

Canning, Kevin

From: Kerbrat, Timothy <TimothyKerbrat@ocfa.org>
Sent: Monday, January 30, 2017 10:04 AM
To: Canning, Kevin
Cc: Elmer, Eric; Bowden, John
Subject: FW: Second Access Point >150 units (Esperanza Hills)

Kevin, I concur with your findings as per our conversation and as indicated in your email below...Tim

Timothy Kerbrat, Deputy Fire Marshal
Orange County Fire Authority | Planning and Development
1 Fire Authority Rd, Irvine CA 92602
714-573-6101 | TimothyKerbrat@ocfa.org

“We visualize problems and solutions through the eyes of those we serve”



From: Elmer, Eric
Sent: Monday, January 30, 2017 7:15 AM
To: Kerbrat, Timothy
Cc: Bowden, John
Subject: RE: Second Access Point >150 units (Esperanza Hills)

It looks like Mr, Canning has a very good understanding of the intent of B-09.

From: Kerbrat, Timothy
Sent: Thursday, January 26, 2017 6:03 PM
To: Elmer, Eric <EricElmer@ocfa.org>
Cc: Bowden, John <JohnBowden@ocfa.org>
Subject: FW: Second Access Point >150 units (Esperanza Hills)

FYI...tk

From: Canning, Kevin [<mailto:Kevin.Canning@ocpw.ocgov.com>]
Sent: Thursday, January 26, 2017 4:13 PM
To: Kerbrat, Timothy <TimothyKerbrat@ocfa.org>; Bowden, John <JohnBowden@ocfa.org>
Subject: Second Access Point >150 units (Esperanza Hills)

Canning, Kevin

From: Canning, Kevin
Sent: Thursday, January 26, 2017 3:52 PM
To: Uptegraff, Robyn; Cataldi, Colby
Cc: Alonso, Laree; Kurnow, Brian; Walsh, Nicole [COCO]
Subject: OCFA Guidelines and Second Access Points
Attachments: 2016 Calif Fire Code Excerpt.pdf; OCFA Guideline B-09 Excerpt.pdf

Question –

Where can I find the standards for when a second access point is necessary for a residential development?

Answer –

OCFA Guideline B-09 – Fire Master Plans for Commercial and Residential Development (attached), under a section entitled “*Fire Access Roadways*” says on page 7, “*A minimum of two vehicle access points is required for any development containing 150 or more residential units*” (emphasis added)

Is this a requirement or a guideline? The document itself is called a guideline, but throughout it also uses ‘regulatory’ language (it can use ‘shall’, ‘may’ or ‘strongly encouraged’ in various places). And in the introduction it states that the document:

“...is a general guideline pertaining to the creation and maintenance of fire department access roadways, access walkways to and around buildings, and hydrant quantity and placement as required by the 2016 California Fire and Building Codes (CFC and CBC) and as amended by local ordinance.”

And throughout its pages, it also often makes reference to either CFC or CBC codes sections, perhaps for further clarification or authority.

In citing the ‘requirement’ for a second vehicle access point over 150 units, CFC 503.1.2 is noted. That CFC section says:

