

STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Private Access Roads And Driveways For One- and Two-Family Dwellings And Associated Structures

Spec. No. CFMO - A1

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SCOPE

This standard is applicable to access roads and driveways for new or expanded one- and two-family dwellings and/or associated structures where any portion of the protected structure(s) is in excess of 150 feet from the centerline of a public or private roadway (measured by an approved route around the exterior of the building). Specifications contained in this Standard apply to all properties located within unincorporated Santa Clara County.

DEFINITIONS

- Access Road: A vehicular access roadway serving more than a single parcel of land.
- Driveway: A vehicular access serving a single parcel of land consisting of not more than one primary single family dwelling, one secondary dwelling, and/or associated accessory structures.
- Ranchland: Designated as "AR" by the County Planning Department per the Santa Clara County Zoning Ordinance.
- Los Altos Hills County Fire District: The unincorporated areas in Los Altos Hills that lie within the emergency response area of the Santa Clara County Fire Department.
- Saratoga Fire Protection District: The unincorporated areas near the city of Saratoga which lie within the emergency response area of the Saratoga Fire Protection District.
- Turnaround: A clear, unobstructed driving surface which allows for a safe change of direction for emergency equipment.
- Turnout: A widening of the driving surface to allow one fire department vehicle to pass another.
- State Response Area (SRA): The State Responsibility Areas of Santa Clara County lie within the emergency response area of the California Department of Forestry and Fire Protection, and are subject to the requirements set forth under Title 14 of the California Code of Regulations. [REF: Public Resources Code §4290]

I. GENERAL REQUIREMENTS:

- A) These are minimum Fire Marshal standards. Should these standards conflict with any other local, state or federal requirement, the most restrictive shall apply.
- B) Construction of access roads and driveways shall use good engineering practice.
- C) TIMING/PENALTIES: The minimum requirements of this standard shall be met prior to commencement of wood framing in order to provide adequate emergency service response during construction. A stop-work order may be placed on construction projects found not in compliance by the Fire Marshal's Office.

II. DRIVEWAYS:

A vehicular access serving a single parcel of land consisting of not more than one primary single family dwelling, one secondary dwelling, and associated accessory structures. NOTE: See Section IV.A, for Special Provisions and additional information relative to unincorporated properties located within Los Altos Hills County Fire District, the Saratoga Fire Protection District, State Responsibility Areas (SRA) and designated Ranchlands (AR) that are located in the SRA.

A) Width of Driving Surface:

Driveway width shall provide a minimum drivable surface of 12 feet.

B) Vertical Clearance:

The vertical clearance shall be a minimum of 13 feet, 6 inches, in accordance with California Fire Code § 902.2.2.1.

C) Grade:

Maximum grade shall not exceed 15% (6.75 degrees). The Fire Marshal's Office may permit grades up to a maximum of 20% if no other method is practicable and if consistent with good engineering practices, provided an approved automatic fire sprinkler system is installed throughout the affected structure, including attached garages. In no case shall the portion exceeding 15% gradient be longer than 300 feet in length, unless there is at least 100 feet at 15% or less gradient between each 300 foot section. NOTE: See surface requirements in item II.D, below.

D) Turning Radius for Curves:

The minimum inside turning radius shall be 42 feet as measured from the edge of the approved surface.

E) Turnouts:

Driveways in excess of 500 feet shall be provided with passing turnouts at no more than 500 foot intervals. Turnouts shall be 8 feet wide by 40 feet long in accordance with Santa Clara County Standard SD-16; *Standard Turnarounds & Turnouts*.

F) Turnarounds:

An approved fire apparatus turnaround is required when the distance (as measured along the path of travel) from the centerline of the access road to the farthest portion of the structure exceeds 150 feet. Examples of approved turnarounds would be a 40 foot by 48 foot pad, an approved hammerhead ("T"), or an approved bulb with a minimum 32 foot outside radius, in compliance with County Standard SD-16, *Standard Turnarounds & Turnouts*. All turnarounds shall have a maximum slope of 5% in any direction. Placement of any architectural feature within a turnaround is not permitted unless all requirements are met. Due to practical difficulties, variations of County Standard SD-16, *Standard Turnarounds & Turnouts* may be approved by the Fire Marshal's Office on a case-by-case basis.

