



Riverside County Fire Department

Office of the Fire Marshal

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Technical Policy

Title: Fire Apparatus Access and Fire Protection Water Supplies for One- and Two-Family Dwellings, Additions Thereto and Associated Accessory Structures		
Technical Policy: # TP 16-001	Effective Date: 08/08/2016	Revised Date: 01/07/2020
Code References: 2019 California Fire Code, Sections 102.5, 503, 507, and California Code of Regulations, Title 14, Section 1270 et al. SRA Fire Safe Regulations		

Purpose

The Riverside County Fire Department (RCFD) Office of the Fire Marshal (OFM) has prepared this policy to provide guidance to building officials, contractors, architects, business owners, consultants and the general public on local interpretations and practices that are considered to be in compliance with the California Fire Code (CFC). The purpose is to identify fire apparatus access and fire protection water supply requirements for one- and two-family dwellings, additions thereto and associated accessory buildings including, but not limited to, delineating when a driveway (or portion thereof) is considered a fire apparatus access road. The intent is to clarify aspects of the code that are vague or non-specific by addressing selected issues under normal conditions. The requirements of this policy shall not be construed as altering any existing code, law or regulation which may require fire protection features not covered or alluded to in these requirements, nor shall they waive any requirements of any code, law or regulation. The reader is cautioned that the guidance detailed in this policy may or may not apply to their specific situation, and that the OFM retains final authority to determine compliance.

Scope

This policy is applicable to new one- and two-family dwelling, additions to existing one- and two-family dwelling and one- and two-family dwelling accessory building construction proposed at one- and two-family dwelling parcels that contain no more than two buildings, with no more than three dwelling units and any number of accessory buildings.

Fire Apparatus Access Requirements for Driveways at Individual Parcels

Fire Apparatus Access Road - Where Required

Fire apparatus access roads 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. When the building is equipped throughout with an approved automatic fire sprinkler system, this distance is permitted to be extended from 150 feet to 300 feet.

Fire Apparatus Access Road Width and Vertical Clearance

Fire apparatus access roads shall have an unobstructed driving surface width of not less than 12 feet, exclusive of shoulders, and 1 foot on each side for a total 14 feet unobstructed horizontal clearance, with an unobstructed vertical clearance of 13 feet 6 inches.

Grade

Unless otherwise approved by the RCFD Fire Marshal, the grade of a fire apparatus access road shall not exceed 16 percent and the cross slope shall not exceed 2.5 percent.

Angles of Approach and Departure

The angles of approach and departure for fire apparatus access roads shall be a maximum of 6 percent grade for 25 feet of approach/departure.

Turning Radius

The inside turning radius of a fire apparatus access road shall be in accordance with any of the following:

- For curves of 18 to 50 feet inside radius, the driving surface shall be 20 feet minimum. A 56 foot straight leg is required between turns in a compound curve to provide sufficient recovery distance for the apparatus.
- For curves greater than 50 but less than or equal to 100 feet inside radius, the driving surface shall be 16 feet.
- For curves greater than 100 but less than or equal to 200 feet inside radius, the driving surface shall be 14 feet.
- For curves greater than 200 feet inside radius, the driving surface shall be 12 feet.

An alternate design meeting the intent for apparatus turning may be approved by the RCFD Fire Marshal.

Turnarounds

For those parcels located in the Local Responsibility Area (LRA):

- A turnaround shall be provided to all building sites on fire apparatus access roads over 150 feet in length, and shall be within 50 feet of the building.
- The minimum outside turning radius for a turnaround shall be 38 feet, not including parking. If a hammerhead/T is used instead, the top of the "T" shall be a minimum of 80 feet in length.

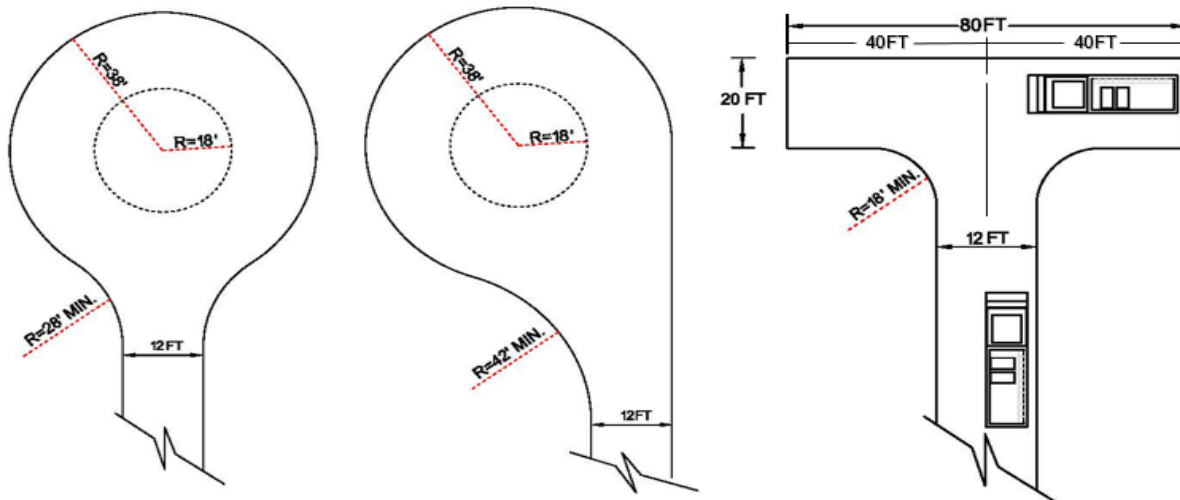
For those parcels located in the State Responsibility Area (SRA):

- A turnaround shall be provided to all building sites on fire apparatus access roads over 300 feet in length, and shall be within 50 feet of the building.
- The minimum outside turning radius for a turnaround shall be 40 feet, not including parking. If a hammerhead/T is used instead, the top of the "T" shall be a minimum of 60 feet in length.