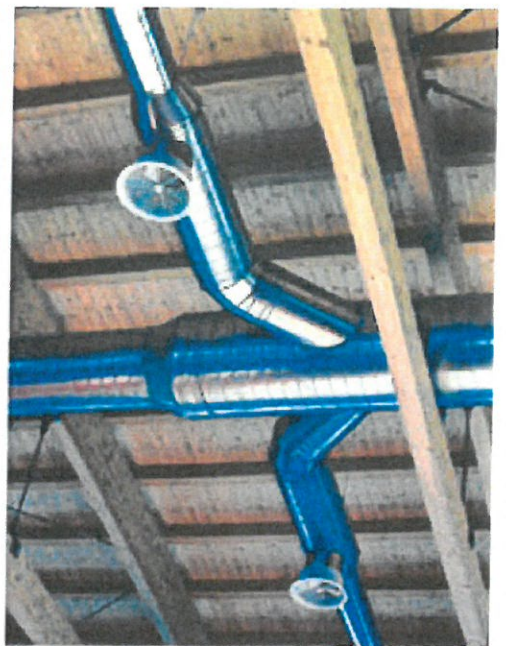
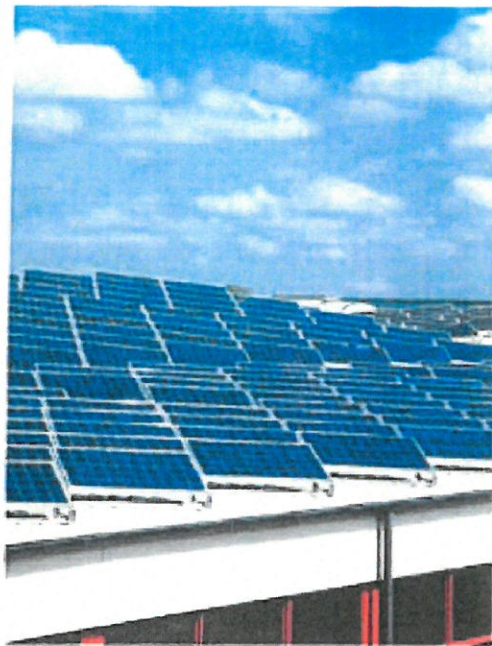
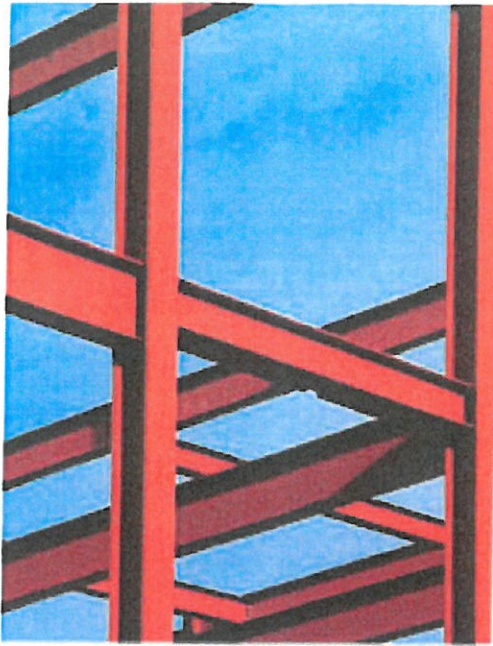
“503.1.2 Additional Access. The fire code official is authorized to require more than one fire apparatus access road...” if a single access could limit access based upon several cited factors.

The more important point is that Guideline B-09 and the CFC are speaking of “Fire Access Roadways” (in B-09) or “Fire Apparatus Access Roadways” (in CFC), and which is defined by CFC as “a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.” B-09 also uses ‘Fire Apparatus Roadway’ or ‘Fire Access Roadway’ interchangeably throughout.

Conclusion –

Thus, above 150 units, whether it is a requirement or a guideline, it is clear that it is a second access is only addressing fire access.

Appropriate pages from both documents, including highlighted sections, are attached. Final Note: B-09 makes reference to OCFA Guideline B-09a which can apply different standards in SRA areas. Esperanza Hills is not within an SRA area so these do not apply (and even if they did, B-09a does not address fire access roadways)



2016 CALIFORNIA FIRE CODE

CALIFORNIA CODE OF REGULATIONS
TITLE 24, PART 9

Based on the 2015 International Fire Code*

California Building Standards Commission



DEFINITIONS

concert with the division to specify further limitations on each division noted (for example, the letter G identifies the material as a pyrotechnic substance or article containing a pyrotechnic substance and similar materials).

Division 1.1. Explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.

Division 1.2. Explosives that have a projection hazard but not a mass explosion hazard.

Division 1.3. Explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

Division 1.4. Explosives that pose a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

Division 1.5. Very insensitive explosives. This division is comprised of substances that have a mass explosion hazard but which are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.

Division 1.6. Extremely insensitive articles which do not have a mass explosion hazard. This division is comprised of articles that contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.

EXPLOSIVE MATERIAL. The term "explosive" material means explosives, blasting agents and detonators.

[BE] EXTERIOR EXIT RAMP. An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance, and is open to yards, courts or public ways.

[BE] EXTERIOR EXIT STAIRWAY. An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance, and is open to yards, courts or public ways.

[BF] EXTERIOR WALL. A wall, bearing or nonbearing, that is used as an enclosing wall for a building, other than a fire wall, and that has a slope of 60 degrees (1.05 rad) or greater with the horizontal plane.

EXTRA-HIGH-RACK COMBUSTIBLE STORAGE. Storage on racks of Class I, II, III or IV commodities that exceed 40 feet (12 192 mm) in height and storage on racks of high-hazard commodities that exceed 30 feet (9144 mm) in height.

