Item No. 14
Town of Atherton

CITY COUNCIL STAFF REPORT – PUBLIC HEARING

TO: **HONORABLE MAYOR AND CITY COUNCIL**
GEORGE RODERICKS, CITY MANAGER

FROM: **MIKE GREENLEE, BUILDING OFFICIAL**

DATE: **OCTOBER 16, 2019**

SUBJECT: **CONDUCT THE PUBLIC HEARING AND INTRODUCE FOR FIRST READING, BY TITLE ONLY, AN ORDINANCE TO AMEND TITLE 15 OF THE ATHERTON MUNICIPAL CODE ADOPTING BY REFERENCE THE 2019 CALIFORNIA BUILDING STANDARDS CODE, RETAINING EXISTING MODIFICATIONS; AND RATIFY THE FIRE REGULATIONS, AS ADOPTED BY THE MENLO PARK FIRE PROTECTION DISTRICT**.

RECOMMENDATION

Conduct the Public Hearing and Introduce for First Reading, by title only, an Ordinance amending Title 15 of the Atherton Municipal Code adopting by Reference the 2019 California Building Standards Code, retaining existing modifications; and ratify the fire regulations, as adopted by the Menlo Park Fire Protection District.

BACKGROUND/ANALYSIS

Utilizing nine-point criteria as provided for in state statute, the California Building Standards Commission (CBSC), through a public hearing process, considers amendments and revisions to the Model Codes from State Regulatory Agencies every three years. Upon CBSC approval, the amended Model Codes are published, and become a part of Title 24 of the California Code of Regulations which are in effect 180 days after publication.

The 2019 California Building Standards Codes that will take effect throughout California on January 1, 2020 (Health and Safety Code (HSC) Section 18938). The Codes specified in the California Code of Regulations, are mandated by the State of California and the Building Official is required to administer and enforce those codes.

The amending of certain portions of Title 15 of the Town of Atherton Municipal Code is necessary to maintain consistency among the new building codes, procedures and terminology and the Town's existing regulations.

Provisions within California statute (HSC Sections 17958.7 and 18941.5 (b)) allow local agencies the authority to establish more restrictive building standards when reasonably necessary because

of local climatic, geologic, or topographical conditions but not the authority to reduce the minimum standards established by the California Code of Regulations.

The more restrictive modifications and findings carry forward the current more restrictive fire sprinkler requirements were adopted by the Menlo Park Fire District, which provides fire protection to Atherton and neighboring communities. The specific factors that require and bring forward the more extensive requirements for the installation of fire sprinklers were identified with findings by the Board of the Menlo Park Fire Protection District. Similar finding are set forth in Section 1 of the attached Ordinance.

Adoption

Government Code Section 50022.2 and Health and Safety Code section 17922 requires that local agencies adopt the Building Codes. Because Staff is also recommending re-adopting an administrative appendix by reference and a more restrictive modification to the code by ratifying the Menlo Park Fire Regulations the adopting procedure outlined in Government Code Section 50022.3 should be followed.

Copies of the codes are available at the Town's Permit Center offices during regular hours.

FISCAL IMPACT

None

PUBLIC NOTICE

Public notification was achieved by posting the agenda, with this agenda item being listed, at least 72 hours prior to the meeting in print and electronically. Information about the project is also disseminated via the Town's electronic News Flash and Atherton Online. There are approximately 1,200 subscribers to the Town's electronic News Flash publications. Subscribers include residents as well as stakeholders – to include, but be not limited to, media outlets, school districts, Menlo Park Fire District, service provides (water, power, and sewer), and regional elected officials. The Town maintains an active and up to date Project Website at http://ca-atherton.civicplus.com/index.aspx?NID=290.

COMMISSION/COMMITTEE FEEDBACK/REFERRAL

This item ____ has or _X_ has not been before a Town Committee or Commission.

____ Audit/Finance Committee (meets every other month)
____ Bicycle/Pedestrian Committee (meets as needed)
____ PMC & Civic Center Advisory Committee (meets as needed)
____ Environmental Programs Committee (meets every other month)
____ Park and Recreation Committee (meets each month)
____ Planning Commission (meets each month)
____ Rail Committee (meets every other month)
____ Transportation Committee (meets every other month)

ATTACHMENTS

1. Ordinance Amending Title 15 of the Atherton Municipal Code
2. Menlo Park Fire Protection District Ordinance
3. MPFPD Standards and Guidelines Manual

ORDINANCE _____

AN ORDINANCE OF THE CITY COUNCIL OF THE TOWN OF ATHERTON AMENDING CHAPTERS 15.02 15.04. 15.08, 15.12, 15.16, 15.18, 15.19, 15.20, 15.22 AND 15.44 IN ORDER TO ADOPT BY REFERENCE THE 2019 CALIFORNIA BUILDING STANDARDS CODE, INCLUDING THE BUILDING, RESIDENTIAL, ELECTRICAL, PLUMBING, MECHANICAL, ENERGY, HISTORICAL BUILDING, FIRE (BY RATIFICATION), GREEN AND EXISTING BUILDING CODES AND CHAPTER 1 DIVISION II OF THE 2019 EDITION OF THE CALIFORNIA BUILDING CODE AS THE ATHERTON ADMINISTRATIVE CODE

WHEREAS, the California Building Standards Code (CBSC), also known as Title 24 of the California Code of Regulations (CCR), is updated by the California Building Standards Commission from time to time based upon published model codes specified in the California Health and Safety Code; and

WHEREAS, the 2019 CBSC and modifications will take effect on January 1, 2019; and

WHEREAS, local jurisdictions responsible for enforcement of the California Buildings Standards Code must enact local administrative regulations and amendments in order to implement the California Building Standards Code; and

WHEREAS, the City Council wishes to ratify the adoption by Menlo Park Fire Protection District of the new Fire Code with local modification regarding the installation of automatic fire suppression systems and other fire safety enhancements as allowed by the Sections 13869 and 17958 of the California Health and Safety Code;

NOW, THEREFORE, THE CITY COUNCIL OF THE TOWN OF ATHERTON DOES ORDAIN AS FOLLOWS:

Section 1. Findings

The City Council finds and determines that:

A. A duly noticed hearing before the City Council was held on October 16, 2019. Copies of the codes to be adopted are on file and available for inspection.

B. The adoption of these codes is exempt from the California Environmental Quality Act under Section 15061(b)(3) of Title 14 of the California Code of Regulations because it will not have a significant effect on the environment.

C. This ordinance is adopted pursuant to Health and Safety Code Section 17958.5 and 17922.1 and Government Code Sections 50022.2 and 50022.3

D. Greater than normal vulnerability to seismic events and to fire requires the modification of the State Building Standards Code for the protection of the public health, safety and welfare due to local climatic, geologic or topographical conditions as follows:

1. Climate

The Town, on average, experiences an annual rainfall of 19.7 inches. This rainfall can be expected between October and April of each year. However, during the summer months there is little, if any measurable precipitation. During this dry period the temperatures are usually between 70 – 95 F degrees with light to gusty westerly winds. These drying winds, combined with the natural and imported vegetation, which is dominant throughout the area, create a hazardous fuel condition that can cause extensive encroaching into these wooded and grass covered areas where wind-driven fires can have severe consequences. Because of variable weather patterns, normal rainfall cannot always be relied upon. This can result in water rationing and water allocation programs, as demonstrated in past drought patterns. Water shortages may also be expected in the future due to limited water storage capabilities and increased consumption.

2. Geology

The Town is situated on alluvial soils between San Francisco Bay and the San Andreas Fault zones. The location makes older structures particularly vulnerable to damage and caused by seismic events. The relatively young geological processes that have created the San Francisco Bay Area are still active today. Seismically, the District sits between two active earthquake faults (San Andreas and the Hayward/Calaveras), and numerous potentially active faults. A majority of the Town's land surface is in the high-to-moderate seismic hazard zones. Bedrock lies beneath the area at depths generally 300 feet or more. The predominant soils patterns increase adverse effects on structures from major seismic events. A significant portion of the Town's residential and commercial structures are located in seismic risk zones. Fires following an earthquake have the potential of causing greater loss of life and damage than the earthquake itself.

3. Topography.

The Town's topography does not lend itself to a systematic street and road layout which would promote easy traffic flow, especially during emergencies. The Town is divided by a major state highway (El Camino Real) and a railroad track. It includes hilly areas and heavily wooded areas with winding roads and numerous cul de sac streets. These conditions are likely to adversely affect response times of emergency personnel during periods of heavy traffic or conditions of major emergencies. The Town's location on the San Francisco Peninsula, where there is a strong north-south commute pattern between a number of cities and towns on limited transportation corridors, results in very congested roads during peak commute hours. This creates barriers that increase the response time of fire equipment and other emergency services.

4. Built in Automatic Fire Suppression Systems

The increased risk to persons and property from fire makes it necessary to require the installation of built-in automatic fire protection systems that provide early detection and initial control until the arrival of emergency resources.

During large scale disasters, such as seismic events, these fire protection systems reduce the hazard of the spread of multiple fires to adjacent properties.

Section 2. Section 15.02.010 of the Atherton Municipal Code is hereby amended to read as follows:

Section 15.02.010 Adoption of the Administrative Code, 2019 Edition

That certain document, one printed copy of which is on file with the building official of the town, being marked and designated as Chapter 1 of Division II of the 2019 Edition of the *California Building Code* as published by the International Code Council is adopted and incorporated by reference and made a part of this chapter as if fully set out in this chapter, subject to amendments, deletions and additions to it as provided in this chapter. A copy of the 2019 California Building Code printed in code book form shall be kept on file in the office of the City Clerk.

Section 3. Section 15.04.10 of the Atherton Municipal Code is hereby amended to read as follows:

15.04.010 Adopted.
That a certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the 2019 California Building Code, Volumes 1 and 2 (Title 24, Part 2), and the 2019 California Residential Code (Title 24, Part 2.5) with Appendix Chapters G (Swimming Pools and Hot Tubs), H (Patio Covers) & J (Existing Buildings) as published by the International Code Council and adopted by the California Building Standards Commission as Title 24 California Code of Regulations, is adopted as the Building Code of the Town for regulating the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, equipment, use, height, area and maintenance of all buildings and/or structures in the Town; control of excavation and grading; providing for the issuance of permits and collection of fees; providing penalties for violation of such code; and each and all of the regulations, provisions, penalties of such 2019 California Building Code, and the 2019 California Residential Code and are referred to, adopted and made a part of this chapter as if fully set out in this chapter, subject to the amendments, deletions and additions thereto, as provided in this chapter.

Section 4. Section 15.08.010 of the Atherton Municipal Code is hereby amended to read as follows:

15.08.010 Adoption of the California Electrical Code, 2019 Edition

That certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the"2019 California Electrical Code," California Code of Regulations, Title 24, Part 3, is adopted as the Electrical Code of the Town for the purpose of providing for the issuance of permits for the installation or alteration of electrical systems, and the collection of fees for the same, defining certain terms, establishing minimum regulations for the installation or alterations or additions or repairs of electrical systems and the inspection thereof, providing penalties for its violation; and each and all of the regulations , provisions, penalties, conditions and terms of such 2019 California Electrical Code, are referred to, adopted and made

part of this chapter as if fully set out in this chapter, subject to the amendments, deletions and additions thereto, as provided in this chapter.

Section 5. Section 15.12.010 of the Atherton Municipal Code is hereby amended to read as follows:

15.12.010 Adoption of the California Plumbing Code, 2019 Edition

That certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the"2019 California Plumbing Code," including Appendix Chapters as published by the International Association of Plumbing and Mechanical officials, and adopted by the California Building Standards Commission as Title 24, California Code of Regulations, Part 5, is adopted as the Plumbing Code of the Town, requiring a permit for the installation or alteration of plumbing and drainage systems; defining certain terms; establishing minimum regulations for the installation or alteration or addition or repairs of plumbing and drainage systems and the inspection thereof, providing penalties for its violation; and each and all of the regulations, provisions, penalties, conditions and terms of the 2019 California Plumbing Code are referred to, adopted and made a part of this chapter, as if fully set out in this chapter, subject to the amendments, deletions, and additions thereto, as provided in this chapter.

Section 6. Chapter 15.16.010 of the Atherton Municipal Code is hereby amended to read as follows

15.16.010 Adoption of the California Mechanical Code, 2019 edition

That certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the "2019 California Mechanical Code," including Appendix Chapters, as published by the International Association of Plumbing and Mechanical officials, and adopted by the California Building Standards Commission as Title 24, Part 4, California Code of Regulations, is adopted as the Mechanical Code of the Town in order to provide complete requirements for the installation and maintenance of heating, ventilating, cooling and refrigeration systems; and each and all of the regulations, provisions, and penalties of such 2019 California Mechanical Code, are referred to, adopted and made a part of this chapter as if fully set out in this chapter, subject to the amendments, deletions and additions thereto, as provided in this chapter.

Section 7. Chapter 15.18.010 of the Atherton Municipal Code is hereby amended to read as follows:**15.18.010 Adoption of the California Energy Code, 2019 edition**

That certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the “2019 California Energy Code”, including Appendix Chapter 1-A, as published by the California Building Standards Commission and identified as California Code of Regulations Title 24, Part 6, is adopted as the Energy Code for the Town regulating energy efficiency and conservation for all buildings and structures and each and all of the regulations, provisions, and penalties of such 2019 California Energy Code, are referred to, adopted and made a part of this chapter as if fully set out in this chapter, subject to the amendments, deletions and additions thereto, as provided in this chapter.

Section 8. Chapter 15.19.010 of the Atherton Municipal Code is hereby amended to read as follows:

15.19.010 Adoption of the California Green Building Code, 2019 edition

That certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the "2019 California Green Building Standards Code or CalGreen", as published by the California Building Standards Commission and identified as California Code of Regulations, Title 24, Part 11, is adopted as the Green Building Code for the Town regulating improving public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact for all buildings and structures and each and all of the regulations, provisions, and penalties of such 2019 California Green Building Standards Code, are referred to, adopted and made a part of this chapter as if fully set out in this chapter, subject to the amendments, deletions and additions thereto, as provided in this chapter.

Section 9. Chapter 15.20.010 of the Atherton Municipal Code is hereby amended to read as follows:

15.20.010 Adoption of the California Historical Building Code, 2019 edition

That certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the 2019 California Historical Buildings Code, as published by the International Code Council, and adopted by the California Building Standards Commission as California Code of Regulations Title 24, Part 8, regulating construction in an effort to preserve the character and nature of Historical Buildings within the Town.