G) Surface:

The driveway surface shall be designed and maintained to support a 65,000 pound water tender, designed for the latest edition of Caltrans Standard. On grades up to 15%, the surface shall provide all-weather driving capability, including sufficient drainage and surface course consistent with good engineering practices. Grades in excess of 15% shall be engineered asphalt, concrete or another surface meeting County Standard SD-5, Single Lot Driveway. Note that for driveways not requiring a grading permit from Land Development Engineering, documentation of a compaction test may be required by the Fire Marshal.

H) Angle of Approach:

The driveway approach to a driveway shall be designed and constructed per County Standard SD-4, *Driveway Approach*.

I) Bridges:

All bridges shall be designed to meet latest edition of Caltrans Standard Bridge Design Specifications. Appropriate signage, including but not limited to weight or vertical clearance limitations or any special conditions, shall be provided.

J) Gates:

All gates crossing driveways shall comply with Fire Marshal's Office Standard Detail and Specification CFMO-A2, *Gates Obstructing Driveways & Access Roads*.

III. ACCESS ROADS:

Access roads are roads, streets, private lanes providing vehicular access roadway serving more than a single lot. See Section IV.B, for Special Provisions and additional information relative to unincorporated properties located within the Saratoga Fire Protection District, State Responsibility Areas (SRA), and designated Ranchlands (AR) that are located in the SRA.

A) Width of Driving Surface:

Minimum width shall be 18 feet with a 3 foot shoulder on each side, in compliance with County Standards SD-1, *Private Road*, SD-2, *Private Access Road (Hillside Conditions)*, or SD-3, *Private Access Road (Non-Hillside Conditions)*. NOTE: shoulders shall be capable of supporting full loading and shall be drivable in all weather conditions. Greater widths may be required by the Fire Marshal's Office to provide adequate emergency access.

B) Vertical Clearance:

Minimum vertical clearance shall be 15 feet in accordance with County Ordinance [REF: C12-184(g)].

C) Grade:

Maximum grade shall not exceed 15% (6.75 degrees). The Fire Marshal's Office, with the concurrence of County Land Development Engineering, may permit grades up to a maximum of 20% if no other method is practicable and if consistent with good engineering practices, provided an approved automatic fire sprinkler system is installed throughout the affected structure, including attached garages. In no case shall the portion exceeding 15% gradient be longer than 300 feet in length, unless there is at least 100 feet at 15% or less gradient between each 300 foot section. NOTE: See surface requirements in item III.F, below.

D) Turning Radius for Curves:

The minimum inside turning radius shall be 42 feet for required access roadways as measured from edge of pavement.

E) Turnarounds:

Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround meeting County Standards SD-16, *Standard Turnarounds & Turnouts*. Due to practical difficulties, variations to County Standard SD-16, *Standard Turnarounds & Turnouts* may be approved by the Fire Marshal's Office and Land Development Engineering on a case-by-case basis.

F) Secondary Access Roads:

More than one fire apparatus road shall be provided when it is determined by the Fire Marshal that access by a single road might be impaired by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access. [REF: CFC §902.2.1]

G) Pavement Surface:

The access road surface shall be designed and maintained to support a 65,000 pound water tender, designed for the latest edition of CalTrans Standard, and shall be engineered asphalt, concrete or other surface meeting County Ordinance. Note that for roads not requiring a

G) Pavement Surface: (Continued)

grading permit from Land Development Engineering, documentation of a compaction test may be required by the Office of the Fire Marshal. [C12-184(f)]

H) Bridges:

All bridges shall be designed to meet latest edition of Caltrans Standard Bridge Design Specifications. Appropriate signage, including but not limited to weight or vertical clearance limitations or any special conditions, shall be provided.