FABRICATION AREA. An area within a semiconductor fabrication facility and related research and development areas in which there are processes using hazardous production materials. Such areas are allowed to include ancillary rooms or areas such as dressing rooms and offices that are directly related to the fabrication area processes.

[A] FACILITY. A building or use in a fixed location including exterior storage areas for flammable and combustible substances and hazardous materials, piers, wharves, tank farms and similar uses. This term includes recreational vehicles, mobile home and manufactured housing parks, sales and storage lots.

FAIL-SAFE. A design condition incorporating a feature for automatically counteracting the effect of an anticipated possible source of failure; also, a design condition eliminating or mitigating a hazardous condition by compensating automatically for a failure or malfunction.

FALSE ALARM. The willful and knowing initiation or transmission of a signal, message or other notification of an event of fire when no such danger exists.

FINES. Small pieces or splinters of wood byproducts that will pass through a 0.25-inch (6.4 mm) screen.

FIRE ALARM. The giving, signaling or transmission to any public fire station, or company or to any officer or employee thereof, whether by telephone, spoken word or otherwise, of information to the effect that there is a fire at or near the place indicated by the person giving, signaling or transmitting such information.

FIRE ALARM BOX, MANUAL. See "Manual fire alarm box."

FIRE ALARM CONTROL UNIT. A system component that receives inputs from automatic and manual fire alarm devices and may be capable of supplying power to detection devices and transponder(s) or off-premises transmitter(s). The control unit may be capable of providing a transfer of power to the notification appliances and transfer of condition to relays or devices.

FIRE ALARM SIGNAL. A signal initiated by a fire alarm-initiating device such as a manual fire alarm box, automatic fire detector, waterflow switch or other device whose activation is indicative of the presence of a fire or fire signature.

FIRE ALARM SYSTEM. A system or portion of a combination system consisting of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals.

FIRE APPARATUS ACCESS ROAD. A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.

FIRE APPLIANCE. See Section 902.1.

[BF] FIRE AREA. The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls or horizontal assemblies of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above.

[BF] FIRE BARRIER. A fire-resistance-rated wall assembly of materials designed to restrict the spread of fire in which continuity is maintained.

FIRE SERVICE FEATURES

FIRE DEPARTMENT MASTER KEY.

FIRE LANE.

KEY BOX.

TRAFFIC CALMING DEVICES.

SECTION 503 FIRE APPARATUS ACCESS ROADS

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3.

503.1.1 Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) 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.

Exceptions:

1. The fire code official is authorized to increase the dimension of 150 feet (45 720 mm) where any of the following conditions occur:
 - 1.1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
 - 1.2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.
 - 1.3. There are not more than two Group R-3 or Group U occupancies.
2. Where approved by the fire code official, fire apparatus access roads shall be permitted to be exempted or modified for solar photovoltaic power generation facilities.

503.1.2 Additional 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.

503.1.3 High-piled storage. Fire department vehicle access to buildings used for high-piled combustible storage shall comply with the applicable provisions of Chapter 32.

503.2 Specifications. Fire apparatus access roads shall be installed and arranged in accordance with Sections 503.2.1 through 503.2.8.

[California Code of Regulations, Title 19, Division 1, §3.05(a)] *Fire Department Access and Egress. (Roads)*

(a) *Roads.* Required access roads from every building to a public street shall be all-weather hard-surfaced (suitable for use by fire apparatus) right-of-way not less than 20 feet in width. Such right-of-way shall be unobstructed and maintained only as access to the public street.

Exception: The enforcing agency may waive or modify this requirement if in his opinion such all-weather hard-surfaced condition is not necessary in the interest of public safety and welfare.

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

503.2.2 Authority. The fire code official shall have the authority to require or permit modifications to the required access widths where they are inadequate for fire or rescue operations or where necessary to meet the public safety objectives of the jurisdiction.

503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.

503.2.4 Turning radius. The required turning radius of a fire apparatus access road shall be determined by the fire code official.

503.2.5 Dead ends. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) in length shall be provided with an approved area for turning around fire apparatus.

503.2.6 Bridges and elevated surfaces. Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HB-17. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges where required by the fire code official. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces that are not designed for such use, approved barriers, approved signs or both shall be installed and maintained where required by the fire code official.

