

City of Sacramento

Fire Protection Review for New and Remodeled Dwellings



This pamphlet addresses basic questions including “When are Fire Sprinklers Required?”



Fire Flow Requirements

New Dwellings

Single family dwellings, manufactured housing and duplexes are required to obtain approval from the Fire Department when **any** of the following conditions exist:

- * Construction is proposed in an area where no public water system is available or where there is inadequate fire flow.
- * When any portion of the structure is located more than 150 feet from a paved public road.
- * The total square footage of the structure including habitable space, attached garage and patio is equal to or greater than 3,600 sq. ft. in area.

Verification of the fire flow and flow duration requirements may be obtained through the department of utilities (916)808-5371. Verification of flow and duration shall not be less than that specified in the California Fire Code.

Residential Fire Flow

An approved water supply, capable of supplying the required fire flow, shall be provided to all premises where buildings are newly constructed or moved within the city of Sacramento. No fire service line shall be installed across any parcel other than the parcel to which the service is being furnished. Fire service lines serving greater than one parcel require the approval of the Fire Chief. See Sacramento city code section 13.04.570.

The cost of installing and maintaining the on-site fire protection facilities shall be the sole responsibility of the owner or developer of the land.

All on site fire protection facilities shall conform to national standards and to city specifications.

All pipe installations made within the public right of way shall require an encroachment permit. Please contact Division Engineering: (916)XXX-XXX

Fire Flow Requirements – Residential	
Floor Plan Area (square feet)	Fire Flow (gallons per minute measured @ 20 psi)
0-3,600	1,000
3,601-4,800	1,750
4,801-6,200	2,000
6,201-7,700	2,250
7,701-9,400	2,500
9,401-11,300	2,750
11,301-13,400	3,000
Fire flow may be reduced by 50% when an approved residential fire sprinkler system is installed.	
Ref: California Fire Code, Div. III, Appendix A (Sacramento County Code 1135, Chapter 17)	

Maintenance of On-Site Fire

Except as provided in Section 13.04.620, all on-site fire protection facilities shall at all times be maintained as installed, free of leaks and in good working order by the owner of the land. The fire chief is hereby authorized to enter upon the land at reasonable times and in a reasonable manner to conduct periodic tests and inspections of such facilities. If the fire chief determines that any on-site fire protection facilities are being maintained in such manner as not to meet the standards specified herein, the fire chief shall order the owner to make such repairs, alterations, or additions as shall conform the facilities to such standards. The fire chief shall designate a reasonable time within which such repairs, alterations, or additions are to be made and it shall be unlawful for any person so ordered to willfully fail or refuse to comply with such order. Without limiting the foregoing, the willful failure or refusal to comply with such an order shall constitute an occupancy violation within the meaning of the applicable provisions of Title 15 and Chapter 8.96 of the Sacramento City Code.

Fire Vehicle Access

Road Construction Requirements		
Type of Lot	One or Two Dwellings	More than Two Dwellings
Any residential Lot:		
Width, feet	16	20
Asphalt, Inches	2	2
Aggregate Base, inches	4	4
Agriculture-Residential Lots (AR10 or less):		
Width, feet	16	20
Aggregate Base, inches	4 or equiv.	4 or equiv.
Agricultural Lots:	Improvements will be determined on a case by case basis.	

Access for emergency vehicles must be provided prior to beginning any construction

The above requirements apply to private access roads and driveways. Dead-end private access roads longer than 150 feet must have a turn around for fire service vehicles. Contact the fire district for turn around requirements.

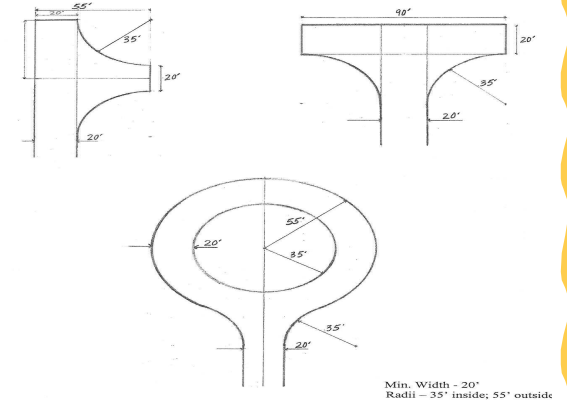
If the new dwelling or addition is located on a private access road with other existing structures and the existing road does not meet the above requirements, the road to your dwelling must be improved to provide adequate access. It is recommended that you review your proposed project with the fire district prior to financial commitments.



All such access easements shall be maintained in such a manner as to provide clear and unobstructed ingress and egress by fire fighting personnel and equipment and/or maintenance personnel and equipment at all times.

Access Turnaround

Fire Department Access Turnaround



Min. Width - 20'
Radii - 35' inside; 55' outside

Road Signs and House Numbers

To facilitate location in an emergency and avoid delays in response, all roads and the dwellings served by them must be designated by name and/or number on the sign. These signs must be clearly visible from the main traveled roadway. Normally, the approved marker shall be a metal sign on a metal post or other acceptable noncombustible support. Address numbers need to be installed on the dwelling. The numbers shall be in such a position to be plainly visible and legible from the private road serving the dwelling. The numbers also need to be externally or internally illuminated and must contrast with their background. If the address number cannot be seen from the private road, an additional address sign has to be posted at the entrance of the private driveway from the private road.