Section 10. Chapter 15.22.010 of the Atherton Municipal is hereby added to read as follows:

15.22.010 California Fire Code Ratified.

The Menlo Park Fire Protection District Ordinance Number 36-2019 entitled *District Fire Prevention Code,* which adopts the 2018 Edition of the International Fire Code (generally know as the California Fire Code, codified as Title 24 of the California Code of Regulations Part 9), with local amendments in response local conditions, is herby ratified.

Section 11. Chapter 15.44.010 of the Atherton Municipal Code is hereby amended to read as follows:

15.44.010. Adoption of the California Existing Buildings Code, 2019 edition.

That certain document, one copy of which is on file in the office of the Building Official of the Town, being marked and designated as the "2019 California Existing Buildings Code" Appendix Chapter A1, as published by the International Code Council and adopted by the California Building Standards Commission, as California Code of Regulations Title 24, Part 10, is adopted as the code for the maintenance of existing buildings and structures throughout the Town that are constructed of Unreinforced Masonry and establishing a program for the same.

Section 12. Except as hereby amended, said Atherton Municipal Code as amended shall be and remain in full force and effect.

Section 13. If any section, subsection, sentence, clause, phrase, or portion of this ordinance or the application thereof to any person or circumstances is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining portions hereof nor other applications of the ordinance which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are declared to be severable.

Section 14. This Ordinance shall be posted as required by law within the Town of Atherton and shall be effective on January 1, 2020.

* * * * * * * * * * * * *

*I hereby certify that a public hearing of the foregoing ordinance was held at a regular meeting of the City Council of the Town of Atherton held on **DATE**, and was adopted by said City Council at a regular meeting held on **DATE**, by the following roll call vote:*

AYES: Council Members:
NOES: Council Members:
ABSENT: Council Members:
ABSTAIN: Council Members:

_____
Bill Widmer, MAYOR
Town of Atherton

ATTEST:

_____
Anthony Suber, City Clerk

APPROVED AS TO FORM:

_____
William B. Conners, City Attorney

MENLO PARK FIRE PROTECTION DISTRICT
ORDINANCE NO. XX-XXXX
DISTRICT FIRE PREVENTION CODE

AN ORDINANCE OF THE MENLO PARK FIRE PROTECTION DISTRICT ADOPTING THE 2018 EDITION OF THE INTERNATIONAL FIRE CODE WITH THE 2019 CALIFORNIA FIRE CODE AND LOCAL AMENDMENTS.

WHEREAS, pursuant to Title 24 of the California Code of Regulations, also known as the California Building Standards Code ("CBSC") and California Health and Safety Code Section 13869 *et seq*., a fire protection district may adopt a fire prevention code by reference and may also, when reasonably necessary due to local climatic, geological or topographical conditions, establish more stringent local building standards relating to fire and safety than those set forth in the CBSC; and

WHEREAS, the Menlo Park Fire Protection District (the "District") now desires to adopt by ordinance an amended and restated District Fire Prevention Code that makes local amendments to the 2018 Edition of the International Fire Code with California Amendments, and

WHEREAS, this Ordinance was introduced and was adopted after the holding of a public hearing pursuant to California Health and Safety Code Section 13869.7 and California Government Code Section 50022.3.

WHEREAS, the Town of Atherton agrees to ratify and implement this adoption by reference

NOW, THEREFORE, the Board of Directors of the Menlo Park Fire Protection District ordains as follows:

SECTION 1: LOCAL CLIMATIC GEOLOGICAL AND TOPOGRAPHICAL CONDITIONS

Pursuant to Section 17958.5 and 17958.7 of the State of California Health and Safety Code, the Board of Directors of the Menlo Park Fire District finds that the below changes or modifications are needed and are reasonably necessary because of certain local climatic, geological and topographic conditions as follows:

Finding 1: Climatic

The District, on average, experiences an annual rainfall of 19.7 inches. This rainfall can be expected between October and April of each year. However, during the summer months there is little, if any measurable precipitation. During this dry period the temperatures are usually between 70 – 95 F degrees with light to gusty westerly winds. These drying winds, combined with the natural and imported vegetation which is dominant throughout the area, create a hazardous fuel condition that can cause extensive encroaching into these wooded and grass

covered areas where wind-driven fires can have severe consequences. This has been demonstrated in a number of like climatic areas within the State of California and the western United States.

Because of variable weather patterns, normal rainfall cannot always be relied upon. This can result in water rationing and water allocation programs, as demonstrated in past drought patterns. Water shortages may also be expected in the future due to limited water storage capabilities and increased consumption. The District is bounded by San Francisco Bay on the east and the foothills of the Santa Cruz Coastal Range of mountains on the west. This setting allows for strong gusty winds to blow through the Fire District. These winds are a common occurrence each afternoon during summer months. Wind increases a fire's ability to spread and has been attributed to the rapid spread of both vegetation and structure fires. Automatic fire sprinkler protection as required in buildings specified in Chapter 9 of the Fire Code and the local requirements and standards of Menlo Park Fire Protection District would significantly reduce the fire's ability to spread rapidly, especially when the jurisdiction is affected by the typical wind patterns.

Finding 2: Geologic and Geographic

A. Geographic Location. The District is located at the southeastern most part of San Mateo County.

B. Seismic Location. The District is situated on alluvial soils between San Francisco Bay and the San Andreas Fault zones. The location makes it particularly vulnerable to damage to taller and older structures caused by seismic events. The relatively young geological processes that have created the San Francisco Bay Area are still active today. Seismically, the District sits between two active earthquake faults, the San Andreas fault and the Hayward/Calaveras fault, and numerous potentially active faults. A majority of the District's land surface is in the high-to-moderate seismic hazard zones, as established by the U.S. Geological Survey.

C. Seismic and Fire Hazards. Fires following an earthquake have the potential of causing greater loss of life and damage than the earthquake itself. A significant portion of the District's residential, commercial and industrial structures are located in seismic risk zones. Should a significant seismic event occur, fire suppression resources would have to be prioritized to mitigate the greatest threat, and may not be available for every structural fire. In such an event, individual structures should be equipped to help in mitigation of the risk of damage.

   Other variables could aggravate the situation: (i) the extent of damage to the water system; (ii) the extent of isolation due to bridge and/or freeway overpass collapse; (iii) the extent of roadway damage and/or amount of debris blocking the roadways; (iv) climatic conditions (hot, dry weather with high winds); (v) time of day will influence the amount of traffic on roadways and could intensify the risk to life during normal business hours; and; (vi) the availability of timely mutual aid or military assistance.

D. Waterways. The Fire District's south and east boundary lines are waterways, the south side being the San Francisquito Creek, and the east side being the San Francisco Bay. Both waterways are influenced by tides. The San Francisquito Creek is fed from Searsville Dam, located along the Jasper Ridge, and also collects water from storm drains along its drainage pathway. The creek finally empties into San Francisco Bay, and is therefore influenced by tidal activity. During periods of heavy rainfall in combination with high tides in the Bay, San Francisquito Creek has overflowed its banks, causing floods in both East Palo Alto and Menlo Park. The floods have hampered fire apparatus making a timely response to emergencies and providing needed service to the community. Proper roadway widths as defined in Chapter 5 of the Fire Code and the minimum roadway standards established by Menlo Park Fire District can provide fire apparatus with accessibility while helping to divert excess water flow during rainy seasons.

E. Transportation. The District is dissected by a major state highway (El Camino Real) and two major interstate freeways (I-280 and U.S. 101). However, the interconnecting road system is significantly less well developed. These conditions are likely to affect response times of fire suppression personnel and apparatus during periods of heavy traffic or conditions of major emergencies.

   The Fire District is also split in half by an active railway that serves commuters during daylight hours and transports freight in the evening. There are seven railroad crossings that allow fire apparatus to cross from one side of the Fire District to the other. The railroad limits the Fire District's ability to not only make a timely response to an emergency, but also hampers our ability to provide a safe number of fire fighters to the scene of an emergency to begin operations that are compliant with Cal-OSHA Safety Regulations. Again, a structure's ability to control a fire or emergency condition with fire sprinkler protection, would play a key role in reducing losses.

   A single toll bridge connects the Fire District with a substantial workforce that resides in Alameda County. This single point source connection significantly adds to traffic congestion through the jurisdiction during commute hours. With alternative work schedules, commute hours may last from 5:00 am through 7:00 pm, with significant traffic backups also noted during the lunch hour.

F. Soil Conditions. The District lies near the southern end of San Francisco Bay and is built atop the alluvial deposits that surround the margins of the Bay. The alluvium was created by the flooding of the many streams emptying into the San Francisco Bay depression, and from intermittent sea water inundation occurring over the last two or three million years. The areas closest to the Bay are overlain by unconsolidated fine silty clay, known as Bay Mud which varies in thickness from a few feet to as much as 30 feet. Generally, the older more stable alluvium is to the south and the younger less stable material is to the north. Bedrock lies beneath the area at depths generally 300 feet or more. The predominant soils patterns actuate the adverse effects on structures that may be expected from major seismic events.

G. Building Design. Many of the older and taller buildings are of designs which greatly limit accessibility by District resources. This includes large narrow parcels that have been subdivided into "flag-lots" on narrow residential streets.

The infrastructure that supports these buildings is old and not in compliance with current Codes. Some water purveyors and water mains in residential and commercial areas deliver water supplies that do not meet fire flow requirements required by Appendix B of the Fire Code. Some fire hydrant locations in both residential and commercial do not meet distance requirements of Appendix C of the Fire Code. This will not only hamper fire suppression operations, but limits building design. When water supplies must be altered to accommodate new construction, Menlo Park Fire District Standards on Underground Water Piping and the Standard on Water Supplies attempt to work with the existing infrastructure to accommodate the needs of fire fighters.

Residential properties in the Fire District consist primarily of one-acre or smaller parcels, flag lots and single and multi-family infill developments. Common to the larger parcels is the development of additional residential or in-law type occupancies for which fire department access is difficult based on existing driveway configurations for the original single- family parcels. Flag lots, for example, typically have driveways in excess of 150 feet, with narrow access, necessitating additional requirements, which the Fire District has added to Section 503, by creating Standards for driveways and private roadways that includes minimum driveway widths, fire apparatus turnaround specifications, and minimum vertical clearances. Areas in the District have older narrow roads, less than 20 feet wide and unimproved sidewalks or gutters, and allow parking on both sides. Parking is a regional issue which plagues the streets causing streets to be narrow allowing only one vehicle to pass. Regional traffic has increased causing neighborhoods to be flooded with increased pass through traffic, reducing alternative emergency response routes. Neighborhoods are increasing traffic control measure installations which also increase emergency response times. Additionally, fire department response times are increased due to gated access roads, a lack of street or address illumination, and existing vegetation barriers. Section 505.1 provides minimum standards for addresses on buildings and now requires new buildings to have illuminated addressing. However, neighborhood street lighting continues to be an issue.

Proper roadway widths as required by Chapter 5 of the Fire Code, along with minimum Menlo Park Fire District Standards would allow fire apparatus to set up fire suppression operations and access both driveways that extend greater than 150 feet, and private roadways serving minor developments.

With the aging infrastructure, many water supplies do not meet current fire flow requirements. When redevelopment occurs, compliance to Fire Code Section 507 in addition to Menlo Park Fire District Standards on Water Supplies and on Underground (Piping) Standards is required. The Water Supply Standard provides for the type and size of the approved fire hydrant, its location in relationship to "flag-lots", and placement of "blue-dots" to indicate their placement.

Due to the close proximity to San Francisco Bay, salt content in the soil is highly corrosive. Menlo Park Fire District's Underground Standards provides requirements for underground piping of both fire hydrant installations as well as underground piping for automatic fire sprinkler system.

Finding 3: Topographical

The District's topographic conditions are closely associated with the geological /geographical element. With the elevation changes within the District, development has followed the path of least resistance, creating a meandering pattern. This circumstance does not lend itself to a good systematic street and road layout, which would promote easy traffic flow. It has, in fact, resulted in few major cross-town thoroughfares that tend to be heavily congested, primarily during commute hours and seasonal periods of the year. This creates barriers that reduce the response time of fire equipment and other emergency services.

The topography of the District is also challenged by major development patterns. Employment areas are located adjacent to and throughout the jurisdiction. The people who work in these areas have added to the traffic congestion in the District thereby reducing the District's response time capabilities.

Inherent delays caused by these traffic patterns make it necessary to mitigate these problems with greater requirements for built-in automatic fire protection systems, noted in Section 903 of the Fire Code, along with local requirements and standards. In addition, the Fire District has added Fire Alarm maintenance requirements, specifically UL Certification noted in Section 907, to reduce false alarms and insure system reliability.

Finding 4

The climatic conditions along the Peninsula affect the acceleration, intensity and size of a fire within the jurisdiction. Times of little or no rainfall, low humidity, and high temperatures have created extremely hazardous fire conditions, particularly as they relate to roof fires and conflagrations. The winds experienced in the Fire District can have a tremendous impact upon structure fires by carrying sparks and burning brands to other structures, thus spreading the fire and causing conflagrations. In building fires, winds can literally force the fire back into the structure, creating a blow torch effect, in addition to preventing the natural and cross ventilation efforts of firefighters. In 1997, a fire at Green Oaks School in East Palo Alto resulted in a multi-million-dollar loss. The fire's unusually rapid spread was attributed to wind conditions occurring at the time of the fire. Other fires within the jurisdiction's housing tracts have also experienced unusually rapid spread due to the gusty winds that occur daily off the San Francisco Bay.

Finding 5

By the use of automatic early fire detection and suppression systems, the Fire District will have the ability to curb losses of life and property attributed to the local climate's influence on fires. With the use of an early, automatic fire suppression system, major fire losses can be controlled. For example, in 1989, a flammable liquid fire occurred at Romic Environmental Services, a

former chemical recycling company that was located at the south end of the Fire District. The area suspected as the point of the fire's origin was an open-air, un-sprinklered building subject to wind conditions. The fire grew rapidly. It was finally brought under control several hours after discovery, with the assistance of neighboring fire departments and resulted in a multi-million-dollar loss of property, equipment and product. Two years later, after the area had been rebuilt and retrofitted with an automatic fire sprinkler system, another fire occurred at the same location. This fire was contained to a single piece of equipment and was controlled by one fire crew.