503.2.7 Grade. The grade of the fire apparatus access road shall be within the limits established by the fire code official based on the fire department's apparatus.

503.2.8 Angles of approach and departure. The angles of approach and departure for fire apparatus access roads shall be within the limits established by the fire code official based on the fire department's apparatus.

503.3 Marking. Where required by the fire code official, approved signs or other approved notices or markings that

Orange County Fire Authority

Community Risk Reduction

1 Fire Authority Road, Building A, Irvine, CA 92602 www.ocfa.org 714-573-6100

Fire Master Plans for Commercial & Residential Development



Guideline B-09

Serving the Cities of: Aliso Viejo • Buena Park • Cypress • Dana Point • Irvine • Laguna Hills • Laguna Niguel • Laguna Woods • Lake Forest • La Palma • Los Alamitos • Mission Viejo • Placentia • Rancho Santa Margarita • San Clemente • San Juan Capistrano • Seal Beach • Santa Ana • Stanton • Tustin • Villa Park • Westminster • Yorba Linda • and Unincorporated Areas of Orange County

Fire Master Plans for Commercial & Residential Development

PURPOSE

The effectiveness of emergency response and firefighting operations is directly related to the proper installation and maintenance of fire access roadways, the proper siting of hydrants, adequate water supply, and access to structures. This document is a general guideline pertaining to the creation and maintenance of fire department access roadways, access walkways to and around buildings, and hydrant quantity and placement as required by the 2016 California Fire and Building Codes (CFC and CBC) and as amended by local ordinance. This guideline includes requirements for:

- Plan submittal
- Fire access roadway design
- Fire lane identification
- Premises identification
- Fire lane obstructions
- Access for residential development
- Alternative engineered fire access systems
- Access requirements in wildfire risk areas
- Hydrant quantity, spacing, placement, and identification
- Water availability and fire flow
- Access to structures
- Access during construction
- Fire Safe Regulations for State Responsibility Areas (SRA)

SCOPE

These guidelines apply to new, remodeled, reconstructed, or relocated residential or commercial structures and developments to which emergency response may be necessary. The information contained in this document is intended to assist the applicant in attaining compliance and to ensure that privately owned roadways necessary for emergency response purposes will be available for use at all times. Some of the issues discussed within this document may be covered in more detail through other OCFA guidelines, as referenced. Areas of particular importance and requirements that are commonly overlooked on fire master plan submittals have been identified with a black arrow in the left margin. Items available on the OCFA website (www.ocfa.org) will be identified by underlining.

NOTE!

For projects located in State Responsibility Areas (SRA), this Guideline must be used in conjunction with the detailed fire safe regulations (FSR) in Guideline B-09a to ensure that the project complies with applicable local and state fire access and hydrant requirements.

The following definitions are provided to facilitate the consistent application of this guideline:

Access Walkways - An approved walking surface leading from fire access roadways to exterior doors, the area beneath rescue windows, and other required openings in structures.

NOT IN SRA, AND EVEN IF IT WAS, B-09A ADDS NOTHING TO ACCESS REQUIREMENTS

Bollards - Permanent or removable poles that are placed across a roadway for the purpose of restricting vehicular access to a portion of a site or to protect a piece of equipment from potential vehicular damage. Bollards are not permitted across a fire access roadway.

Fire Apparatus Access Roads - The means for emergency apparatus to access a facility or structure for emergency purposes. Roadways must extend to within 150 feet of all portions of the exterior of the first floor of any structure and must meet specified criteria for width, pavement characteristics, roadway gradient, turning radius, etc. Fire apparatus access roads are also referred to as fire lanes.

Fire Lane Identification – Signs or curb markings that allow fire apparatus access roads to be readily recognized so that they will remain unobstructed and available for emergency use at all times.

Gates and Barriers - Devices that restrict pedestrian and vehicle ingress and egress to and from a facility.

Gate and Barrier Locks - Devices that are installed on gates and barriers to secure a property or facility.

Hose Pull – The effective distance (150 feet is standard) that firefighters can drag a hose from fire apparatus to attack a fire. Hose pull is measured along a simulated path of travel accounting for obstructions and not “as the crow flies.” See Attachments 27 and 29.

Premises Identification - The visual means (address numbers) used to readily identify a property or facility street address. It may also be used to distinguish separate buildings within a single facility or property.

Rescue Openings – Exterior doors or windows required in sleeping rooms in R occupancies located below the fourth story of a building that allow rescue of trapped occupants. See CBC Section 1029.

