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Office Hours: Monday-Thursday: 10am-4pm



**DEVELOPMENT REVIEW GUIDELINES
FIRE ACCESS, FIRE PROTECTION WATER SUPPLIES,
HYDRANTS, AND FIRE PROTECTION SYSTEMS
2010 CALIFORNIA FIRE CODE (CFC)**

This guideline provides developers with the Salinas Fire Department (SFD) development review requirements. Projects are required to be submitted through the City's Community Development Department. The project plans will be reviewed by SFD for acceptable fire apparatus access to the parcel and building, fire lanes, security gates across fire apparatus access, water supplies for fire protection, and fire hydrant placement. Development review comments from the fire department are also intended to guide the project towards a complete construction plan submittal.

These items shall be made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided. Temporary street signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles in accordance with **CFC Section 505**.

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_sec005.htm

The following items shall be incorporated into the Community Development plan submittal. All requirements shall be addressed by comment(s), and/or plan detail(s), and/or manufacturer's listing documents. To expedite this plan/application recheck, return a copy of comments with corrected plans to the permit center.

All plans shall conform to 2010 CBC, 2010 CFC and the most current NFPA standards required by currently adopted codes, and as amended by the Salinas Municipal Code online at <http://municipalcodes.lexisnexis.com/codes/salinas/>

Consider following the "Effective Use of the IBC/CBC" found in the front pages of the International/California Building Code to produce a 100% construction plan. The Permit Center staff will not correct incomplete plans.

http://publiccodes.cyberregs.com/st/ca/st/b200v10/st_ca_st_b200v10_effuse.htm

Provided code study information establishes the requirements for fire department water flow demands, the number of hydrants, fire detection and suppression systems, egress requirements, and occupant load restrictions. The following information should be included in a basic code study for new building projects:

1. Group and division designation of the occupancy classifications and uses within the building.
2. Construction type of the building.
3. Number of stories, square footage and occupancy type for each floor, and the height of the building.
4. Fire area of specific occupancies. See the definition for "Fire Area" in **CFC Section 902.1**.
http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_9_sec002.htm
5. Calculations for determining increases in basic allowable areas.
6. Occupant load matrix for occupant use areas and different occupancy classifications.
7. Egress width calculations. Provide egress travel distance for exit access.
8. Indicate if automatic sprinklers protection is provided.

9. Fire protection systems that will be incorporated into the building should be indicated on the design drawings or specifications as specified in **CFC Chapter 9**.

http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_9_sec001.htm

THE MOST COMMON DESIGN REVIEW DEFICIENCIES

The following design items most frequently cause the rejection of plans:

1. Incomplete building code studies for new buildings and tenant improvements.
2. Site plans that lack complying emergency fire access roads.
3. Site plans that do not provide available water flow information, size and location of water mains, and the distance and locations to hydrants.
4. Fire department connections that are not in an accessible location near the front entry point of the building.
5. Complete information and design details for high-piled storage areas are not provided as required by **CFC Section 2301.3**.
http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_23_sec001.htm
6. Using “As approved or determined by the Fire Marshal” or “To be determined by...” instead of determining and designing the requirement on the plans.

FIRE APPARATUS ACCESS ROADS - CFC Section 503.1 & Appendix D

http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_par005.htm &
http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_appd_sec001.htm

Construction Documents

Construction documents for proposed fire apparatus access, location of fire lanes, security gates across fire apparatus access and construction documents and hydraulic calculations for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

CFC Section 501.3

Timing of Installation

When fire apparatus access roads or a water supply for fire protection is required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided. Temporary street signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles in accordance with CFC Section 505.2. **CFC Section 501.4**

Buildings and Facilities

Fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the City of Salinas. The fire apparatus access road shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. **CFC Section 503.1.1**

Additional Fire Apparatus Access The fire code official is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access. Buildings or facilities exceeding 30 feet or three stories in height shall have at least two means of fire apparatus access for each structure. Buildings or facilities having a gross building area of more than 62,000 square feet shall be provided with two separate and approved fire apparatus access roads. **Exception:** Projects having a gross building area of up to 124,000 square feet that have a single approved fire apparatus access road when all buildings are equipped throughout with approved automatic sprinkler systems. Where two access roads are required, they shall be placed a

distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses.

Show Roadway Dimensions Fire apparatus access roads shall have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gate, and an unobstructed vertical clearance of not less than 13 feet 6 inches. Public Works and Planning requirements shall also apply. **CFC Section 503.2.1**

Show Roadway Surface Fire apparatus access roadways shall be approved all weather driving surface. Examples of all-weather surface includes a minimum of 6" of compacted Class II base rock for grades up to and including 5%, oil and screened for grades up to and including 15%, and asphaltic concrete for grades exceeding 15%. No grade shall be allowed to exceed 20%. Permeable road surfaces shall be engineered to support SFD fire apparatus. Fire apparatus roadway surface shall be capable of supporting the imposed load of fire apparatus weighing at least 67,000lbs. **CFC Section 503.2.3 Surface.**

Exception: Pervious surfaces designed for a live load sufficient to carry imposed load of SFD Truck 1. Approval of the Fire Marshal and City's Civil Engineer required.