Finding 6

The geological conditions experienced within the Fire District increase the magnitude, exposure and accessibility to fire events. For example, a fire following an earthquake has the potential of causing greater loss of life and damage than the earthquake itself. Hazardous materials, particularly toxic gases, could pose the greatest threat to the largest number of people, should a significant seismic event occur. Fire protection resources would have to be prioritized to mitigate the greatest threat, and may likely be unavailable for smaller single-family dwelling or smaller business occupancy fires. Other variable conditions could include damage to the water system, freeway overpass collapse, roadways blocked by debris, and time of day, which could affect traffic patterns during or after the event.

In 1989 a 7.0 magnitude earthquake struck the San Francisco Bay Area via the San Andres Fault. For three hours following the event, firefighters from Menlo Park Fire District responded to over 100 incidents per hour. Though during this event, losses in the Fire District due to fire were minimal, however other neighboring jurisdictions were not as lucky. Had automatic fire sprinkler protection been a requirement at the time, it could have assisted firefighters in setting their priorities and assisting those citizens who needed emergency services the most.

Finding 7

Heavy traffic congestion on city streets already acts as a barrier to the timely response of fire equipment and emergency services. Continued growth, both residential and commercial from both inside and outside the Fire District will only serve to continue the traffic problem. In the event of an accident or other emergency at certain key point intersections, portions of the Fire District could be isolated or response times could be sufficiently slowed, thus increasing the risk of substantial injury and damage.

A year long time study of response times for fire apparatus indicates significant increases in response to emergencies during the commute hours of 6:00 am to 10:00 am and again from 3:00 pm to 7:00 pm. In conjunction with the increased response time, fire losses also showed the same pattern of higher losses for fires starting during commute hours. From 2003 to 2012, the Fire District experienced 22 structural fires where the property loss was greater than $300,000. From 2013 to July 2016, 40% of dollar loss occurred during commute traffic time. A $2,561,485 loss of $6,389,086 during this time, indicating significant losses that could be directly attributed to typical traffic congestion experienced within the Fire District.

If fire apparatus is hindered in their response, automatic fire sprinkler protection will help. According to IFSTA Training Manuals, the temperature inside a structure can go from ambient to an excess of 1,000F within the first ten minutes of a fire. Delay of fire apparatus will only allow the fire to grow, thus making efforts to suppress the fire more difficult. Additionally, the ability to perform an effective rescue is diminished if fire fighters are delayed in their response. With an automatic fire sprinkler protection system in place, the fire should be held to a controllable level, allowing the ability of citizens to escape from the burning structure, as well as allowing firefighters to contain the fire in a safe manner in its beginning stages.

Finding 8

It is due to these climatic, geographical and topographical conditions that the Fire District supports the need for structures within the jurisdiction to at least be capable of initial fire suppression capacity.

Finding 9

For the above reasons, taken individually and cumulatively, that the Board of Directors of the Menlo Park Fire Protection District finds there to be building and fire hazards particular to the jurisdiction that require the increased fire protection detailed as set forth in this Ordinance.

SECTION 2: TITLE, ENFORCEMENT & RECORDKEEPING

This set of regulations, including provisions adopted and incorporated by reference, shall be known as the "District Fire Prevention Code" of the Menlo Park Fire Protection District ("the District") and may be cited as such. It is also referred to as the "Fire Code" in these regulations.

A. No section of the Fire Prevention Code shall impose a mandatory duty of enforcement on the Fire District, or on any officer, official, agent, employee, board, or commission thereof. Instead, if any section purports to impose a mandatory duty of enforcement, said section shall be deemed to invest the Fire District, and the appropriate officer, official, agent, employee, board, council, or commission with discretion to enforce the section, or not to enforce it.
B. A copy of the Fire Prevention Code, as defined herein, shall be kept on file in the office of the Clerk of the Board.

SECTION 3: AUTHORITY

The District Fire Prevention Code is adopted pursuant to the Fire Protection District Act of 1987 (California Health and Safety Code Sections 13800 *et seq*.) and in particular the following provisions of that Act:

A. Section 13861(h), which empowers the District to adopt ordinances;
B. Section 13861(i), which empowers the District to establish and enforce rules and regulations for the administration, operation and maintenance of the governmental services which it is authorized to provide;

C. Section 13862, which empowers the District to provide certain governmental services including fire protection services;
D. Section 13869, which empowers the District to adopt a fire prevention code by reference; Section 13870, which empowers the District's authorized representatives to order correction or elimination of fire and life hazards;
E. Section 13871(b), which provides that failure to correct or eliminate a fire or life hazard after a duly issued order is a misdemeanor;
F. Section 13872, which empowers the District's authorized representatives to issue citations for certain violations;
G. Section 13873, which provides that the District's employees shall have the powers of peace officers while engaged in the prevention and suppression of fires and the preservation of life and property; and,
H. Sections 13916, 13917, 13918 and 13919, which, among other things, empower the District's Board of Directors to charge a fee to cover the cost of any services, which the District provides and the cost of enforcing any regulation for which a fee is charged.

SECTION 4: ADOPTION BY REFERENCE

The 2019 California Fire Code, California Code of Regulations, Title 24, Part 9, (CFC) which adopts by reference the 2018 edition of the International Fire Code (IFC) with necessary State amendments, which prescribes regulations governing conditions to life and property from fire or explosion through building standards and non-building standards, is adopted by reference and incorporated into the District Fire Prevention Code, including Chapter 1, Division II, Appendix Chapter 4, Appendix B, Appendix C, Appendix D and Appendix H, except to the extent portions of the CFC may be added, deleted, modified or amended by Section 6 (Local Amendments) of this Code.

SECTION 5: AUTHORITY AND DUTIES OF THE BUREAU OF FIRE PREVENTION AND LIFE SAFETY

The International Fire Code and the California Fire Code, including International Fire Code Standards as adopted and amended herein, shall be enforced by the Menlo Park Fire Protection District and managed by the Bureau of Fire Prevention and Life Safety, and shall operate under the direction of the Fire Chief and the Fire Marshal of the Menlo Park Fire Protection District. Both Fire Officers shall be known as the Fire Code Officials.

SECTION 6: LOCAL AMENDMENTS, MODIFICATIONS AND DELETIONS TO THE CALIFORNIA FIRE CODE

Based upon the findings of the Board of Directors of the Menlo Park Fire Protection District regarding local climatic, topographical, and geological conditions, the following sections and/or subsections of the California Fire Code and the International Fire Code are amended or modified as set forth in this section. If a section is not referenced below, it remains unchanged.

SECTION 101 SCOPE AND GENERAL REQUIREMENTS is *amended* to read as follows:

101.1 Title. These regulations shall be known as the 2019 CALIFORNIA FIRE CODE, and with amendments adopted by the Menlo Park Fire Protection District, will be referred to herein as the "CODE," and/or the "FIRE PREVENTION CODE."

101.6 Standards and Guidelines Manual is *added* to read as follows:

101.6 Standards and Guidelines Manual. The Bureau of Fire Prevention and Life Safety Standards and Guidelines Manual ("Standards and Guidelines Manual") shall serve as a supplemental instruction and interpretation manual for the Fire Prevention Code. The Standards and Guidelines Manual may be amended from time to time by the Fire Marshal.

SECTION 106 FEES is adopted and *amended* to read as follows:

106.1 The fees for the permits and other services shall be established by resolution of the Menlo Park Fire Protection District Fire Board Fee Schedule ("Fee Schedule"). The fee shall be set to cover the cost of the Fire District to review and inspect the intended activities, operations or functions.

Exception: Fees for a permit may be waived at the discretion of the Fire Chief when the work or event to be conducted is for the Town of Atherton, City of East Palo Alto, City of Menlo Park or County of San Mateo.

106.1.2 All fire permits and fire construction permits shall have a set number of inspections per permit as set forth by the Fee Schedule. Additional inspections and additional re-inspections will be billed at an hourly rate consistent with the Fee Schedule.

106.1.3 "After Hours" inspections shall be billed at a rate of one and one-half time the normal hourly rate. "After hours" inspections will be billed at a rate of four hours minimum. "After hours" inspections are defined as follows: Inspections conducted Monday – Friday, prior to 6am and after 6pm, Saturday and Sunday and observed holidays.

106.1.4 Application for "event" type permits (i.e. Pyrotechnic, Tents, Carnivals and Fairs, etc.) shall be submitted 14 days prior to the event date. Applications submitted within 13 days prior to the event date shall be charged double the regular permit rate as established by the Fee Schedule.

SECTION 109 BOARD OF APPEALS is *amended* to read as follows:

109.1 Board of Appeals. All decisions and rulings of the Fire Code Official are final and any appeals shall be made through the legal process.

SECTION 110 VIOLATIONS is *added* to read as follows:

110.4.1 Abatement of violation. In addition to the imposition of the penalties herein described, the fire code official is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or stop an illegal act, conduct of business or occupancy of a structure on or about any premise.

SECTION 113 SERVICE UTILITIES is *added* to read as follows:

113.1 Authority to disconnect service utilities. The fire code official shall have the authority to authorize disconnection of utility service to the building, structure or system in order to safely execute emergency operations or to eliminate an immediate hazard. The fire code official shall notify the serving utility and, where possible, the owner or the owner's authorized agent and the occupant of the building, structure or service system of the decision to disconnect prior to taking such action. If not notified prior to disconnection, then the owner, the owner's authorized agent or occupant of the building, structure or service system shall be notified in writing as soon as practical thereafter.

SECTION 202 GENERAL DEFINITIONS are amended to *add* the following:

All Weather Driving Surface. A roadway designed to carry the imposed weight loads of fire apparatus complete with all underground utilities, curbs, gutters, and a minimum surface finish of one layer of asphalt or concrete or road pavers.

Driveway. Access road from the public way to a structure that is used for public or private vehicular access, including fire and emergency apparatus.

Essential Service Facility. Shall mean that building or structure which has been designated by the local government to house facilities that are necessary for emergency operations.

Fire Code Official. The fire code official shall mean the District's Fire Chief, employees of the District's Fire Prevention and Fire Suppression Divisions and such other representatives of the District as may be authorized by the Menlo Park Fire District Board of Directors or the Fire Chief.

Floor Area, Gross. The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts. For residential occupancies, square footage does not include an attached garage (U Occupancy) or attached carport.

Areas to be included in the square footage calculation include:

1. Garages or carports if under a habitable space, or covers egress
2. New attached garage
3. All additions
4. Total square footage of any room that received alterations or additions. Removing sheetrock exposing structural framing or any structural change in a room involves the total square footage of that room.

Existing square footage may be obtained from the San Mateo County Tax Assessor's Office or may be submitted by a licensed architect.

Jurisdiction. Jurisdiction shall mean the territorial boundaries of the Menlo Park Fire Protection District. In that case "Jurisdiction" would mean, as appropriate, the County of San Mateo, the City of East Palo Alto, the City of Menlo Park and the Town of Atherton. The Fire District's map book shall be adopted by reference to indicate the territorial boundaries of the Menlo Park Fire Protection District.

Except where in the code the term "jurisdiction" is used in a context which implies the ability to exercise governmental powers, such as "the authority having jurisdiction," then in that context "jurisdiction" shall mean the particular public agency authorized to and exercising that governmental power.

Local Law Enforcement. Local law enforcement" shall mean the local police departments of the City of East Palo Alto, the City of Menlo Park, the Town of Atherton, the San Mateo County Sheriff's Department, and the California Highway Patrol.

Substantial Alteration. The renovation of any structure and/or which combined with any additions to the structure, affects a *gross floor area* which exceeds fifty percent (50%) of the existing floor area of the structure. This may include but is not limited to:

1. Removal of electricity to the building or structure.
2. Removal of water supply and /or sanitation to the building or structure
3. Removal of exterior walls and/or roof assembly

When any structural changes are made to the building, such as walls, columns, beams or girders, floor or ceiling joists and covering, roof rafters, roof diaphragms, foundations, piles or retaining walls or similar components, the floor area of all rooms affected by the changes shall be included in computing floor areas for purposes of applying this definition. This definition does not apply to the replacement and upgrading of residential roof coverings.

SECTION 403.12 SPECIAL REQUIREMENTS FOR PUBLIC SAFETY is *added* in its entirety.

403.12 Special requirements for public safety. Special requirements for public safety shall be in accordance with Sections 403.12.1 through 403.12.3.3.

SECTION 503 BUILDINGS AND FACILITIES is added in entirety and *amended* to read as follows:

SECTION 503.1 is *amended* to read as follows:

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3 and according to Menlo Park Fire District Fire District Policy Manual.

503.1.1 Buildings and Facilities. Every building and facility shall be accessible to Fire Department apparatus by way of all-weather access roadways prior to combustible construction. The fire apparatus access roads shall comply with the requirements of this section and extend within 150 ft. 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. The access road shall have a minimum unobstructed width of 20 ft. and shall be required to have a minimum 'first lift' of pavement applied which shall support the imposed load of a fire apparatus. The developer shall be required to provide the Fire Chief with a site plan showing the location, width, grades, and cross section of the proposed access roads to be used during construction. Permits shall not be issued and combustible construction shall not be allowed on the site until this site plan is reviewed and approved and stamped by the Fire Department.

Exceptions

1. The Fire Chief is authorized to increase the dimension of 150 ft. 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 Chief, fire apparatus access roads shall be permitted to be exempted or modified for solar photovoltaic power generation facilities.

503.1.1.2 is *added* to read as follows: Nothing in the California Fire Code shall prevent the Town or City from designating or maintaining a street as a "Fire Lane" which does not meet the requirements of a fire apparatus access road under the California Fire Code.

503.1.2 – 503.6 {CFC text not modified}

503.7 - Restrictions and requirements as specified in the California Vehicle Code shall apply to fire lanes established by this section.

SECTION 505 ADDRESS IDENTIFICATION is *amended* to read as follows:

505.1 Address Identification. New and existing 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. Said numbers shall be either internally or externally illuminated in all new construction. Numbers shall be as follows:

1. Minimum of one-half inch (1/2″) stroke by eight inches (8″) high.
   Exception: Single-Family dwelling minimum of one-half inch (½”) stroke by four inches (4”) high.
2. When the structure is more than fifty (50) feet from the street or fire apparatus access, a minimum of one-inch (1”) stroke by twelve inches (12″) high is required.

SECTION 505.1.1 Multi-tenant buildings is *added* to read as follows:

505.1.1 Multi -Tenant Buildings. Numbers or letters shall be designated on all occupancies within a building. Size shall be one-half inch (1/2″) stroke by four inches (4″) high and on a contrasting background. Directional address numbers or letters shall be provided. Said addresses or numbers shall be posted at a height no greater than 5 feet, 6 inches (5′ 6″) above the finished floor and shall be either internally or externally illuminated in all new construction.