State Responsibility Area (SRA) – Land where the State of California has primary financial responsibility for the prevention and suppression of wildland fires. All SRA land is located within County unincorporated areas; SRA does not include lands within city boundaries or in federal ownership. A map showing SRA lands within Orange County can be found at: http://frap.fire.ca.gov/data/frapgismaps/sra11_2/sramap.30.pdf. For access and hydrant requirements for projects in the SRA, also refer to Guideline B-09a.

Very High Fire Hazard Severity Zone (VHFHSZ) – A designated area in which the type and condition of vegetation, topography, fire history, and other relevant factors increase the possibility of uncontrollable wildland fire. Structures within a VHFHSZ require special construction features to protect against wildfire hazards; please consult with the local building department and refer to CBC Chapter 7A for specific requirements.

Wildfire Risk Area - Land that is covered with vegetation, which is so situated or is of such inaccessible location that a fire originating upon it would present an abnormally difficult job of suppression or would result in great or unusual damage through fire, or

such areas designated by the fire code official. For purposes of this document, Wildfire Risk Area includes Very High Fire Hazard Severity Zones (see above), Wildland-Urban Interfaces (WUI), and similarly hazardous areas.

SUBMITTAL REQUIREMENTS

1. Plan Submittal Requirements

Plans shall be provided to demonstrate compliance with all codes and other regulations governing water availability for firefighting and emergency access to sites and structures within the jurisdictions served by the OCFA. In addition, changes to existing structures or sites shall be reviewed by the OCFA to ensure that the modifications do not affect water availability or access.

A. Submittals – Two plan sets will need to be submitted at the location specified in the OCFA Plan Submittal Routing list. In addition, an electronic copy of the plan in .pdf format on a CD, USB memory stick, or other acceptable medium shall be provided. Accompanying sets of documentation for items such as gates, water availability data, paving certification, soil gas assessment (See Guideline C-03), and conditions of approval shall be supplied, as needed. The OCFA plan review and inspection fee, as well as any city administrative fees, is due upon submittal of plans. Refer to the OCFA Fee Schedule for the current fire master plan fee.

B. Scope – The scope of work shall be clearly indicated on the plan. If the building or site in question was approved previously, include the OCFA Service Request number of that prior approval on the new plans. A copy of the previously approved fire master plan shall be submitted along with new plan sets for any revision.

C. Building Data – Information related to the building's location, use, and construction shall be clearly indicated on the plan.

1) Include the project's street address (or a working or proposed address of the job trailer or future building on the site if an address is not assigned yet) and the tract, tentative tract, or parcel *map* number (this is NOT the County Assessor's parcel number or APN).

2) Indicate the types of occupancies that will be housed in the structure as listed in California Building Code (CBC) Section 302.

3) Indicate the construction type of each building (e.g., I-A, III-B, IV, V-B).

4) Indicate the building height on the plans as defined in CBC Chapter 2. If the building height is greater than 70 feet, also indicate the elevation change (measured from finished floor to finished floor) between the lowest floor giving access to the structure and the highest occupied floor or occupied roof deck. If this distance is more than 75 feet, the building will be subject to additional requirements for high-rise structures; see OCFA Guideline H-01.

5) Note the type of sprinkler system installed/proposed (e.g., NFPA 13, 13-R, or 13-D).

6) For unsprinklered structures larger than 6,000 square feet or sprinklered structures larger than 18,000 square feet, provide an



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allowable area calculation (and a mixed occupancy calculation, if the building houses multiple occupancies) to demonstrate that the building can be of the specified size and construction type. *CBC 506*



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- D. Fire Master Plan Notes – Include the OCFA Fire Master Plan Notes on the plan. Some notes may need to be customized depending on the type of project or scope of work. See Attachment 1.
- E. Water Availability – To facilitate the review process and avoid untimely delays in project approval, applicants are strongly encouraged to arrange a hydrant flow test with the local water department *prior to submitting plans to the OCFA* if the project includes a new structure or increase in the floor area of an existing structure. Water availability information may not be required to be submitted for every project, and plans may be submitted with a hydrant flow test pending, but the applicant should understand that project approval may be delayed if it is determined during review that this information is required. If the project requires evaluation of the available fire flow, it will not be approved without a completed OCFA Water Availability form or equivalent data sheets from a water district. Water availability information must be no older than six months.
- F. Conditions of Approval – To ensure consistency of the fire master plan with project conditions, include any conditions of approval pertaining to OCFA review of the project on the plans. If the project does not require review and entitlement by the Planning Commission, City Council, Board of Supervisors, or similar body, or the planning department permit review process is required but has not yet been completed, please state this on the plan. If you are unsure whether your project requires planning approval, please contact your city or County planner.
- G. Complete Attachment 2, Fire Master Plan Submittal Checklist, and verify that basic project information has been provided and that general access and water requirements have been addressed on the plan.