Show Turning Radius The site plan shall meet SFD fire apparatus access requirements. The required turning radius of a fire apparatus access road shall be able to accommodate Salinas Ladder Truck 1. **CFC Section 503.2.4**

Dead Ends Dead-end fire apparatus access roads in excess of 150 feet shall be provided with width and turnaround provisions in accordance with **CFC Table D103.4**.

TABLE D103.4 REQUIREMENTS FOR DEAD-END FIRE APPARATUS ACCESS ROADS

LENGTH (feet)	WIDTH (feet)	TURNAROUNDS REQUIRED
0-150	20	None required
151-500	20	120-foot Hammerhead, 60-foot "Y" or 96-foot-diameter cul-de-sac in accordance with Figure D103.1
501-750	26	120-foot Hammerhead, 60-foot "Y" or 96-foot-diameter cul-de-sac in accordance with Figure D103.1
Over 750	Special approval required	

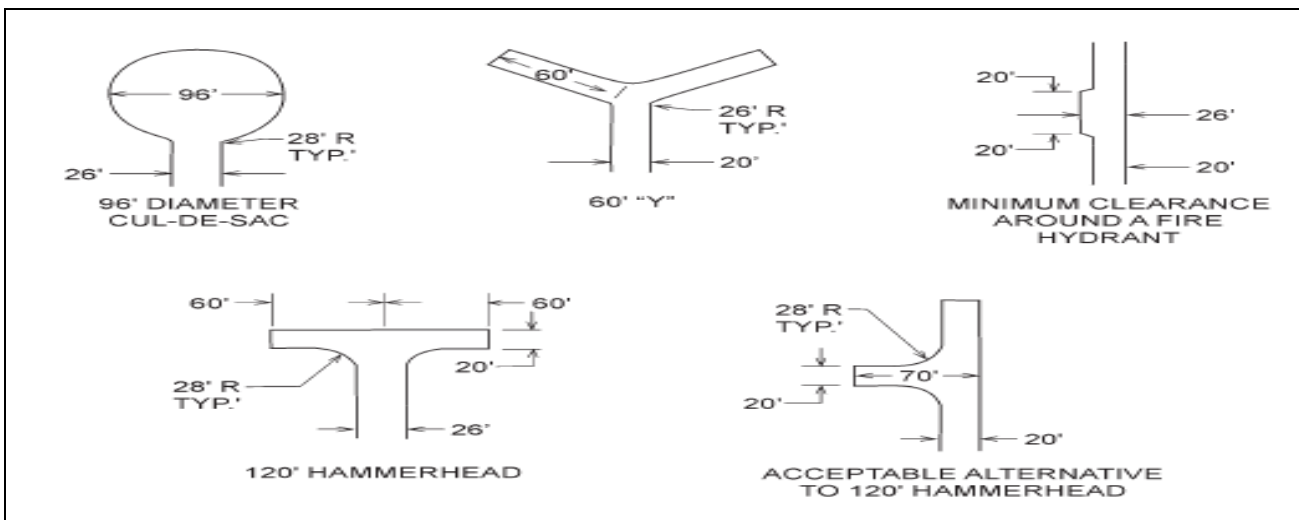


FIGURE D103.1 DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

Bridges and Elevated Surfaces Bridge or elevated surfaces shall be constructed and maintained in accordance with AASHTO HS-20. Bridges and elevated surfaces shall be designed for a live load sufficient to carry imposed load of fire apparatus weighing at least 67,000lbs. Vehicle load limits shall be posted at both entrances to bridges. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained. **CFC Section 503.2.6**

Grade The grade of the fire apparatus access road shall not exceed 10 percent, or a 10 foot rise in a 100 foot length without fire code official approval. **CFC Section 503.2.7**

Show Fire Lane Markings Where required by the fire code official, fire apparatus access roads shall be marked with permanent NO PARKING-FIRE LANE signs complying with SFD guidelines. Signs shall be posted on one or both sides of the fire apparatus road as required by SFD. Fire Lane Guide. **CFC Section 503.3**

Show Security Gates The installation of security gates across a fire apparatus access road shall be approved by the fire chief. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be listed in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200. **CFC 503.5 & 503.6**

Aerial Fire Apparatus Access Roads Buildings or portions of buildings or facilities exceeding 30 feet in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway.

Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of any building or portion of building more than 30 feet in height.

At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building.

Multiple-Family Residential Developments Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads. **Exception:** Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all buildings, including nonresidential occupancies, are equipped throughout with approved automatic sprinkler system.

Multiple-family residential projects having more than 200 dwelling units shall be provided with two separate and approved fire apparatus access roads regardless of whether they are equipped with an approved automatic sprinkler system.

One- Or Two-Family Residential Developments Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads and shall meet the requirements of **CFC Section D104.3**. **Exceptions:** 1. Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system, access from two directions shall not be required. 2. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

Required Emergency Personnel Access Exterior doors and openings required by this code or the California Building Code shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus access roads to exterior openings shall be provided when required by the fire code official.

High-Piled Storage High Piled Storage occupancies require a minimum of one access door in each 100 lineal feet, or fraction thereof, of the exterior walls that face required fire apparatus access roads. The required access doors shall be distributed such that the lineal distance between adjacent access doors does not exceed 100 feet. **Reference: CFC Section 2306.6.1**

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_23_par055.htm

Show Stairway Access To Roof New buildings four or more stories above grade plane, except those with a roof slope greater than four units vertical in 12 units horizontal (33.3-percent slope), shall be provided with a stairway to the roof. Stairway access to the roof shall be in accordance with **CFC Section 1009.13**. http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_10_par160.htm Such stairway shall be marked at street and floor levels with a sign indicating that the stairway continues to the roof. Where roofs are used for roof gardens or for other purposes, stairways shall be provided as required for such occupancy classification.

Show Address Identification Public Works and SFD approved numbers and/or letters shall be placed on all buildings plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be arabic numbers or alphabetical letters. Where access is by means of a private road and the building cannot be viewed from the *public way*, a monument, pole or other sign or means shall be used to identify the structure. References: **CFC Section 505 and Salinas City Code, Part II, Ch. 9, Article IV**. <http://library.municode.com/index.aspx?clientId=16597> and http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_sec005.htm

Building address posting includes, but not limited to, the following:

- Illuminated directory at main entrance.
- Address posted on rear exit door
- Individual room/suite numerals to be minimum 4 inches high X ½" stroke.
- 4 inches high X ½" stroke when 0' – 30' from access.
- 6 inches high X ¾" stroke when 31' – 50' from access.
- 12 inches high X 1¼" stroke from access when over 50 feet from access.

Street or Road Signs. Streets and roads shall be identified with *approved* signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an *approved* size, weather resistant and be maintained until replaced by permanent signs. **CFC Section 505.2**

Key Boxes Where access to a structure is required to get to a fire protection or fire alarm system, hazardous materials, or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type and shall contain keys to gain necessary access as required by the fire code official. <http://www.knoxbox.com/>

FIRE PROTECTION WATER SUPPLIES

An in-depth plan review for private hydrants and private water mains needs to occur during the project plan review phase.

Required Water Supply An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction. **CFC Section 507.1**

Submit Private Fire Service Main Plans to SFD Private fire service mains and appurtenances shall be installed in accordance with **NFPA 24 as amended in CFC Chapter 47.**

<http://www.nfpa.org/codes-and-standards>

Fire Flow Test A fire flow test and report is required to verify that the fire flow requirement is available. When a hydrant water flow report is required, the test should be performed by the local water purveyor or a company approved by the water purveyor. The report shall provide the water pressures measured and provide the available GPM at 20 PSI residual pressure. Existing reports may be used if not dated more than 1 year ago or as approved by the code official or water purveyor. Fire-Flow requirements for buildings shall comply with **CFC Section B105 Fire-Flow Requirements For Buildings**

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_appb_sec005.htm or **ISO Guide For Determination of Needed Fire Flow (NFF)**

Water Supply Test shall be submitted from water purveyor, within the last 12 month from Cal Water or Alco.

Cal Water Fireflow Request

Alco Fireflow Request

Underground Firelines

Water mains and pipe sizes shall be detailed on the site plan. **CFC Section 507.1.**

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_par032.htm

All water mains and hydrants shall be installed and operable prior to combustible materials arrival on a construction site. **CFC Section 1412.1.**

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_14_sec012.htm

The nearest hydrant(s) to the project structure and/or property road frontage shall be shown on the plan.

Prior to the installation of private water main systems, plans shall be submitted for a fire permit, review, and approval by the fire department.

FIRE HYDRANT SYSTEMS

On the site/plot plan, please show the location and type of fire hydrants to meet the current City of Salinas requirements (Clow 950/Clow 960). Also confirm the distance from the fire hydrant to the building and to the fire department connection.

Underground fire service mains and all components shall conform to NFPA 24 minimum standard. The plans shall be reviewed and approved by the Fire Department prior to installation. Stamped approved plans must be kept on site for the Fire Inspector.”