SECTION 505.1.2 Rear Addressing is *added* to read as follows:

505.1.2 Rear Addressing. When required by the fire code official, approved numbers or addresses shall be placed on all new and existing buildings in such a position as to be plainly visible and legible from the fire apparatus road at the back of a property or where rear parking lots or alleys provide an acceptable vehicular access. Number stroke and size shall comply with 505.1.

SECTION 506 KEY BOXES is *amended* to read as follows:

506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings 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 listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the fire code official. Where a new gate or barrier is installed on a fire access roadway, the fire department shall have emergency access. Gates or barriers shall have a Knox® key switch.

SECTION 506.1.1.1 Key Box contents requirements is *added* to read as follows:

506.1.1.1 Key box contents requirements. The keys provided shall be a master key to all spaces including multi-tenant spaces. Additional keys shall be included for card access, elevator control, fire alarm control panels, and fire sprinkler control valve access.

Exceptions:

1. Multi-tenant spaces which provide a key box for each tenant and installed per Section 506.1.
2. Electronic card keys and codes may not be utilized as a substitute for manual keys.

SECTION 510.3 Emergency Responder Radio Coverage Permit required is *added*

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS is *amended* as follows:

903.2 Where required. Approved automatic fire sprinkler systems in new buildings and structures shall be provided in all Group A, B, E, F, S, and U Occupancies greater than 1,000 square feet and in locations described in subsections 903.2.2, 903.2.5, 903.2.6, 903.2.8, 903.2.11, 903.2.12. Sections and Subsections of 903.2.1, 903.2.3, 903.2.4, 903.2.9, 903.2.10, and 903.2.11.3 of Chapter 9 of the code are deleted in their entirety.

Approved automatic fire sprinkler system in existing buildings and structures shall be provided as described in section 903.6.

Exceptions:

1. Independent solar carports or structures, non-combustible carports or shade structures.
2. Canopies over motor vehicle fuel dispensing facilities when constructed in accordance with Section 406.7.2 of the 2019 California Building Code.

903.2.7 Group M. Automatic fire sprinkler systems shall be provided throughout buildings containing a Group M occupancy with a fire area greater than 1,000 square feet and any Group M occupancy used for the display and sale of upholstered furniture.

903.2.7.1 High Pile storage {CFC text not modified}

903.2.11 Specific building areas and hazards. In all occupancies an *automatic sprinkler system* shall be installed for building design or hazards in the locations set forth in sections 903.2.11.1 through 903.2.11.6.

903.2.11.1 Stories and basements without openings. Automatic sprinkler systems shall be installed in every building with a basement.

Automatic sprinkler systems shall be installed in every story of all buildings where the floor area exceeds 1000 square feet and where the following type of exterior wall opening is not provided.

1. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m^2) in each 50 linear feet (15 240 mm), or fraction thereof, of exterior wall in the story on at least one side.

903.3.1.2 NFPA 13R sprinkler systems. Where in the code a NFPA 13R sprinkler system is allowed, a NFPA 13 sprinkler system shall be used.

903.3.3 Obstructed locations. Automatic sprinklers shall be installed with due regard to obstructions that will delay activation or obstruct the water distribution pattern. Automatic fire sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands, laboratory fume hoods, bio safety cabinets that use flammable liquids in processes, or equipment that exceeds 4 feet (1219 mm) in width. Not less than a 3-foot (914 mm) clearance shall be maintained between automatic sprinklers and the top of piles of combustible fibers. Sprinklers shall be provided in all areas including combustible or noncombustible concealed spaces, 6 inches or more.

Exceptions:

1. Combustible or noncombustible concealed spaces if the building owner and the fire code official agree in writing that combustible or noncombustible concealed spaces, 6 inch or less are unlikely to change in the future.
2. Kitchen equipment under exhaust hoods protected with a fire-extinguishing system in accordance with Section 904.

903.3.10 Partial Systems in new buildings or structures. Automatic fire sprinkler systems that only protect a portion of the building shall not be allowed.

903.6 WHERE REQUIRED IN EXISTING BUILDINGS AND STRUCTURES. An *automatic sprinkler system* shall be provided in existing buildings and structures where required in Chapter 11 or when improvements are conducted in accordance with this section.

903.6.1 Where required due to improvements to buildings and structures. The provisions of this section are intended to provide a reasonable degree of fire safety in existing structures by requiring installation of an automatic fire-extinguishing system.

903.6.1.1 Where Required. All existing buildings and structures, regardless of type of occupancy or area, shall be provided with an automatic fire sprinkler system when any of the following conditions occur:

1. Where the *gross floor area* of a proposed alteration, addition, or combination of alterations and additions and the *gross floor area* of any alterations, additions, or combination of alterations and additions exceeds 50% of the existing *gross floor area* of the building or 50% of the existing *gross floor area* of the building for R-3 occupancies.

   Exception: Buildings or structures less than 1,000 square feet.

2. When a change in occupancy classification, as defined within the Building Code, results in an increased fire hazard or risk due to business operations and/or number of occupants permitted in the building.

3. When an existing occupancy constructs a basement that is 250 square feet or larger, a fire sprinkler system shall be provided throughout the basement and the rest of the building or structure.

903.6.1.2 Partial Systems in existing buildings and structures. Automatic fire sprinkler systems that only protect a portion of the building shall not be allowed.

Exception: A phased installation of an automatic fire sprinkler system may be as an alternate materials and method application, as prescribed in Section 104.9, when different tenant spaces in the same building are occupied, and the installation of a fire sprinkler system may disrupt business. Not to exceed five (5) years for final completion from initial permit date.

907 FIRE ALARM AND DETECTION SYSTEMS is *amended* to read as follows:

907.7 Acceptance tests and completion. Upon completion of the installation, the fire alarm system and all fire alarm components shall be tested in accordance with NFPA 72. Fire alarms systems in commercial structures shall obtain a UL Certificate for the system prior to final inspection.

907.9 Where required in existing buildings and structures. An *approved* fire alarm system shall be provided in existing buildings and structures where required in Chapter 11. When an alteration to any existing building or structure requires an upgrade or new fire alarm system, multiple fire alarm systems shall be approved by the fire code official.

SECTION 901.6.3 RECORDS REPORTING is *added* to read as follows:

901.6.3.2 Records Reporting. Fire detection, alarm and extinguishing systems, shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Non-required fire protection systems and equipment shall be inspected, tested, and maintained or removed. All inspection, testing and maintenance reports shall be forwarded to the Fire Department using electronic media. No paper (hard copy) reports shall be permitted.

Appendix B of the 2019 California Fire Code is amended to read as follows:

Table B105.1(2) {CFC text not modified}

Table B105.2

TABLE B105.2 REQUIRED FIRE FLOW FOR BUILDINGS OTHER THAN ONE-AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOMES		
AUTOMATIC SPRINKLER SYSTEM (Design Standard)	**MINIMUM FIRE FLOW (gallons per minute)**	**FLOW DURATION (hours)**
No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2)
Section 903.3.1.1 of the California Fire Code	50% of the value in Table B105.1(2)[a]	Duration in Table B105.1(2) at the reduced flow rate
Section 903.3.1.2 of the California Fire Code	50% of the value in Table B105.1(2)[b]	Duration in Table B105.1(2) at the reduced flow rate
For SI: 1 gallon per minute = 3.785L/m a. The reduced fire flow shall not be less than 1,000 gallons per minute b. The reduced fire flow shall not be less than 1,500 gallons per minute		

B105.2 – B106 {CFC text not modified}

Appendix L REQUIREMENTS FOR PIPED AIR SCBA REFILLING SYSTEMS is *added* as follows:

For buildings more than 10 stories in height, shall install Firefighter Air Replenishment System per Menlo Park Fire Protection District Standards and Guidelines Manual.

SECTION 7: DATE OF EFFECT

This ordinance shall take effect and be in full force on January 1, 2020.

SECTION 8: PUBLIC POSTING

This ordinance shall be publicly posted in the following places:

1. Front Door of the Menlo Park Fire Protection District
2. Bulletin Board in Front of the Classroom at the Menlo Park Fire Protections District
3. Menlo Park Fire District Website, and published pursuant to law

Menlo Park Fire Protection District
Bureau of Fire Prevention and Life Safety
170 Middlefield Rd.
Menlo Park, CA 94025
650-688-8425

Bureau of Fire Prevention and Life Safety

SECTION 101.6

STANDARDS AND GUIDELINES MANUAL

This manual shall serve as a supplemental instruction and interpretation manual for the Fire Prevention Code.

Table of Contents

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR PRIVATE ROADS AND DRIVEWAYS

Includes requirements for Gates, Turnarounds & Turnouts

SCOPE. This guideline provides minimum requirement necessary for driveways with gates exceeding 150 ft. in length and private roads of any distance. Requirements must comply with California Fire Code, Chapter 5 and Appendix D, and MPFD local amendments.

When necessary, these guidelines may be modified to ensure adequate fire apparatus access and public safety. Some factors that may contribute to modifications include walls, cliffs along roads and driveways, angle of approach or departure, grade/slope, and the likelihood of future obstructions.

DEFINITIONS

AASHTO HB-17 - American Association of State Highway and Transportation Officials, the 17th Edition Standard for Highway Bridges.

ALL WEATHERED - A road or driveway constructed of asphalt, concrete, or other approved driving surface capable of supporting the imposed load of a fire apparatus weighing at least 75,000 pounds.

PRIVATE ROAD - An access road that is outside the boundaries of the property and/or servicing 3 or more dwelling units.

DRIVEWAYS –For Single Family Residential Only (1-2 Residences)

Driveway Specifications. Driveways 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. Driveways shall provide a minimum unobstructed width of 16 feet and a minimum unobstructed height of 13 feet 6 inches. Driveways in excess of 150 feet in length shall be provided with turnarounds. Driveways in excess of 500 feet in length and less than 20 feet in width shall be provided with turnouts in addition to turnarounds.

Fire Sprinkler Allowance. When the most remote single-family residence is provided with automatic fire sprinkler protection and is less than 3600 square feet, the driveway distance may be measured from the edge of the street to the face of the structure.

Turnarounds. Driveway turnarounds shall have inside turning radii of not less than 30 feet and an outside turning radius of not less than 45 feet. Driveways that connect with a

road or roads at more than one point may be considered as having a turnaround if all changes of direction meet the radii requirements for driveway turnarounds.
Driveways exceeding 1 mile in length shall be provided with approved turnaround areas at ½ mile intervals.

Turnouts. Driveway turnouts shall be an all-weather road surface at least 10 feet wide and 30 feet long. Driveway turnouts shall be located every 500 feet or at the midpoint if the road is 1,000 feet or less.

PRIVATE ROADWAYS (3 or more residences)

Roadway Specifications. Private roadways serving 3 or more residential occupancies shall be all-weathered with a minimum width of 20 feet and a clear height of 13 feet 6 inches (4115 mm). Roadways shall be designed to accommodate the weight of fire apparatus and the minimum turning radii of 36 feet for fire apparatus. Dead-end roads in excess of 150 feet (45 720 mm) in length shall be provided with turnarounds as specified by CFC Appendix D, Table D103.4. Access roads exceeding 1 mile in length shall be provided with approved turnaround areas at ½ mile intervals.

Marking of roads. All road identification signs and supports shall be of noncombustible materials. Signs shall have minimum 4-inch-high (102 mm) reflective letters with 1/2-inch (12.7 mm) stroke on a contrasting 6-inch-high (152 mm) sign. Road identification signage shall be mounted at a height of 7 feet (2134 mm) from the road surface to the bottom of the sign.

Marking of Fire Protection Equipment. Fire protection equipment and fire hydrants shall be clearly identified accordance with the Menlo Park Fire District Guideline, "Water Supplies and Fire Hydrants." On-site fire hydrants shall not be obstructed.

Cul-de-sacs, Curves, and 90° Turns. Cul-de-sacs, curves, and 90° turns shall be in accordance with CFC Appendix D. No obstructions are allowed within the cul-de-sac, such as trees, planters, islands etc.

GATES

The design for all gates across driveways and private roads shall be approved by the Fire District. Gates shall comply with all of the following criteria:

1. A minimum clear, unobstructed width of not less than 16 feet shall be provided for single-family residential properties. For Multi-family residential and commercial refer to Appendix D, Table D103.5.
2. Gates shall either be swinging of sliding.
3. Gates that have an electric opening shall have a manual override.
4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.

5. All locking devices shall provide Fire Department access. Electric gates shall have a Knox Box override key switch installed. Refer to the Menlo Park Fire District Guideline on Key Installations for details.
6. Manual opening gates shall not be locked with a padlock or chain and padlock unless they are capable of being opened by means of forcible entry tools, a Knox padlock is used, or when a Knox Key Box containing keys to the lock is installed at the gate location.
7. Locking device specifications shall be submitted to Menlo Park Fire District for approval by the code official.

GENERAL REQUIREMENTS

Surface. All the items in this standard shall meet the requirements for an all-weather road.

Landscape. Landscaping shall not interfere with the required fire apparatus access. Landscaping around road shall provide limited fuel, no ladder fuels, and provide thinning of tree canopy.

Parking. Parking (or any other obstruction) will not be allowed on any of the items in this standard, unless additional space is provided and approved.

Fire Lane Signs. Installation and placement of signs and markings and designating fire lanes shall be in accordance with Menlo Park Fire Protection District Guideline for "Designation and Marking of Fire Lanes."

Easements. Access improvements (roads, turnarounds and turnouts) that cross property lines shall be recorded with the San Mateo County Tax Assessors Office.

Bridges and elevated surfaces. Where a bridge or an elevated surface is part of the private roadway or driveway, the bridge shall be constructed and maintained in accordance with AASHTO HB-17 and CFC Chapter 5, Section 503.2.6.

Address markers. All buildings shall have a permanently posted address, which shall be placed at each driveway entrance and be visible from both directions of travel along the road. Permanent addresses on new construction and substantial remodels shall be internally or externally illuminated from dusk to dawn. Addresses shall be posted at the beginning of construction and shall be maintained thereafter. The address shall be visible and legible from the road on which the address is located. Address signs along one-way roads shall be visible from both the intended direction of travel and the opposite direction.

Where multiple addresses are required at a single driveway, they shall be mounted on a single post, and additional signs shall be posted at locations where driveways divide. Where a roadway provides access solely to a single commercial or industrial business, the address sign shall be placed at the nearest road intersection providing access to that site.