NOTE!

2. Fire Access Roadways

Fire access roadways, commonly referred to as fire lanes, shall be provided for every facility or building when any portion of an exterior wall of the first story is located more than 150 feet from a public roadway, as measured along an approved route. Extenuating circumstances, increased hazards, and additional fire safety features may affect these requirements. For additional information related to residential tract development, see Section 6. For information related to access during construction, see Section 10. For projects in the SRA, also see Guideline B-09a. CFC 503

- A. Fire Apparatus Access Road Design - Fire access roadways must be engineered to support emergency response apparatus. Roadways must be designed to facilitate turning radii of apparatus and meet requirements for gradient, height clearance, and width. Specific criteria pertaining to the design of fire access roadways are detailed below.

- 1) Fire access roadways shall be designed, constructed, and maintained to support the imposed loads of OCFA fire apparatus with a total weight of 68,000 pounds (75,000 pounds for projects located in the



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SRA—see FSR Section 1273.02 in Guideline B-09a). Apparatus weight is distributed as 46,000 pounds on tandem rear axles and 22,000 pounds on the front axle. The surface shall be designed, constructed, and maintained to provide all-weather driving capabilities. *A letter or statement, wet-stamped and signed by a registered engineer, shall be provided on the plans certifying that any new roadway meets this 68,000-pound (75,000 pounds for projects in the SRA), all-weather requirement.* Road base without an appropriate topping or binding material does not satisfy the all-weather requirement. *CFC 503.2.3*

- 2) Number of Fire Apparatus Access Roads Required:
- a. One is required if any portion of an exterior wall of the first story of a building is located more than 150 feet from a fire access roadway. That access is to be measured by an approved route around the exterior of the building (see Section 9: Access to Structures and Attachment 27). *CFC 503.1.1*

EXCEPTION: Hose-pull distance to the main entry door of a detached single-family home or duplex or related accessory structure (poolhouse, casita, garage, workshop, barn, etc.) may be up to 300 feet when protected throughout by a sprinkler system. See Section 6.C.

EXCEPTION: When approved by the fire code official, this distance may be increased to 300 feet for open parking garages that comply with either (a) or (b) below:

- (a) The structure is protected throughout with an NFPA 13 sprinkler system; or
- (b) The structure meets all of the following requirements:
- (i) Two stairways are directly accessible via exterior doors/doorways.
 - (ii) These stairways provide direct access to all tiers of the parking structure.
 - (iii) These stairways are equipped with Class I wet standpipe outlets at each floor or intermediate landing.
 - (iv) The doors/doorways serving these stairs are within 40' travel distance from a fire access roadway.
 - (v) These stairs are sufficiently separated and located in a manner that facilitates firefighting operations within the structure, as determined by the fire code official.
- b. More than one road is required if it is determined that access by a single road may be insufficient due to terrain, location, travel distance, potential fire or life-safety hazards, or other factors that could limit access or if vehicle congestion, railways, or weather conditions could impair the single entry point. Supplementary access points shall be located to facilitate evacuation and

emergency operations and minimize congestion or obstruction during an emergency incident. *CFC 503.1.2*

(a) A minimum of two vehicle access points is required for any development containing 150 or more residential units.

(b) A secondary access point may also be required for commercial projects more than 124,000 sq.ft. in building area. Requirements may vary depending on factors such as building use, expected vehicle and occupant load on site, traffic stacking, or impact on surrounding streets. When specified, OCFA staff will coordinate with the local jurisdiction's community development and public works or engineering departments.

(c) For projects in the SRA, see also FSR Section 1273.09 in Guideline B-09a.