All new fire hydrants shall meet the following requirements:

- * New hydrant will be:
 - [] Clow 950 Residential Area
 - [] Clow 960 Commercial/Industrial Areas
- * Color will be safety yellow (Kelley Moore-Kel-Guard Enamel) for public right-of-way and private hydrants. Hydrants to be safety red for yard hydrants. All hydrants will be painted prior to final inspection.
- * All hydrants to have “Blue Dot” highway reflector installed on the adjacent street or driveway to clearly identify the fire hydrant location per City of Salinas Standard #33 and #34.
- * If combustible building materials are used (including framing) the water supply (including mains and hydrants) shall be designed, installed, tested and approved by the Fire Department prior to stockpiling combustible building materials.
- * Water supply systems for phased construction shall provide required fire flows at all phases.”

CFC SECTION 507.5 & APPENDIX C - FIRE HYDRANT LOCATIONS AND DISTRIBUTION

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_par039.htm and http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_appc_section.htm

Where required Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official. **Exception:** For Group R-3 and Group U occupancies, equipped throughout with an approved automatic sprinkler system installed in accordance with NFPA 13 <http://www.nfpa.org/codes-and-standards>, the distance requirement shall be not more than 600 feet. **CFC 507.5.1.**

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_par039.htm

PW Fire Hydrant Location Plan 33 PW Fire Hydrant Construction Plan 34

Show Number of Fire Hydrants The minimum number of fire hydrants available to a building shall not be less than that listed in CFC Table C105.1. http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_appc_sec005.htm. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in **Table C105.1** when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted.

Show Existing Fire hydrants Existing fire hydrants on public streets are allowed to be considered as available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads.

TABLE C105.1 NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENT (gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS^{a, b, c} (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT^d
1,750 or less	1	500	250
2,000-2,250	2	450	225

2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more ^e	200	120

Show Clear space around hydrants A 3-foot clear space shall be maintained around the circumference of fire hydrants except as otherwise required or approved. **CFC 507.5.5.**
http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_par043.htm

Physical protection. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other approved means shall comply with **CFC Section 312.**
http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_3_sec012.htm

Posts. Guard posts shall comply with all of the following requirements:

1. Constructed of steel not less than 4 inches in diameter and concrete filled.
2. Spaced not more than 4 feet between posts on center.
3. Set not less than 3 feet deep in a concrete footing of not less than a 15-inch diameter.
4. Set with the top of the posts not less than 3 feet above ground.
5. Located not less than 3 feet from the protected object.

Other barriers. Physical barriers shall be a minimum of 36 inches in height and shall resist a force of 12,000 pounds applied 36 inches above the adjacent ground surface.

FIRE PROTECTION SYSTEMS - CFC CHAPTER 9

http://publiccodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_9_section.htm

If the construction plans do not include all fire protection system specifications necessary to complete the building construction plan review, a deferred submittal shall be required. The following fire protection systems shall require separate plans, permit application, and fees:

- Underground Fire Service Plans
- Fire Sprinkler System Plans
- Fire Standpipe Plans
- Fire Pump Plans
- Fire Alarm System Plans
- Commercial Hood & Duct System Plans

To be sent to: Fire Plan Check, c/o City Permit Center, 65 W. Alisal St. Salinas, CA 93901

Fill out **NFPA 13 Owners Certificate** in its entirety. This form allows you to communicate any and all considerations to the fire sprinkler contractor, and that you abide by all limitations regarding the use of the building based on the limitations of the fire sprinkler system that is designed and installed.

Besides the anticipated fire permits, plan check, and inspection fees for the aforementioned fire systems, there will also be a separate "Fire Mitigation" fee for fire apparatus and equipment of \$1.50 per square foot for residential, \$2.00 square foot for commercial project, and \$2.50 per square foot for multi-family . This fee will be applied at time of building construction submittal. Contact the Permit Center regarding this fee.

FIRE PROTECTION EQUIPMENT IDENTIFICATION AND ACCESS

Fire Department Connections (FDC) Ensure landscaping does not obstruct access for firefighter and fire apparatus. With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. The location of fire department connections shall be approved by the fire chief. **CFC Section 912.2.**

http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_9_sec012.htm

Standpipes and fire sprinkler connections shall be within 100 feet of a fire hydrant. (2012)
CFC Section 507.5.1.1 Hydrant for standpipe systems

Identification Fire protection equipment shall be identified in an approved manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. Approved signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible. **CFC Section 509**

http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_5_sec009.htm

Equipment Access

Approved access shall be provided and maintained for all fire protection equipment to permit immediate safe operation and maintenance of such equipment. Materials or objects shall not be placed or kept in such a manner that would prevent such equipment from being readily accessible.