I) Gates:

All gates crossing fire apparatus access roads shall comply with Fire Marshal's Office Standard Detail and Specification CFMO-A3; *Gates Obstructing Driveways & Access Roads*.

IV. SPECIAL PROVISIONS:

All requirements in sections I through III apply to the Saratoga Fire District, the Los Altos Hills County Fire District, the State Responsibility Area (SRA) and Ranchlands located in the SRA except for the following special provisions:

A) DRIVEWAYS1. Saratoga Fire Protection District:

- a. **Width of driving surface:** Minimum of 14 feet paved with a one (1) foot unpaved shoulder on each side.
- b. **Grade:** Maximum grade of 17%.
- c. **Turnouts:** Minimum 10 feet wide and 40 feet long, installed at 500 foot intervals.
- d. **Turnarounds:** Provide adequate parking and turnaround detail for 4 emergency vehicles at the site.
- c. **Surface:** Grades up to 11% shall have a double-seal coat of oil and screen on a 6" aggregate base for the entire driveway. Grades from 11% to 15% shall be surfaced using 2.5" of A. C. on a 6" aggregate base for the entire driveway. Grades from 15% to 17% shall be surfaced using a 4" PCC concrete rough-surfaced on a 4" aggregate base for the entire driveway.

2. Los Altos Hills County Fire District:

- a. **Width of driving surface:** Minimum of 14 feet.

3. State Responsibility Area (SRA) excluding Ranchlands (AR):

- a. **Grade:** Maximum grade shall not exceed 16%.
- b. **Turning Radius for curves:** No roadway shall have a horizontal inside radius of curvature of less than 50 feet, and an additional surface width of 4 feet shall be added to curves of 50-100 feet radius; 2 feet to those from 100-200 feet.
- c. **Turnouts:** Driveways exceeding 150 feet in length, but less than 800 feet in length, shall provide a turnout near the midpoint of the driveway. Where the driveway exceeds 800 feet, turnouts shall be provided no more than 400 feet apart. Turnouts shall be a minimum of 10 feet wide and 30 feet long, with a minimum 25 foot taper on each end.

3. State Responsibility Area (SRA) excluding Ranchlands (AR): (Continued)
 - d. **Gates:** Gate entrances shall be at least two feet wider than the width of the traffic lane(s) serving the gate. All gates providing access from a road to a driveway shall be located at least 30 feet from the roadway and shall open to allow a vehicle to stop without obstructing traffic on that road.
4. Ranchlands (AR) located in the SRA:

The construction of a new driveway or extension of an existing driveway shall conform to the following criteria. Existing driveways are not required to conform to this standard:

 - a. **Width of driving surface:** Minimum of 10 feet.
 - b. **Vertical Clearance:** Minimum 15 foot vertical clearance.
 - c. **Grade:** Maximum grade shall not exceed 16%.
 - d. **Turning Radius for curves:** No roadway shall have a horizontal inside radius of curvature of less than 50 feet, and an additional surface width of 4 feet shall be added to curves of 50-100 feet radius; 2 feet to those from 100-200 feet.
 - e. **Turnouts:** Driveways exceeding 150 feet in length, but less than 800 feet in length, shall provide a turnout near the midpoint of the driveway. Where the driveway exceeds 800 feet, turnouts shall be provided no more than 400 feet apart. Turnouts shall be a minimum of 10 feet wide and 30 feet long with a minimum 25 foot taper on each end.
 - f. **Turnarounds:** Turnarounds shall be provided for driveways over 300 feet in length, and shall be located within 50 feet of the structure. The minimum turning radius shall be 40 feet from the center line of the road. If a hammerhead/T is used, the top of the "T" shall be a minimum of 60 feet in length.
 - g. **Surface:** The surface shall provide unobstructed access to conventional drive vehicles, including sedans and fire engines. Surfaces should be established in conformance with local ordinances, and be capable of supporting a 40,000 pound load.
 - g. **Roadway Structures:** All structures shall be constructed to carry a 65,000 pound water tender, designed for the latest edition of CalTrans Standard, and provide the minimum vertical clearance as required by Vehicle Code sections 35550, 35750, and 35250 shall be provided. Appropriate signage, including but not limited to weight or vertical clearance limitations, one-way road or single lane conditions, shall reflect the capability of each bridge.
 - h. **Gates:** Gate entrances shall be at least two feet wider than the width of the traffic lane(s) serving the gate. All gates providing access from a road to a driveway shall be located at least 30 feet from the roadway and shall open to allow a vehicle to stop without obstructing traffic on that road.