Grades. The gradient for private roadways and driveways shall not exceed 10%. Turnarounds and cul-de-sacs shall not have a grade greater than 5% in any direction. Turnouts, curves, and 90° turns shall not have a grade greater than allowed for the road they are on. Transitions between grade changes shall not exceed 5% and shall not interfere with the angle of approach, angle of departure or high centering of fire apparatus. Any deviation from this shall first obtain approval by the AHJ.

Timing of Installation. Access roadways and water supply, including the items required by this guideline, shall be provided prior to and kept in place during the time of construction.

PLAN CHECK

Two copies of a scaled site plan are required for plan review. Plans shall include fire hydrant location(s) with the submittal. Gate applications also require gate details. When approved, one copy will be kept by the Bureau of Fire Prevention and Life Safety and one will be returned to the applicant. Final approval is subject to an on-site inspection.

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR DESIGNATION AND MARKING OF FIRE LANES

Scope. This guideline provides standard requirements for the installation and placement of signs and markings designating "fire lanes" when required by the Menlo Park Fire Protection District to provide adequate fire apparatus access. Sign requirements include fire lanes and access roads on both private residential developments and private commercial and industrial properties. Also included in this guideline are requirements for painting curbs and designated areas without curbing.

PRIVATE RESIDENTIAL DEVELOPMENTS

OPTION #1 – "NO PARKING" Signs
Sign "A" Requirements:

Signs marking fire lanes are to be spaced so they can be easily read from one sign to another, but in no case shall the signs be more than 100 feet apart.

Signs are to face on-coming vehicular traffic.

All curbs and adjoining fire lanes or posted areas must be painted red and labeled in white, "NO PARKING FIRE LANE."

All curbs and signs are to be maintained by the property owner

All areas posted under Option #1 are to use sign "A"

All signs must conform to Menlo Park Fire Protection District Guidelines.

OPTION #2 – "ENTRANCE" Signs
Sign "B" Requirements:

One (1) sign is required at all points of entry to properties with marked parking stalls.

Signs are to face on-coming vehicular traffic

All curbs adjoining fire lanes or posted areas are required to be painted red and labeled in white, "NO PARKING FIRE LANE."

All curbs and signs are to be maintained by the property owner.

All signs must conform to Menlo Park Fire Protection District Guidelines.

COMMERCIAL AND INDUSTRIAL PROPERTY

OPTION #1 – "NO PARKING" Signs
Sign "A" Requirements:

Signs are required within three (3) feet of each end of curbed area and spaced a maximum of fifty (50) feet apart thereafter.

In addition, one (1) sign is required for each island adjacent to a fire lane or access road if the road width is less than 26 feet.

Signs are to face on-coming vehicular traffic.

All curbs and signs are to be maintained by the property owner.

All signs must conform to Menlo Park Fire Protection District Guidelines.

OPTION #2 – "ENTRANCE" Signs
Sign "B" Requirements:

One (1) sign is required at all points of entry to properties with marked parking stalls.

Signs are to face on-coming vehicular traffic

All curbs adjoining fire lanes or posted areas are required to be painted red.

All curbs and signs are to be maintained by the property owner.

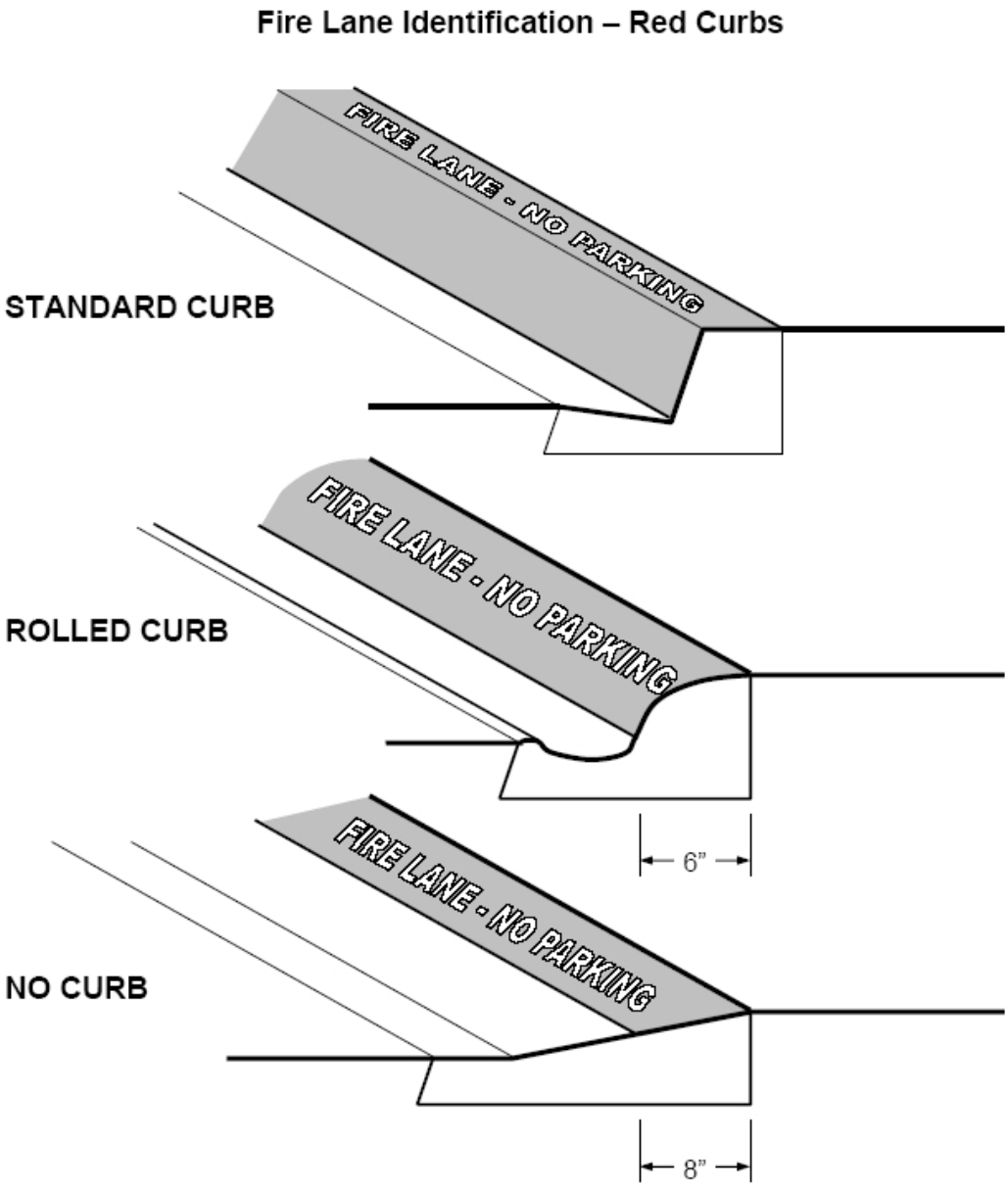
All signs must conform to Menlo Park Fire Protection District Guidelines.

Enforcement

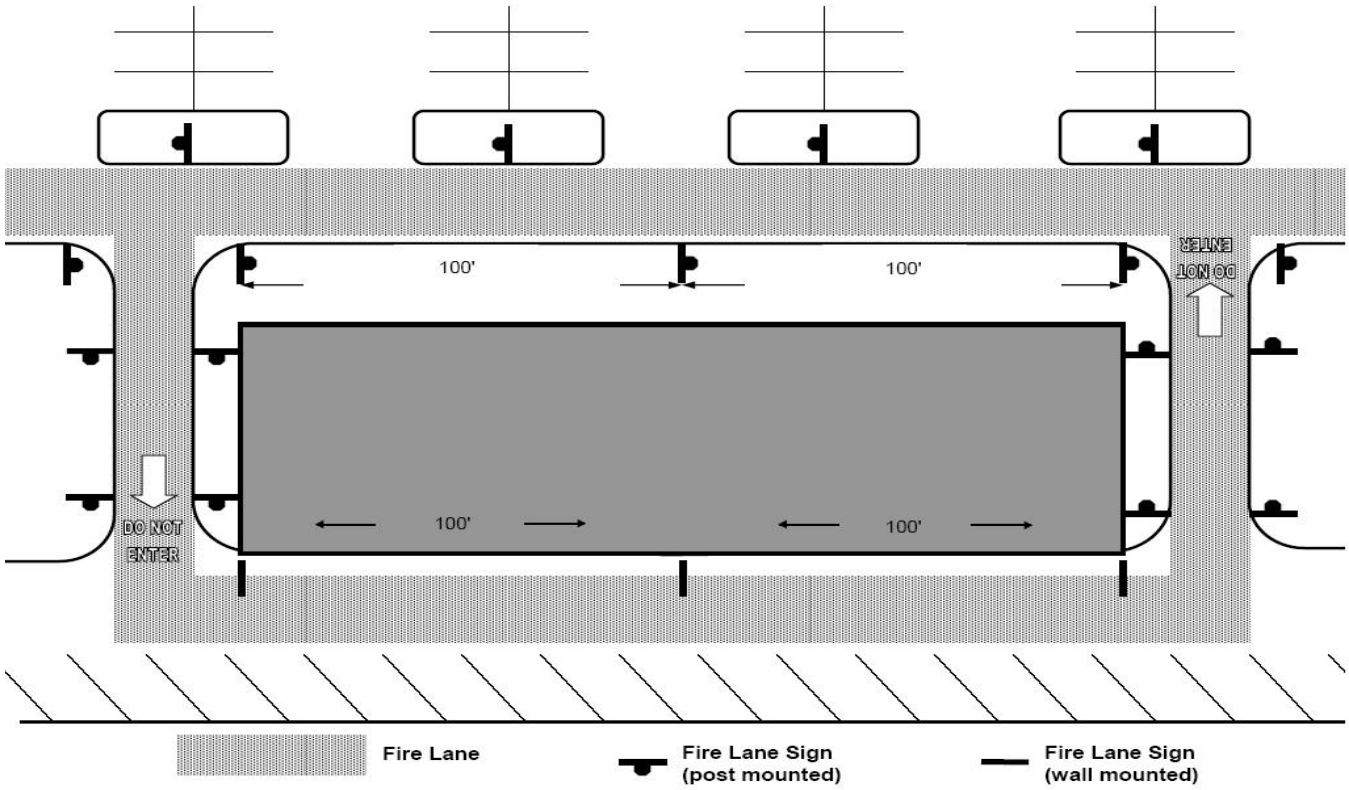
California Vehicle Code Section 22500.1 - Fire lanes; parking violations; and signs:
In addition to Section 22500, no person shall stop, park or leave standing any vehicle, whether attended or unattended, except when necessary to avoid conflict with other traffic or in compliance with the directions of a peace officer or official traffic control device along the edge of any highway, at any curb, or in any location in a publicly or privately owned or operated off-street parking facility, designated as a fire lane by the fire department or fire district with jurisdiction over the area in which the place is located.

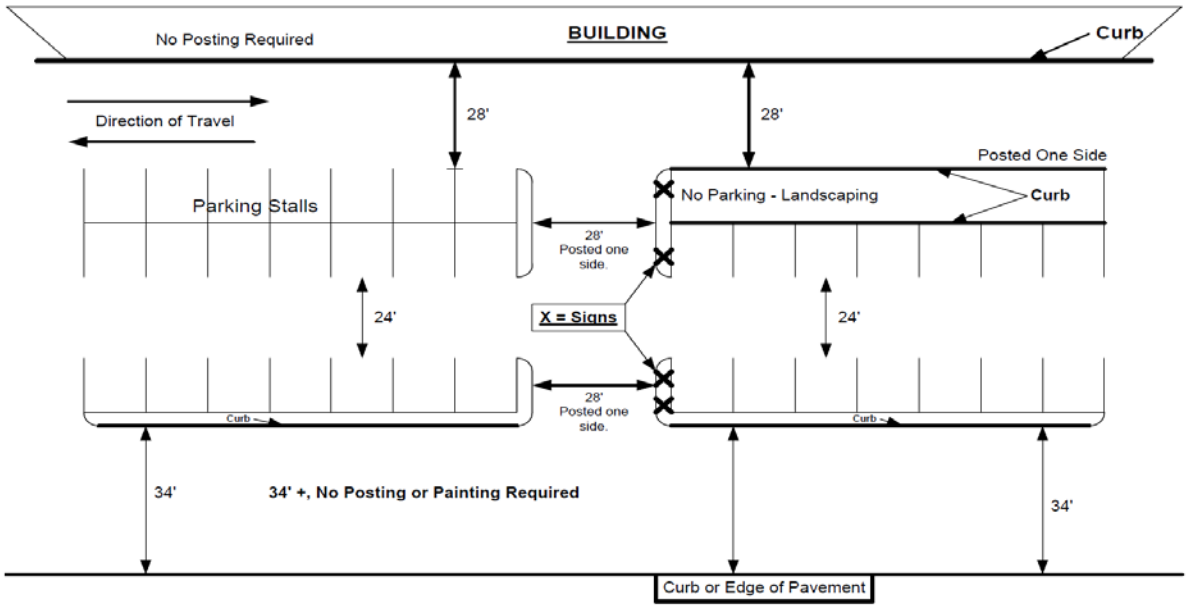
The designation shall be indicated by (1) a sign posted immediately adjacent to, and visible from, the designated place clearly stating in letters not less than one inch in height that the place is a fire lane, (2) by outlining or painting the place in red and, in contrasting color

marking the place with the words "FIRE LANE", which are clearly visible from a vehicle or (3) by red curb or red paint on the edge of the roadway upon which is clearly marked the words "FIRE LANE".



