBERED BOTH ON THE INSIDE AND OUTSIDE OF BUILDINGS WITH 3' REFLECTORIZED OSHA "YELLOW" STICK-ON NUMBERING.**

**DOOR NUMBERS 3" STROKE WITH 12" NUMBERS REFLECTIVE (3M SCOTCHLIGHT OR SIMILAR).**

**ALSO INTERIOR NUMBERS SHALL BE INSTALLED NO HIGHER THAN 24" S FROM THE FLOOR TO ALLOW FOR VISIBILITY DURING HEAVY SMOKE CONDITIONS.**

**SIGNAGE FOR FIRE DEPARTMENT ACCESS  
DOORS SHALL BE MADE ON RED  
REFLECTORIZED BACKGROUND  
WITH 1" WHITE LETTERING**



# EMERGENCY WARNING AND EVACUATION SIGNS



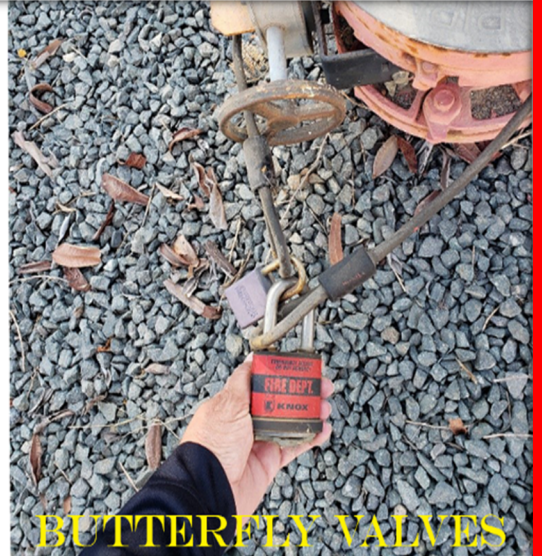
**FRONT DOORMASTER  
KEY BOX**



**SDCFA**

**SAN DIEGO COUNTY  
FIRE AUTHORITY**

**THE  
"KNOX SYSTEM"  
SHALL BE USED  
FOR FIRE  
DEPARTMENT  
ACCESS**



**BUTTERFLY VALVES**



**FIRE DEPARTMENT  
CONNECTIONS (FDC)**



**ELECTRIC GATES**