B) ACCESS ROADS:

1. Saratoga Fire Protection District:
 - a. **Grade:** Maximum grade of 17%.
2. State Responsibility Area (SRA) excluding Ranchlands (AR):
 - a. **Grade:** Maximum grade of 16%.
 - b. **Turning Radius for curves:** No roadway shall have a horizontal inside radius of curvature of less than 50 feet, and an additional surface width of 4 feet shall be added to curves of 50-100 feet radius; 2 feet to those from 100-200 feet.

2. State Responsibility Area (SRA) excluding Ranchlands (AR): (Continued)
- c. **Gates:** Gate entrances shall be at least two feet wider than the width of the traffic lane(s) serving the gate. All gates providing access from a road to a driveway shall be located at least 30 feet from the roadway and shall open to allow a vehicle to stop without obstructing traffic on that road.

3. Ranchlands (AR) located in the SRA:

The construction of a new roadway or extension of an existing roadway shall conform to the following criteria. Existing roadways are not required to conform to this standard:

- a. **Width of driving surface:** Minimum of 2-nine foot lanes providing two-way traffic.
- b. **Grade:** Maximum grade shall not exceed 16%.
- c. **Turning Radius for curves:** No roadway shall have a horizontal inside radius of curvature of less than 50 feet, and an additional surface width of 4 feet shall be added to curves of 50-100 feet radius; 2 feet to those from 100-200 feet.
- d. **Turnarounds for dead-end roads:** Maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served:
1. 800 feet for parcels zoned for less than one acre.
 2. 1320 feet for parcels zoned for 1 to 4.99 acres.
 3. 2640 feet for parcels zoned for 5 to 19.99 acres.
 4. 5280 feet for parcels zoned for 20 acres or more.

All lengths shall be measured from the edge of the roadway surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end road crosses areas of differing zoned parcel sizes, requiring different length limits, the shortest allowable length shall apply. Where parcels zoned 5 acres or larger, turnarounds shall be provided at a maximum of 1320 foot intervals. Each dead-end road shall have a turnaround constructed at its terminus.

- e. **Turnarounds:** The minimum turning radius for a turnaround shall be 40 feet from the center line of the road. If a hammerhead/T is used, the top of the "T" shall be a minimum of 60 feet in length.
- f. **Surface:** The surface shall provide unobstructed access to conventional drive vehicles, including sedans and fire engines. Surfaces should be established in conformance with local ordinances, and be capable of supporting a 40,000 pound load.
- g. **Roadway Structures:** All structures shall be constructed to carry a 65,000 pound water tender, designed for the latest edition of CalTrans Standard, and provide the minimum vertical clearance as required by Vehicle Code sections 35550, 35750, and 35250 shall be provided. Appropriate signage, including but not limited to weight or vertical clearance limitations, one-way road or single lane conditions, shall reflect the capability of each bridge.
- h. **Gates:** Gate entrances shall be at least two feet wider than the width of the traffic lane(s) serving the gate. All gates providing access from a road to a driveway shall be located at least 30 feet from the roadway and shall open to allow a vehicle to stop without obstructing traffic on that road.