Fire Lane No Parking Sign Locations



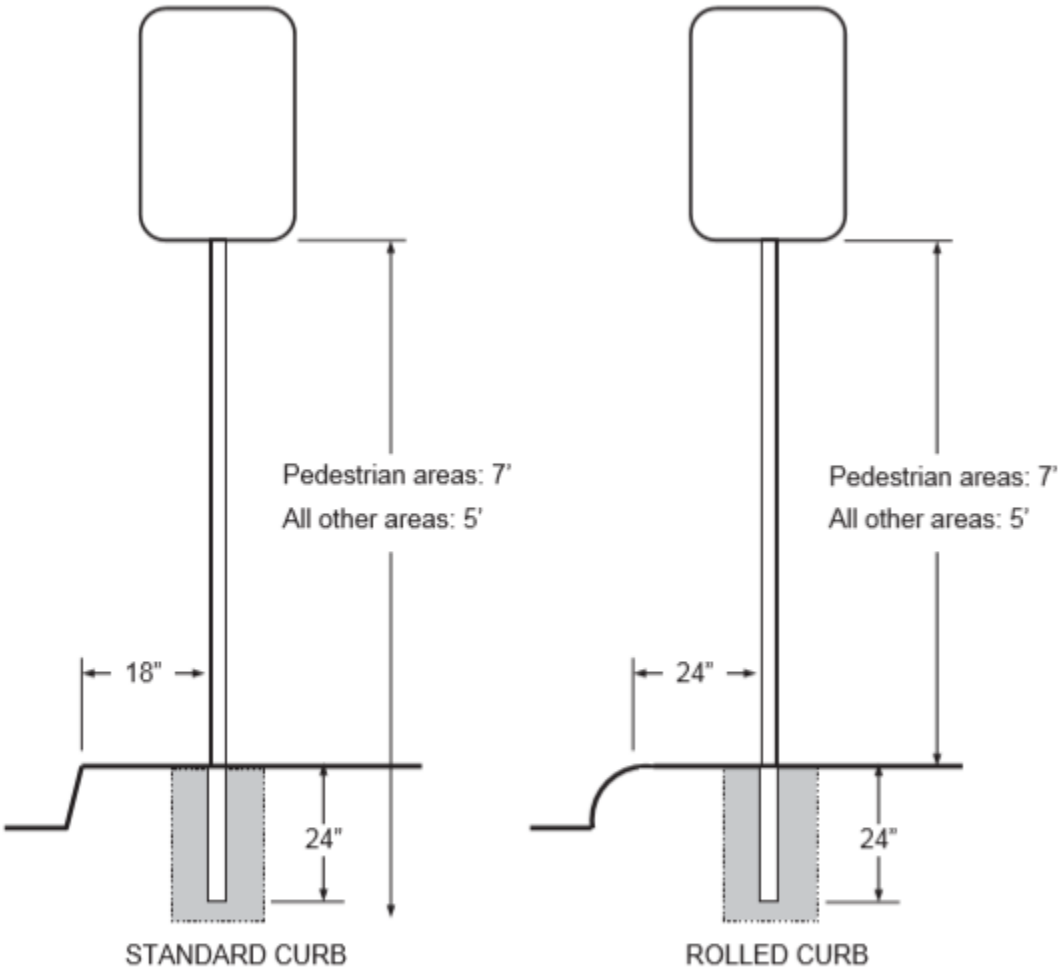


Fire Lane Sign Post Installation

1. Height of the sign: 7' in sidewalk or pedestrian areas, 5' in all other areas.
2. Distance from front of curb: 18" with standard curb, 24" with rolled curb, to center of post.
3. Depth of sign base: 24" minimum embedment.

NOTE: Signs may be mounted to an existing post or on a building that is no more than 24" from curb or edge of road surface.

Mounting Specifications for
Fire Lane Entrance and No Parking Signs



Signs shall be mounted facing the direction of vehicular travel.

Signs may be mounted on existing posts or buildings where the centerline of the sign is no more than 24" from the edge of the roadway.

Depth of bury shall be a *minimum* of 24".


TOW AWAY
FIRE
ACCESS LANE
NO PARKING at ANY TIME
UNAUTHORIZED VEHICLES WILL BE TOWED AWAY AT VEHICLE OWNER'S EXPENSE.
C.V.C. 22500.1 C.V.C. 22658(a)


NO
PARKING
FIRE
LANE
CVC 22500.1

TOWING OF VEHICLES FROM FIRE LANES
ON PRIVATE PROPERTY BY THE PROPERTY OWNER

The owner of a private property containing a fire lane may have a vehicle towed from a fire lane on their property. The owner of the property usually contracts with a private towing company in advance. The following are the requirements for a property owner to tow a vehicle from a fire lane on his/her property.

1. Signs must be in place before an owner may tow. The signs must be displayed in plain view at all entrances to the property.
    a) The sign must be not less than 12 x 18 inches in size
    b) Lettering must not be less than one inch in height.
    c) Signs must clearly state that stopping in a fire lane is prohibited.
    d) The sign must indicate that vehicles will be removed at the owner's expense.
    e) The sign must contain the telephone number of the local traffic law enforcement agency.
2. The sign must contain the name and telephone number of each towing company that is party to a written agreement with the property owner.
3. The California Vehicle Code, Section 22658, requires the owner of the property to notify the local traffic law enforcement agency within one hour of towing.
4. Fire lanes shall be marked according to California Vehicle Code Section 22500.1, as indicated above.
5. Owners of private property may post NO PARKING signs for various reasons other than a fire lane and have vehicles removed. Refer to the California Vehicle Code, Section 22658.

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR THE INSTALLATION OF TRAFFIC CALMING DEVICES

Scope. When allowed by the fire code official, the installation of any traffic calming device shall be in accordance with Federal, State, and County guidelines and the requirements set forth in this Standard.

Traffic Calming Devices

Plans for traffic calming devices must be submitted for the Department's review and approval. We support the design of safe streets and the need for devices intended to slow traffic, i.e., islands, roundabouts, and bump outs; however, we discourage the use of speed humps. In most cases, traffic calming devices can be designed within our minimum requirements.

Emergency Response Issues with speed humps:

1. Concern over jarring of emergency rescue vehicles
2. Approximate delay of between 3 and 5 seconds per hump for fire trucks and up to 10 seconds for ambulances with patients

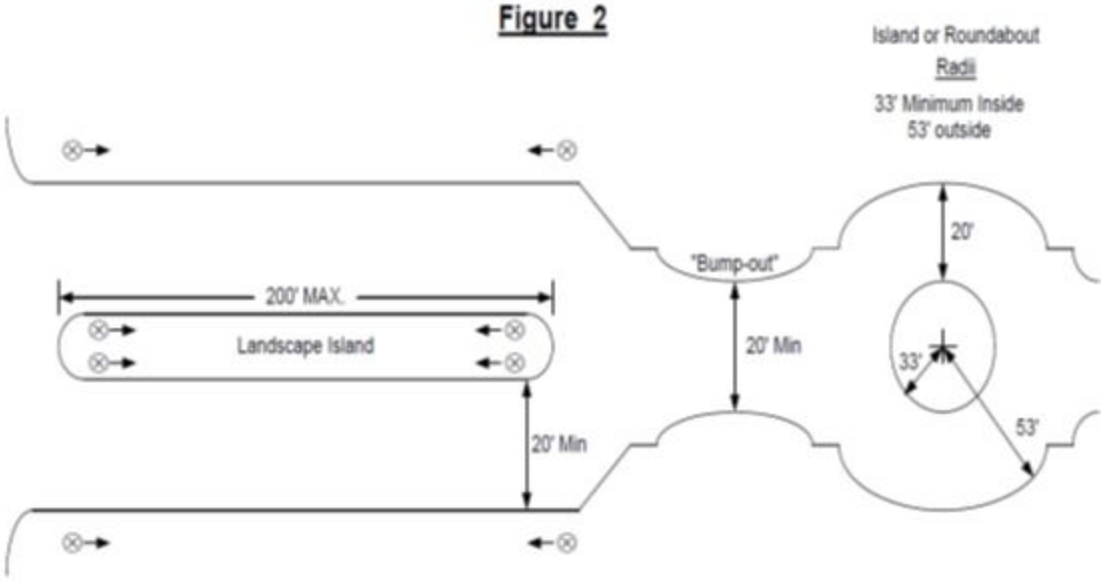
Locations. Traffic calming devices shall not be allowed on designated fire apparatus primary response routes, see www.menlofire.org for current Primary Response Route map. When approved by the fire code official, traffic calming devices shall be installed in accordance with the following Federal Highway Administration guidelines:

1. Traffic calming devices may only be installed on residential streets. They shall not be used on major roads, bus routes, or primary emergency response routes.
2. Speed humps shall not be placed mid-block or at intersections.
3. Traffic calming devices shall not be located on grades greater than 8 percent.
4. The maximum height of a speed hump shall not exceed 3.5 inches.
5. In accordance with San Mateo County Policy, speed humps shall not be placed on streets where posted speed limits are 30 miles per hour or more.

Installation of traffic calming devices. When allowed by the fire code official, traffic calming devices such as roundabouts or other devices that are meant to disrupt the normal flow of traffic, such devices shall be installed in a manner that does not obstruct the required width of a fire lane as specified by the California Fire Code Section 503.

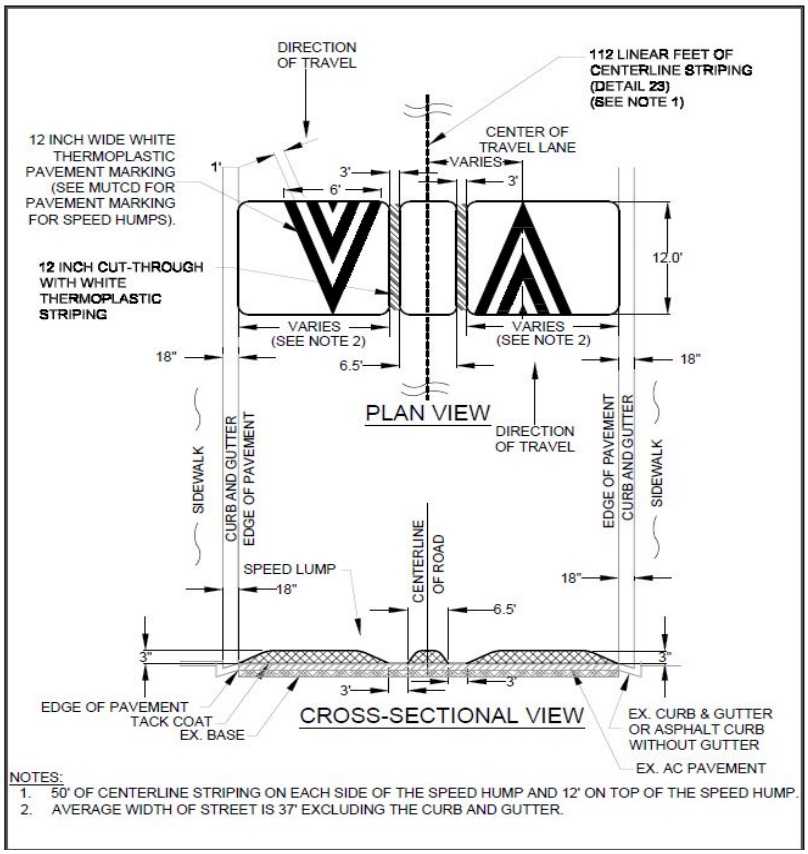
Installation of speed humps. When approved by the fire code official, speed humps may be installed in accordance with the Federal Highway Administration *Manual on Uniform Traffic Control Devices*, Menlo Park Fire Protection District approved speed hump drawing, or local approved speed hump drawing.

Figure 2



Speed Bumps are Discouraged

⊗ Fire Lane Signs (Directions)



NOTES:
1. 50' OF CENTERLINE STRIPING ON EACH SIDE OF THE SPEED HUMP AND 12' ON TOP OF THE SPEED HUMP.
2. AVERAGE WIDTH OF STREET IS 37' EXCLUDING THE CURB AND GUTTER.

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR ROOF ACCESS

SCOPE. This guideline provides the minimum requirements necessary for the Fire Department roof access for firefighting operations or other emergencies as per the prescriptive requirements listed in the California Fire Code (CFC) Sections 504 and 1011.

When necessary, these guidelines may be modified to ensure adequate access for firefighters and public safety. Other prescriptive requirements for roof access include, but are not limited to, mechanical equipment, solar photovoltaic systems, and elevator equipment.

DEFINITIONS

PENTHOUSE: An enclosed, unoccupied rooftop structure for sheltering mechanical equipment and electrical equipment, tanks, elevators and related machinery, and vertical shaft openings.

SHIPS LADDER: Hybrid of stairs and ladder. They shall be equipped with treads, rails and riser. The slope is to be between 50 and 70 degrees from the horizontal. Review and approval by Menlo Fire is required prior to installation.

REQUIREMENTS

Stairways are required when:

- New buildings are 4-stories or more above grade plane, except those with a roof pitch greater than 33.3%
- There is an occupiable roof, roof garden, or other roof occupancy
- Elevator equipment is located on the roof of a building 4-stories or greater, or within a penthouse. Penthouses must comply with CBC Section 1510.2

Ladders are permitted when:

- Buildings are less than 4-stories above grade
- Buildings do not have an occupied roof. Access to the roof is permitted through a roof hatch or trap door not less than 16 sq. ft. in area and having a minimum dimension of 2 ft.

GENERAL

Access to the roof must be marked at the street and on the floor levels with a sign indicating “Roof Access”. Obstructions such as barriers, fencing, cable, aerial, and antennas that impede egress or access to the are ***prohibited unless approved by the Fire Marshal.*** Parapets are acceptable when the height allows access and egress for an aerial ladder.

Roofs with different levels may require permanent attached ladders. Review and approval are required by the Fire Marshal.

PLAN CHECK

Plan review for Fire Department roof access shall be completed as part of the Building permit review.

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR THE INSTALLATION OF FIRE ALARM AND DETECTION SYSTEMS

SCOPE: This guideline applies to the design and installation of automatic fire alarm systems in all buildings and structures *except* one and two-family dwellings, manufactured homes, and public schools. This guideline is to be used in conjunction with the latest State Fire Marshal adopted version of NFPA 72, 2019 California Fire Code, Menlo Park Fire Protection District Ordinance, and other applicable national standards including manufacturer recommendations.

GENERAL REQUIREMENTS

1. In accordance with Menlo Park Fire District Ordinance, Section 907.7, fire alarms systems in new commercial structures shall obtain a UL Certificate for the system prior to final inspection.
2. All systems shall be fully addressable to a central station.
3. The remote annunciator shall be located at the main entrance to the building, or other location approved by the fire code official.
4. A durable map shall be provided at the remote annunciator indicating the location of the fire alarm control panel.
5. The instructions to silence and reset the fire alarm shall be located at the fire alarm control panel.
6. Waterflow alarms shall not be silenced until waterflow is ceased.

SYSTEM DESIGN AND INSTALLATION

All individuals and companies who intend to engage in the installation or alteration of fire alarm or monitoring systems are subject to the requirements of this guideline.

Plans for a fire alarm or monitoring system are required to be designed by a registered professional engineer (Electrical, Mechanical, or Fire Protection), licensed by the State of California, Board of Professional Engineers. All copies of the plans shall be stamped and signed by the licensed individuals. A C-10 Licensed Contractor shall only design systems that the firm has a contract to install.

The fire alarm or monitoring system needs to be installed by an individual who holds a State of California C-10 Contractor's License.