3) Location of Fire Apparatus Access Roads:

For purposes of determining the suitability of public roads and fire access roadways for staging fire apparatus and facilitating fire suppression operations for a particular structure, the following criteria shall apply:

a. To protect fire apparatus, personnel, and equipment from damage and injury from falling debris, the edge of fire access roadways serving multi-story buildings should be located no closer than 10 to 30 feet from the building, the actual distance being a function of overall building height with consideration given to building construction, presence of openings, and other potential hazards. As distances greater than 40 feet inhibit the use of vehicle-mounted ladders while distances closer than 20 feet do not allow for a proper laddering angle, the edge of fire lanes serving structures four or more stories in height shall be located between 20 and 40 feet from the building. These distances are measured from the face of the building to the top edge of the curb face or rolled curb flow line nearest the structure. To ensure that vehicular access and egress from dead-end fire access roadways serving multi-story buildings are maintained at all times, staging areas shall be provided along the roadway to permit fire apparatus to pass ladder trucks that have outriggers extended. Consideration shall be given to the length of the roadway, roof and building design, obstructions to laddering, and other operational factors in determining the number, location, and configuration of such staging areas. *CFC 503.1.1, 503.2.2*

b. Access may be taken from an on-site fire apparatus access road or from a public road with an average daily trip (ADT) count below 30,000 unless a recorded access easement agreement is in effect to obtain access from adjacent properties. Contact the city or County Traffic Engineer's office or Public Works Department for ADT information. *CFC 503.1.1, 503.1.2*

c. Public roads with an ADT count of 30,000 or more may be acceptable as a fire department access point serving an adjacent

site when certain conditions and features (e.g., vehicle turnouts, acceleration/deceleration lanes) are present that limit the hazard to firefighters and other drivers. Such access roads will be evaluated on a case-by-case basis. *CFC 503.1.1, 503.1.2*



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- 4) **Width of Fire Access Roads** - The minimum width of a fire access roadway is 20 feet. If a center median is included, the required width shall be provided on both sides of the median. *CFC 503.2.1, 503.2.2, 503.4*

In wildfire risk areas, fire lanes shall be at least 28 feet wide; *Exception: fire lanes that are 150 feet or less in length may be 24 feet wide if serving one to three dwelling units; where all structures served by the fire lane are protected with fire sprinklers, this length may be increased to 400 feet.* This width shall be provided to a logical termination outside of the wildfire risk area. Refer to the Fire Hazard Severity Zone maps or contact the OCFA Planning and Development Services Section to determine whether your project is located within a wildfire risk area.

The minimum width of roadways in the SRA may vary from these requirements depending on whether they are a required fire lane and other factors; please refer to Guideline B-09a for specific requirements.

The width of fire department access roads is measured from top face of the curb to top face of the curb on streets with standard vertical curbs and gutters, and from flow line to flow line on streets with rolled, sloped, flared, or other non-vertical curb and gutter configurations. Flow line is the lowest continuous elevation on a curb. Road sections and curb details or approved city street improvement plans may be required to verify method of measurement.

- 5) **Parking Restrictions** - No parking is permitted on roadways that are narrower than 28 feet in width. Parking on one side is permitted on a roadway that is at least 28 feet but less than 36 feet in width. Parking on two sides is permitted on a roadway 36 feet or more in width. These restrictions apply to all roads serving as fire lanes, including those located in wildfire risk areas. See Attachment 3. *Note: Minimum street widths for allowed parking may be more restrictive in some cities. Check with the local Planning Department for specific requirements. CFC 503.4*
- 6) **Vertical Clearance** - Fire access roads shall have an unobstructed vertical clearance of not less than 13 feet 6 inches (15 feet for driveways and at gates for projects in the SRA; see FSR Sections 1273.10 and 11 in Guideline B-09a). If trees are located adjacent to the fire access roadway, place a note on the plans stating that all



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vegetation overhanging the fire access roadway shall be maintained to provide a clear height of 13 feet 6 inches (or 15 feet, if applicable) at all times. See Attachments 4 and 5. *CFC 503.2.1*