The cross slope within a turnaround shall not exceed 5 percent in all directions.

Example diagrams of approved turnarounds

LRA:



Turnouts

When a fire apparatus access road exceeds 150 feet in length, but less than 800 feet in length, a turnout shall be provided near the midpoint of the fire apparatus access road. Where the fire apparatus access road exceeds 800 feet, turnouts shall be provided no more than 400 feet apart. Turnouts shall be a minimum of 12 feet wide and 30 feet long with a minimum 25 foot taper on each end.

Surface and Load Capacities

Fire apparatus access roads shall be designed to support the imposed loads of fire apparatus [40,000 pound live load (gross vehicle weight) distributed over two axles] and shall be surfaced so as to provide all-weather driving capabilities [rear wheel drive apparatus] for the length and grade(s) of the fire apparatus access road. Storm water runoff/erosion control shall be incorporated. The final plans for the road construction, surface and storm water runoff/erosion control shall be signed and stamped by a California registered civil engineer responsible for the preparation of the design.

Bridges and Elevated Surfaces

Bridges or an elevated surface used as part of a fire apparatus access road shall be designed, constructed and maintained in accordance with CFC Section 503.2.6.

Gates

Gates securing fire apparatus access roads shall comply with all of the following:

- Minimum unobstructed gate width shall be not less than 14 feet.
- For parcels located in the SRA, gates shall be setback from the intersecting roadway at least 30 feet and shall open to allow a vehicle to stop without obstructing traffic on that road.
- Gates shall be swinging or sliding type.
- Gates shall have an approved means of emergency operation:
 - Manually operated gates shall not be locked with a padlock or chain and padlock unless,
 - a Knox box containing the key to the padlock is installed at the gate in an approved location, or
 - a Knox padlock capable of unlocking the gate is utilized, or
 - other means of emergency operation acceptable to the RCFD Fire Marshal are provided.
 - Electric gates shall include the capability of being opened via a Knox key switch in an approved location.
- Electric gate operators, where provided, shall be listed in accordance with UL325.
- Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.

Premises Identification

New buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches high with a minimum stroke width of 0.5 inches. 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(s). For those parcels located in the State Responsibility Area (SRA), numbers, and symbols shall also be reflectorized, contrasting with the background color of the sign.

Fire Protection Water Supply

New one- and two-family dwellings shall comply with CFC Section 507.

Additions to Existing One- and Two-Family Dwellings

Fire Apparatus Access

Additions to existing one- and two-family dwellings shall comply with the provisions for new one- and two family dwellings except as modified below:

- Additions up to 1000 square feet in area are exempt from additional fire apparatus access requirements.^{1,2}

Fire Protection Water Supply

Additions to existing one- and two-family dwellings shall comply with the provisions for new one- and two family dwellings except as modified below:

- Additions up to 600 square feet in area are exempt from fire protection water supply confirmation provided the addition does not cause an increase in minimum fireflow demand in accordance with CFC Appendix B Section B105.1.¹
- Additions up to 1000 square feet in area are exempt from fire flow confirmation provided the addition does not cause an increase in minimum fireflow demand in accordance with CFC Appendix B Section B105.1 and there is an existing private fire protection water tank on the project parcel or an existing fire hydrant within 1000 feet of all exterior ground floor walls of the addition.¹

Accessory Structures³ (must be accessory to One- or Two-Family Dwellings)

Fire Apparatus Access

Accessory structures shall comply with the provisions for new one- and two-family dwellings except as modified below:

- Accessory structures up to 600 square feet in area are exempt from additional fire apparatus access requirements if all exterior ground floor walls of the accessory structure are within 150 feet from an approved existing residential driveway.^{1, 4, 5}

Fire Protection Water Supplies

Accessory structures shall comply with the provisions for new one- and two-family dwellings except as modified below:

- Accessory structures up to 600 square feet in area are exempt from fire protection water supply confirmation.^{1, 4}
- Accessory structures up to 50% of the area of the largest existing building on the parcel are exempt from fire flow confirmation if there is an existing private fire protection water tank on the parcel or an existing fire hydrant within 1000 feet of all exterior ground floor walls of the accessory structure.^{1, 4}

¹ Exemption permitted a maximum of one time per parcel.

² Exemption permitted only if the building and addition are equipped with an approved automatic sprinkler system throughout or, if not equipped with an approved automatic sprinkler system throughout, there will be no more than two (2) one- and two-family dwellings on the parcel with the construction of the addition.

³ One story detached accessory structures up to 120 square feet in area are exempt from construction permit requirements.

⁴ The accessory structure must be separated from other existing accessory structures and existing one- and two-family dwellings by a minimum distance of ten (10) feet or as otherwise permitted to be considered independent buildings by the California Residential Code or California Building Code as applicable.

⁵ Exemption permitted only if the new accessory structure will be equipped with an approved automatic sprinkler system throughout or, if not equipped with an approved automatic sprinkler system throughout, there will be no more than two (2) accessory structures without approved automatic sprinkler systems throughout on the parcel with the construction of the new accessory structure.