PLAN SUBMITTAL DOCUMENTS

1. A completed Plan Check Application
2. Two sets of plans

3. State Fire Marshal equipment lists
4. Battery calculation sheet(s)
5. Fees (paid at submittal)

*Any modifications/changes to approved plans require a resubmittal/revision. Fees will apply.

REQUIRED CONSTRUCTION PLAN INFORMATION

I. Title sheet shall include:

A. Project address of alarm
B. Project location phone number
C. Project locations contact name
D. Occupancy classification of the building or area
E. Whether or not the building is sprinklered
F. Designer's contact information
G. Codes or standards the system is designed to
H. Installing contractor's information

II. Equipment List to include:

A. Manufacturer's name and model number for each device
B. Quantities of each type of device
C. Description of each device (i.e. heat detector, ionization detector, duct detector, control unit, etc.)
D. California State Fire Marshal's listing number and listing sheet with renewal number
E. Mounting requirements (wall, ceiling, flush, etc.)
F. Symbols to be used on drawings, along with legend
G. Manufacturer's cut sheet

III. Drawings:

Drawings are required to be labeled and legible. Stick on dots or similar materials are not acceptable. All drawings must be to scale and indicated on the plan set.

Floor Plans

1. Device location(s)
2. Type of device(s)
3. Control location(s)
4. Conduit connection and size
    a. Surface mounted installation
    a. Semi-flush mounted installation
    b. Flush mounted installation
5. Wire or cable type and size
6. Weatherproof exterior mounted device(s)

Point to Point System Wiring Diagram

1. Interconnection of identified devices and controls
2. Type of power feed to the control panel
3. External connection of modules in control panel

Alarm Circuit load consumption of furthest alarm circuits on drawing showing

1. Quantity of bells on furthest circuit and current consumption
2. Length of furthest circuit and resistance of wire

Fire Alarm System Riser Diagram

IV. Attachment to Drawings:

Battery Calculations

1. Standby power consumption of all current drawing devices, multiply the minutes required by minimum requirements of NFPA
    a. Control panel modules
    b. All devices on standby, including door holder, relays, etc.
2. Alarm power consumption of all current drawing devices, multiply the minutes required by minimum requirements of NFPA
    a. Add power consumption of all operating signals, lights, relays, etc.
    b. Omit power consumption of door holders, etc.
    c. Formula format for battery calculation.

Sequence of Operating Instructions:

1. Step by step instruction for the operation of each type of initiating device in the system including reset.

Sequence of Test Inspection Operating Instructions:

1. Identify monitoring company
2. Identify what auxiliary function switches or devices are to be disconnected before testing is to be started.
3. Selection of operation of at least one type of device in each initiating circuit as outlined in "Sequence of Operation".
4. What functions are to take place upon operation of selected device.
5. Identification of equipment supplier and installer.

State Fire Marshal's listing sheets for each device or component

INSPECTION AND TESTING PROCEDURE

A. The fire alarm system and all new fire alarm components shall be tested in accordance with NFPA 72.
B. A sheet shall be provided to the Fire Inspector indicating that a 100% pretest

through the central station has occurred, and that the system functions correctly.

C. A copy of the Record of Completion and Fire Alarm Certificate shall be presented to the Fire Inspector.
D. The building may not be occupied prior to testing of the fire alarm system by the Bureau of Fire Prevention and Life Safety.

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR THE INSTALLATION OF COMMERCIAL FIRE SPRINKLER SYSTEMS

SCOPE. This guideline applies to the design and installation of automatic fire sprinkler systems in all buildings and structures except one and two-family dwellings and manufactured homes. This guideline is intended to be used in conjunction with the latest State Fire Marshal adopted version of NFPA 13, 2019 California Fire Code, 2019 California Building Code, Menlo Park Fire Protection District Ordinance, and other applicable national standards including manufacturer recommendations.

SYSTEM DESIGN AND INSTALLATION

Plans for a fire sprinkler system shall be designed by a State of California C-16 licensed contractor or by a registered professional engineer (civil, mechanical, or fire protection), licensed by the State of California, Board of Professional Engineers. All copies of the plans shall be stamped and signed by the licensed individuals. A C-16 licensed contractor shall only design systems that the firm has a contract to install.

The fire sprinkler system shall be installed by an individual who holds a State of California C-16 contractor's license.
Any person who install, alters or repairs water-based fire protection systems is required to possess a certification from Cal Fire – OSFM. Apprentices and trainees shall also possess a registration card.

GENERAL REQUIREMENTS

1. When alterations of the existing light hazard sprinkler system exceed 50% of the compartmented area, the existing fire sprinklers shall use quick response sprinklers if the sprinklers are spaced at light hazard in accordance with NFPA 13.
2. Sprinkler system water flow alarm and valve tamper switches are required to be supervised by an approved central station for systems with more than 20 sprinklers. Shell buildings and tenant areas will not receive a final inspection until the sprinkler alarm supervision is complete and in service.
3. An exterior door is required to provide direct access to an interior fire sprinkler riser assembly.
4. When any building or structure or portion thereof undergoes an alteration, the portion of the fire sprinkler system in the alteration shall be upgraded to current codes and standards. This shall include but not be limited to the upgrading of seismic joints, sway bracing, fasteners and hangers.
5. CPVC Piping shall not be allowed for any NFPA 13 fire sprinkler system.
   Exception: When approved by the Fire Code Official, CPVC piping may be used in a NFPA 13 fire sprinkler system for residential portions of occupancies.

WATER SUPPLIES AND HYDRAULIC CALCULATIONS

1. For single story buildings or structures with an interior height of up to 18 feet as measured from the finished floor to the underside of ceiling, the minimum sprinkler design shall be 0.18 gpm over the most remote 3,000 sq. ft. area plus 500 gpm hose stream allowance included at the base of the riser. For buildings or structures with an interior height of over 18 feet from finished floor to the underside of the ceiling, the minimum sprinkler design shall be 0.33 gpm over the most remote 3,000 sq. ft. area plus 500 gpm for hose stream allowance included at the base of the riser. With written approval from the fire code official, schools, churches and similar occupancies which have few hazards and are unlikely to change may use lesser sprinkler design densities allowed by NFPA 13 and Chapter 9 of the Fire Code.
2. Sprinkler design shall be adequate for all anticipated high hazard situations such as high piled combustible storage, plastic storage 6 ft. or higher, flammable liquids and other special hazards.
3. The original sprinkler design for the building shall be maintained during all tenant improvements and other changes. One sprinkler may be added per plugged outlet included in the original sprinkler calculations. All other additional sprinklers are to be added from cross mains and feed mains unless the system is recalculated to verify that the additional sprinklers are acceptable.
4. NFPA 13 Section 11.2.3.3., Room Design Method, shall be omitted. The design for any existing light hazard sprinklered occupancy shall be not less than 0.1gpm over the most remote 1,500 sq. ft. area.
5. The following information shall be contained in the hydraulic calculations.
    a) Calculations must conform to manufacturer's specifications.
    b) "K" factors for all sprinklers.
    c) "C" values for the type of pipe used.
    d) A pump curve or city supply curve, where the total demand point is clearly plotted.
    e) A 10% reduction in the available water pressure shall be included in all calculations
6. When water storage tanks are required, each tank shall have a connection to a supply source to refill the tank automatically.

SYSTEM COMPONENTS

In addition to system components required by NFPA 13, all systems shall also include the following:

1. An approved rubber faced check valve located on the on the riser.
2. All valves shall have an all-weather sign affixed to them, which indicates their purpose. The Fire Department Connection (FDC) shall be posted with the address of the building it services.

3. In addition to the requirements of California Fire Code Section 903.3.8, floor control valves shall be provided for each floor of any building or structure two or more stories in height.
4. Check valves shall be provided on each floor of any building or structures.

PLAN SUBMITTAL PROCEDURE

1. Completed Plan Check Application
2. Two sets of plans
3. Water purveyor flow test
4. Two copies of hydraulic calculations
5. Two copies of cut sheets
6. Fees (paid at the time of submittal)

* Modifications/changes to approved plans will require an additional plan check. Fees will apply.

PLAN SUBMITTAL INFORMATION

1. Sprinkler plans and calculations shall be submitted with all the information required by the latest approved edition of NFPA 13, INCLUDING ALL DETAILS FOR HANGERS, and EARTHQUAKE SWAY BRACING AND FASTENERS. The sprinkler system will not receive a final inspection unless and until the installation is in accordance with the approved plans, and the placard with the design information has been provided on the riser. NFPA 13-6, CFC 901.2
2. To speed up the plan check process and to avoid the possibility of returning the plans for corrections, please use the following checklist, prior to submittal, to ensure that the appropriate information is included on the working sprinkler drawings:
    a) Name of owner
    b) Project location
    c) Designer information
    d) Sprinkler installer information
    e) Building square footage
    f) North arrow
    g) Scale (no smaller than 1/8 inch=1 foot)
    h) Site plan showing:
        i. tank
        ii. pump
        iii. structures
        iv. underground pipe size and type
        v. point of supply connections
        vi. depth of bury
        vii. type and size of any valves or meters.

i) Piping plan showing:
    i. tank
    ii. pump
    iii. structure elevations as they relate to each other.
j) Full height cross-section showing building construction types, vaulted, and beamed ceiling locations.
k) Water tank details including size and type of construction (Where applicable).
l) Sprinkler head spacing.
m) Label unsprinklered areas.
n) Indicate manufacturer, style, model, orifice size, and "K" factor of each sprinkler used.
o) Indicate the type and size of pipe.
p) Provide hanger details.
q) Indicate type of fitting used.
r) Use of each room.
s) Location of heat sources.

The following notes shall be completed and placed verbatim on the working sprinkler plans:

1. This fire sprinkler system shall be designed and installed in accordance with NFPA 13 and Menlo Park Fire District Standards.
2. Only listed and approved devices shall be installed in this system.
3. Only new, listed sprinklers shall be employed in the installation of this sprinkler system.
4. All piping shall be provided with hangers and shall be supported per code and manufacturer's specifications.
5. All piping shall be hung from structural members.
6. Underground mains and lead-in connections shall be flushed before connection is made to sprinkler piping. The flush shall take place in the presence of Fire District Inspectors.
7. This fire sprinkler system shall be tested and inspected at both rough and final inspections, prior to occupancy being granted. Call two working days in advance to schedule all inspections.

INSPECTION AND TESTING PROCEDURE

1. Welded piping connections shall be inspected before installation.
2. The sprinkler system shall be field tested and inspected at the rough plumbing stage (i.e. exposed pipe and fitting stage) by the Fire Prevention Division. All new systems shall be hydrostatically tested (not pneumatic) for leakage at 200psi. For existing systems, when 20 sprinkler heads or more are added, a hydrostatic test of 50 psi over normal water pressure shall be required.

3. Riser detail showing system split, pressure gauge, check valve, main control valve, relief valve (where applicable), main drain valve.
4. Indicate the manufacturer, model, type, and pump curve of the booster pump (where applicable).
5. All systems shall have an underground flush completed at time of hydrostatic test prior to connecting the underground to the overhead piping.
6. The sprinkler system and all of the related components shall be tested and inspected by the Fire Prevention Division at the final inspection stage, prior to occupancy being granted.
7. At least two spare sprinklers of each type, temperature rating, and orifice size used in the system and a sprinkler wrench shall be provided and located at the system riser.
8. A 5 Year Service Test sticker shall be placed on the riser at the time the sprinkler system is put in service or at the time of final inspection if the system is put in service before final inspection.

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR INSTALLATION OF RESIDENTIAL FIRE SPRINKLERS

SCOPE. This guideline applies to the design and installation of automatic fire sprinkler systems in one and two-family dwellings and manufactured homes. This guideline is meant to be used in conjunction with NFPA 13D: Installation of Sprinkler Systems in One and Two-Family Dwellings and Manufactured Homes, the California Fire Code, the California Residential Code, the Menlo Park Fire Protection District Ordinance, and other applicable national standings including manufacturer recommendation.

SYSTEM DESIGN AND INSTALLER REQUIREMENTS

All individuals and companies who intend to engage in the installation or alteration of fire sprinkler systems in one- and two-family dwelling are subject to these requirements.

Plans for a fire sprinkler system shall be designed by a State of California C-16 licensed contractor or by a registered professional engineer (Civil, Mechanical, or Fire Protection). All copies of the plans shall be stamped and signed by the licensed professionals. A C-16 licensed contractor shall only design systems that the firm has a contract to install.

The fire sprinkler system shall be installed by an individual who holds a State of California C-16 contractor's license or, by an owner-builder provided the individual owns the dwelling.

Any person who installs, alters or repairs water-based fire protection systems must possess a certification card from Cal Fire – OSFM. Apprentices & Trainees shall also possess a registration card.

GENERAL REQUIREMENTS

Automatic sprinkler systems installed in one and two-family dwellings shall be installed throughout the dwelling in accordance with NFPA 13D. Additional requirements for NFPA 13D sprinkler systems shall include:

1. Automatic fire sprinkler protection shall extend to attached garages and basements. Fire sprinkler protection may extend to accessory structures within 20 feet of the main structure and may also be required to extend to other structures that are located further than 150 feet from fire apparatus access. See CFC Section 503.1.1.
2. Pilot sprinkler heads shall be installed in attic spaces that are more than 30 inches in depth. Pilot sprinklers shall be placed every 30 feet on center.
3. Automatic fire sprinklers shall be included in all bathrooms or rooms regardless of use and size.
4. Automatic fire sprinklers shall be provided under stairways unless enclosed and filled with insulation.

5. Automatic fire sprinklers shall be included in cover patios or overhangs with a heat source
6. The main drain shall be a minimum ½ inch.
7. The main control valve shall be of indicating type and shall be located above ground prior to domestic split
8. The exterior fire bell shall be placed in the same area as the water supply control valve and placed at 8' AFG or per AHJ approval.
9. Only listed and approved devices shall be installed in this system.
10. All piping shall be provided with hangers and shall be supported per code and manufacturer's specifications. All piping shall be hung from structural members.
11. Underground mains and lead in connections shall be installed in accordance with requirements of the California Plumbing Code.
12. Where system piping or pumps are located in areas subject to freezing, steps shall be taken to protect system integrity; this may include, but is not limited to, heating and/or installation of insulation.
13. All sprinkler systems shall have a single supply main serving both the automatic sprinkler system and the domestic system. See Diagram 1
14. Requirements of the local water purveyor shall be followed and included on plans for submittal.
15. No wires shall be allowed to touch fire sprinkler piping due to pipe degradation.
16. Passive purge, backflow prevention and reduced pressure devices shall be approved by the local water purveyor for your system design.