Dwelling distance from property line (feet)	Minimum height of numerals, inches
25 or less	2*
50 or less	4*
Over 50	6*
	*illuminated



Questions and Answers

Q-1. When will my building be reviewed for fire safety issues?

When the plan reviewer has determined that the fire department's access to the building is limited, or that water available for firefighting purposes is insufficient. Plans will be reviewed for fire safety issues (including sprinklers) when any one of the following conditions exists:

- * A new building exceeds 3,599 square feet in floor plan area – note that floor plan areas for fire safety are calculated differently than floor plan calculations for other building code purposes. See XXXX below for more information on calculating floor areas.
- * A new building is constructed where no public water is available or is not within 250 feet of a public hydrant
- * The furthest point of the building exceeds 150 feet from a paved public road.
- * The alteration or addition to an existing dwelling results in an increase in fire area of 50 percent or more, and the final total fire area exceeds 3,599 square feet.
- * The dwelling is a mobile home or manufactured housing of any size.

Fire Area Calculations

The fire area is calculated to determine the required fire flow (hydrant water) needed, and for assessing the need for fire sprinklers. The method for determining the fire area is to include the total of all floor areas (including mezzanines, basements, lofts, etc.) within the building. This is measured by using the exterior wall dimensions. Combustible porches, decks, and balconies attached to the dwelling are included in the calculation.

Q-2. When must a home include fire sprinklers?

There is no current code requirement for a dwelling to include fire sprinklers. Fire sprinklers are an option designed to mitigate a deficiency in fire department access or available water supply (i.e. hydrants). In some limited cases, a professional architect or engineer may be able to use other provisions of the code as an alternative to fire sprinklers.

Q-3. How much water for firefighting purposes (fire flow) will I need?

The table below shows the code required amount of fire flow needed for a typical wood-framed dwelling. The required fire flow may be reduced by 50% when an approved dwelling fire sprinkler system is installed.

Residential Fire Flow Requirements	
Fire Area (square feet)	Fire Flow (gallons per minute @ 20 psi)
0 - 3,599	1,000
3,600 - 4,800	1,750
4,801 - 6,200	2,000
6,201 - 7,700	2,250
7,701 - 9,400	2,500
9,401 - 11,300	2,750

Q-4. How do I know how much fire flow I have?

An approximation of the available water for a particular location may be found by use of an engineering model by contacting XXX at the City Utilities Department. A model approximation can be developed within XXX days and costs XXX. The model MAY be useful in deciding whether to pay for an actual water test. A model approximation is not accurate enough to use for permit processing; only an actual water test can be used to demonstrate current water availability specific to your property. To arrange a water flow test, contact City Utilities at XXX-XXXX. Costs are XXX for a water test. In some limited cases, the City Utilities Department may have current fire flow information for your property. For that, a reduced fee of XXX is charged.

Q-5. OK, I need fire sprinklers. What's my next step?

You can find sprinkler designers and contractors in the phone book yellow pages under "Fire Protection Consultants" or "Fire Protection Service." As with any contracting service, it is best to request a few quotes prior to choosing a contractor.

It is not uncommon that your contractor or designer may find that your existing domestic water tap will not support the water demand of a sprinkler system. In those cases, you may have to increase the size of your tap into the city water main. Taps can be arranged by contacting the department of Utilities at XXX-XXXX.

Q-6. Will I need to install a hydrant to provide fire flow?

In most cases, no. Hydrant spacing is 500 feet in residential areas. This is so that fire engines travel no more than 250 feet in any direction to reach a hydrant. If your dwelling is located such that a fire engine has to travel more than 250 feet to reach a fire hydrant, you will be required to install a fire hydrant. If you are required to install hydrants, any underground mains and hydrants must conform with Public Works Standard XXX and N.F.P.A. 20. Fire sprinklers are a primary alternative to providing a hydrant.

Q-7. Earlier you mentioned that my building will be reviewed for fire access. How is that determined?

The fire code requires that all exterior points of a building be within 150 feet of a road approved for fire apparatus use. That measurement is taken as the path a firefighter would walk to reach the furthest point. A direct-linear measurement is not practical where landscaping, fences, walls, and other features obstruct the firefighter's ability to stretch a fire hose to the furthest exterior point.

Q-8. What are the requirements for fire road construction?

Fire apparatus access roads may be not less than 20 feet wide. The road must be designed to function with the weight of fire apparatus (70,000 pounds) and must be hard surfaced (i.e. asphalt or concrete). Fire roads over 150 feet in length must be provided with a turn-around as specified in standard XXX.

Q-9. When should my fire road be installed?

A fire access road must be provided for fire vehicles immediately upon combustible materials being stored on site. Concrete "forms" for foundation pours are not included.

Q-10. How should my fire road be marked?

Marking of fire roads is explained in the Fire Department Policy entitled "Fire Apparatus Access Roads" and is too lengthy to reproduce within this pamphlet. A copy can be obtained from the fire plan reviewer, or by downloading from the Fire Department's website at www.sacfire.org.



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