- 7) Fire Apparatus Access Road Grade - The grade for access roads shall not exceed 10% or 5.7 degrees (7% or 4 degrees in Irvine unless otherwise approved by the City Engineer). The grade may be increased to a maximum of 15% or 8.5 degrees for approved lengths of access roadways, when all structures served by the access road are protected by automatic fire sprinkler systems. Cross-slope shall not be greater than 2% for paved access roadways. *CFC 503.2.7, 503.2.8*
- 8) Inside and Outside Turning Radii - The inside turning radius for an access road shall be 17 feet or greater. The outside turning radius for an access road shall be 38 feet or greater. As fire apparatus are unable to negotiate tight "S" curves, a 56-foot straight leg must be provided between these types of compound turns or the radii and/or road width must be increased accordingly. See Attachment 6. Minimum radii for projects in SRA may be greater; see Guideline B-09a. *Note: to accommodate the OCFA's largest fire apparatus an inside and outside turning radius of 20 and 42 feet, respectively, is recommended and requested. CFC 503.2.4*
- 9) Dead-end Access Roadways - Dead-end roadways in excess of 150 feet shall be designed and constructed with approved turnarounds or hammerheads. Turnarounds shall meet the turning radius requirements identified above. The minimum cul-de-sac radius is 38 feet with no parking allowed. The maximum length of a cul-de-sac or other dead-end road without mid-way turnarounds or other mitigating features is 800 feet. See Attachment 7. Additional turnarounds may be required for projects in the SRA—see FSR Sections 1273.09 and 10 in Guideline B-09a. *Note: to accommodate the OCFA's largest fire apparatus, an outside turning radius of 42 feet or larger is recommended and requested. CFC 503.2.5*
- 10) Bridges - When a bridge is required as part of an access road, it shall be a minimum of 20' in width and designed and constructed to accommodate a total weight of 68,000 pounds (75,000 pounds for projects in the SRA—see FSR Sections 1273.02 and 07 in Guideline B-09a). Apparatus weight is distributed as 46,000 pounds on tandem rear axles and 22,000 pounds on the front axle. *CFC 503.2.6*
- 11) Median breaks - Where medians or raised islands are proposed that prevent emergency apparatus from crossing over into opposing traffic lanes, breaks or pass-throughs may be required to be provided. The location and design specifications for the pass-throughs shall be coordinated with the city/County public works or engineering department. *CFC 503.1.2*
- 12) Continuity of fire lanes - When any portion of a street, drive aisle, or other roadway is required to be a fire lane and the roadway is longer than 150 feet, the remainder of the roadway shall be treated as a fire

lane to a logical point of termination at another approved fire lane; at an approved hammerhead or turnaround; at an intersection with a public road suitable for use as a fire lane.

At the discretion of the fire code official, if the portion of the roadway that is required to be a fire lane is no more than 150 feet long, the fire lane may be terminated at that point provided that the remainder of the roadway beyond is clearly not suitable or intended for use as a fire lane. This may be due to factors including, but not limited to, insufficient width or vertical clearance, excessive grade, change in paving material/driveway apron, or other physical constraints or obvious visual indicators, as approved. *CFC 503.1.1, 503.2.5*

3. Fire Access Roadway Identification *CFC 503.3*

Fire lane identification will be required when it is necessary to restrict parking of vehicles in order to maintain the required width of fire access roadways for emergency vehicle use. Unlawful use of fire lanes will be enforced by the local law enforcement agency in accordance with the California Vehicle Code (CVC). See Attachment 8.

A. Sign and Curb Marking Options - Areas designated as a fire lane require an acceptable method of marking that shall be approved prior to installation. Examples of dimensions and acceptable options for signage installations and markings are found in Attachments 9 through 14. The following methods are acceptable means of identifying designated fire lanes for public and private streets. Choose either option 1 OR option 2 below. Acceptable signage and/or marking requirements for streets in each jurisdiction must be verified with the appropriate city or County public works, community development, or traffic engineering department prior to submittal to the OCFA. Where parking is otherwise restricted by city/County planning or traffic standards, and no parking zones are clearly identified with signs or curb markings in accordance with those standards and enforced by the police or Sheriff's Department, additional "FIRE LANE—NO PARKING" signs are not required, when approved by the Fire Code Official.

- 1) Specific areas designated by the OCFA as fire lanes must be marked with red curbs meeting the specifications in Attachment 9. In addition, where the number of entrances into the area marked with fire lanes is limited, all such vehicle entrances to the designated area shall be posted with approved fire lane entrance signs meeting the specifications in Attachment 10. This option is preferred by the OCFA.
- 2) "Fire Lane—No Parking" signs meeting the specifications in Attachment 12 shall be posted immediately adjacent to each designated fire lane and at intervals not to exceed 50 feet, unless otherwise approved by the fire code official. In addition, where the number of entrances into the area marked with fire lanes is limited, all such vehicle entrances to the designated area shall be posted with approved fire lane entrance signs.



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