WATER SUPPLY REQUIREMENTS

Automatic fire sprinkler protection shall be designed as follows:

Square footage of structure Design Calculation

Less than 3600 sq. ft.	2 Head Calculation
3600 sq. ft. or larger	4 Head Calculation

Automatic Booster Pump

When the domestic water supply is deficient or a water tank is being used to supply the automatic sprinkler system, an automatic booster pump may be required to maintain the required pressure at the minimum gallons per minute. Pumps shall meet the following requirements:

1. Automatically activated upon system demand.
2. Be of self-priming type.
3. Installed on the main water line prior to the domestic and fire split.
4. A bypass shall be designed and installed around the pump to ensure street pressure is maintained in event of pump failure.

Water Storage Tanks

When a water storage tank is required, the tank(s) shall have a connection to a supply source to refill the tank automatically.

SYSTEM COMPONENTS

1. An approved rubber faced check valve shall be located on the system side of the main control valve.
2. All valves shall have an all-weather sign affixed to them, which indicate their purpose.
3. For systems with normal operating pressure in excess of 100 psi, a listed pressure relief valve shall be installed on the riser.

Sprinklers

Only new listed residential fire sprinklers shall be used.

Pressure Gauge

A listed pressure gauge shall be installed and maintained on the sprinkler system riser. The pressure gauge shall be installed on the system side of the check valve.

Piping

1. Approved plastic pipe may be used when installed in accordance with the manufacturers listing where installed in attics. Adequate insulation shall be provided on the attic side of the piping to avoid exposure of the piping to temperatures in excess of its rated temperature.
2. Insulation, include spray application insulation mixtures, shall be compatible with piping materials in accordance with manufactures specifications.

3. CPVC Piping:
   CPVC Sprinkler sprig ups in attic space or where CPVC piping is exposed to the temperatures below 40 degrees F, or above 120 degrees F shall require the pipe to be protected against freezing by insulating coverings, frost proof casings, listed heat tracing systems, or other reliable means capable of maintaining minimum temperatures so listed within.
   a) Method of insulating CPVC piping vertical piping to sprig ups or change in elevation in attic space shall be inspected at time of Rough Inspection. MPFD permits insulation wrap properly sized for vertical section of piping in attic or exterior pipe.

b) Installation criteria for installing insulation in unheated attic areas to follow the guidelines of the insulation manufacturer. Per NFPA 13D Section 9.1.1 (note; method of piping anchoring will impact insulation cover).
c) CPVC piping shall be installed by persons who have been certified by the manufacturer for installation of CPVC piping.
d) Primers and glues shall be listed and approved for use with CPVC piping in systems using CPVC pipe.

System Activation

1. Upon activation of the fire sprinkler system, an interior alarm shall be provided capable of being heard in all sleeping rooms. Smoke alarms shall not act as an interior sounder for water flow unless the smoke alarm is listed and approved for such application.
2. The exterior fire bell shall be placed in the same area as the water supply control valve.

MANUFACTURED HOMES AND MULTI-UNIT MANUFACTURED HOUSING WITH TWO DWELLING UNITS

1. The Department of Housing and Community Development is responsible for plan approval, in-plant inspection, testing and installation of fire sprinkler systems installed in new manufactured housing units and multi-unit manufactured housing with two dwelling units for sale in California. Prior to shipment of a home containing a fire sprinkler system, the factory is required to affix a "Fire Sprinkler System Information and Installer Certification" label inside the unit that provides detailed information for the on-site installer and homeowner use. The label is required to be affixed on an inside wall or door of the water heater compartment.

2. The installation of a fire sprinkler system in an existing manufactured home or multi-unit manufactured home with two dwelling units requires prior design approval from the Department of Housing and Community Development and inspection approval of the installation prior to the installer covering the piping material with finished wall or ceiling materials. Only the occupant homeowner or a fire protection contractor holding a valid C-16 license may install a fire sprinkler system in an existing manufactured home or multi-unit manufactured home with two dwelling units. Menlo Park Fire Protection District is responsible for plan check, and the General Requirements noted above in Section 4.

TESTING PROCEDURE

1. The sprinkler system shall be field tested and inspected at the rough plumbing stage (i.e. exposed pipe and fitting stage) by the Bureau of Fire Prevention and Life Safety. All systems shall be hydrostatically tested (not pneumatic) for leakage for not less than a two-hour time period at 200 psi.

2. The riser shall show the system split (domestic and fire sprinkler piping), pressure gage, check valve, main control valve, relief valve (where applicable), main drain, and domestic shut-off valve.

3. The sprinkler system and all of the related components shall be tested and inspected by the Bureau of Fire Prevention and Life Safety at the final inspection stage, prior to occupancy being granted.

PLAN SUBMITTAL

Required Documents:

1. Plan Check Application
2. Water purveyor flow test
3. Two sets of plans
4. Two copies of hydraulic calculations
5. Two copies of the cut sheets
6. Fees (due at submittal) appropriate fees

*Modifications and revisions require re-review and approval. Fees will apply.

Plan Sheet Information

1. Owner Information
2. Project Address (including parcel number)
3. Designer Information
4. Contractor Information
5. Square Feet
6. Construction type
7. North Arrow
8. Scale (no smaller than 1/8 inch)
9. Site plan showing the following:
    a) Location of tank
    b) Location of pump
    c) Structure
    d) Underground pipe size and type
    e) Point of supply connection
    f) Depth of bury
    g) Type and size of valves or meters
10. Piping plan showing the following:
    a) Tank
    b) Pump
    c) Structure elevations
11. Full height cross section (including vaulted and beam ceiling locations)
12. Water tank details
13. Sprinkler spacing

14. Room use
15. Heat sources
16. Unsprinklered areas

Hydraulic Calculations

1. Calculations must conform to manufacturer's specifications.
2. "K" factors for all sprinklers.
3. "C" values for the type of pipe used.
4. A pump curve or city supply curve, where the total demand point is clearly plotted.
5. A 10% reduction in the available water pressure shall be included in all calculations.
6. Provide a 5 gpm domestic demand at the base of the riser in the calculations.

Disclaimer: Simplified Calculation Method as per NFPA 13-D, Section 10.4.3, is *not* accepted by MPFD.

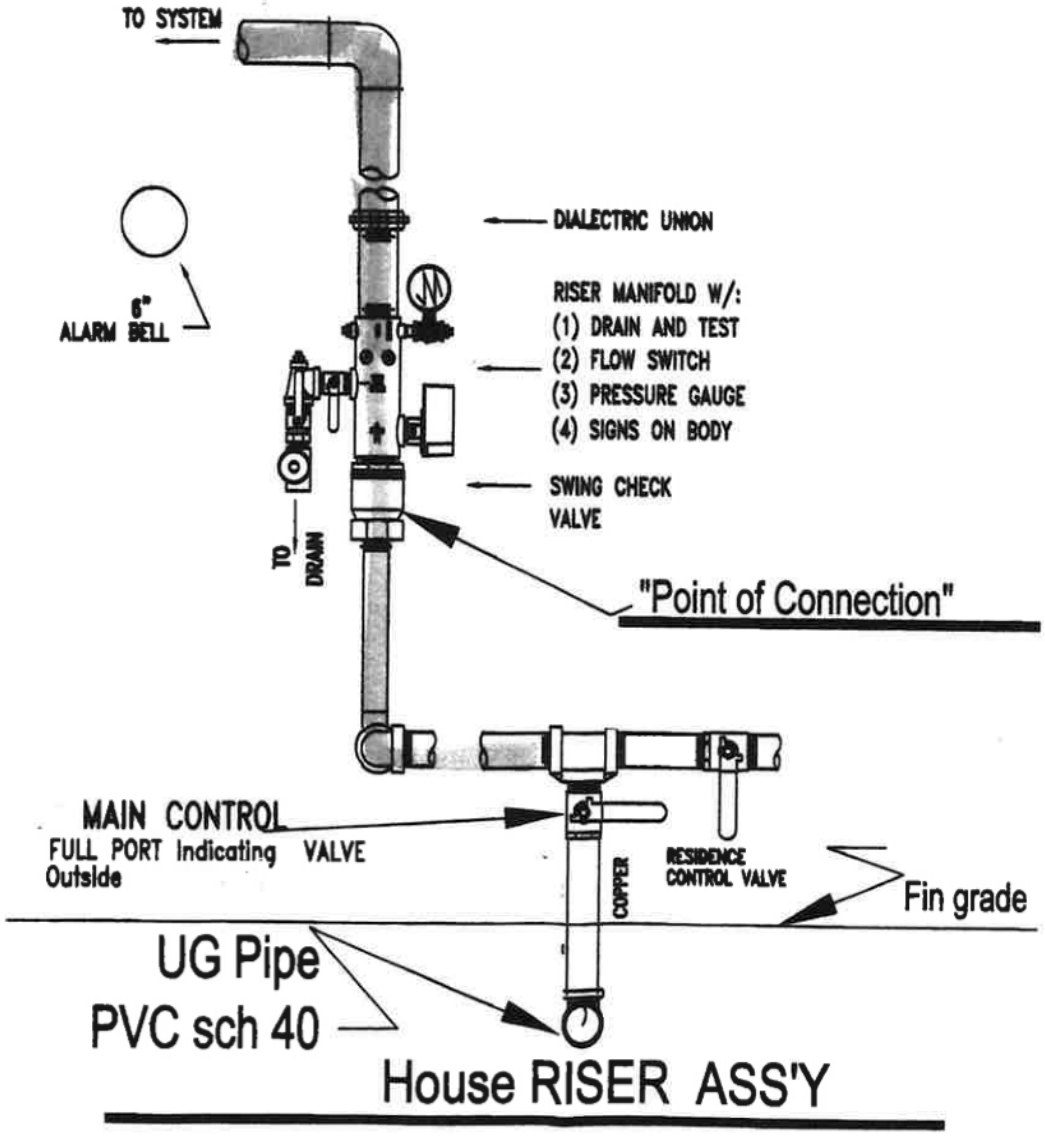


Diagram 1

MENLO PARK FIRE PROTECTION DISTRICT
UNDERGROUND PIPING GUIDELINES

SCOPE. This standard applies to the design and installation of underground fire piping for automatic fire sprinkler systems and fire hydrant connections. Underground fire piping systems shall be in accordance with NFPA 24 and this Menlo Park Fire Protection District Standard. All individuals and companies who intend to engage in the installation or alteration of underground fire piping systems are subject to the requirements of this standard.

RESPONSIBILITY

The underground fire piping system shall be installed by an individual holding a Class A or C-16 State of California Contractor's License. A licensed contractor shall only design systems that the firm has a contract to install.

GENERAL REQUIREMENTS

Pipe & Fitting Protection

Menlo Park Fire District requires additional pipe protection. All metallic pipes and fittings shall be epoxy coated, polyethylene encased. *All bolts, nuts, tie rods, etc. for all portions of the underground mains shall be 316 stainless steel*. The transition from underground main to the sprinkler riser shall have a dielectric flange connection. Complete details shall be shown on the plan drawings.

Tracer Wire

Tracer Wire shall be required on all underground fire lines and to be minimum 10 A.W.G.

Cover – Depth

The depth of covering shall be measured from top of pipe to finished grade.

Under areas of vehicular traffic – 3 feet minimum

Under landscaping and walkways – 2 ½ feet minimum

Under railroad tracks – 4 feet minimum (See railroad specs)

Backfill

Backfill materials shall contain no ashes, cinders, debris, organic matter, or other corrosive materials. Rock shall not be placed in trenches.

Valves

Fire Department Valves shall be of an indicating type.

Fire Department Connection (FDC)

1. The FDC shall be located 2–3 feet back from walkways or curbs and shall indicate the address of the building it supports.
2. The FDC shall be visible from street and properly identified.
3. FDC's shall be located within 50 feet of a fire hydrant.
4. The centerline of FDC shall be between 36–44 inches from finished grade.
5. The FDC shall remain clear of obstructions and remain accessible.
6. The FDC shall have 1-5" Storz Quick connection and 2 –2 ½" connections minimum based upon design criteria. (See sample picture)

Fire Hydrants

1. Fire hydrants shall be installed with a minimum 6" pipe, supplied by a minimum 8" supply line.
2. All fire hydrants shall be wet barrel type with one 4 ½" connection and two 2 ½" connections.
3. Blue Dots shall be installed off center of drive isle to indicate hydrant location.
4. All private fire hydrants shall be painted red.

TESTING PROCEDURE

In accordance with NFPA 24, a 200 psi pressure test is required for a minimum of 2 hours.

All thrust blocks and joints to be exposed at time of inspection.

Menlo Park Fire District Inspectors shall witness the flush of underground piping. 6-inch piping shall require a minimum of (3) 2 ½" hoses for the flush. 8-inch piping shall require a minimum of (4) 2 ½" hoses for the flush, flush per NFPA 24.

A final inspection is required with all corrections completed.

PLANS SUBMITTAL REQUIREMENTS

1. A completed Plan Review Application
2. Two sets of plans,

3. Fees (due at submittal)

*All modifications/changes to existing systems require a resubmittal. Fees will apply

MENLO PARK FIRE PROTECTION DISTRICT GUIDELINE
WATER SUPPLY - FIRE HYDRANTS

SCOPE. This standard applies to the installation of both public and private water supplies and fire hydrants. Installation, placement, and fire flow requirements for fire hydrants shall be in accordance with this Standard, the 2019 California Fire Code, the currently adopted version of NFPA 24 by the California State Fire Marshal, and any nationally recognized standards and manufacturer's recommendations.

DEFINITIONS

ACCESS POINT. An approved access is required for all new buildings and shall reach to a point (Access Point) within 150 feet of all exterior areas of each building. See also the 2019 California Fire Code, Appendix OCCUPANCY TYPE: The purpose for which a building or part thereof is used or intended to be used.

ON-SITE HYDRANT. Fire hydrants that are located within the property line and are usually privately owned and maintained. However, there are instances where on-site hydrants are publicly owned and maintained by a water purveyor.

PUBLIC HYDRANT. Fire hydrant installed and maintained by the local water purveyor.

TYPE OF CONSTRUCTION. The framework and construction of a building or structure as classified in one of five construction types defined by the California Building Code.

WATER PURVEYOR. A public utility, a mutual water company, a governmental body, or other entity, owning and operating a water system and holding a valid permit from the State or County Health Department to purvey water.

GENERAL REQUIREMENTS

Fire hydrants and required access roads shall be provided prior to the time of construction.

Installation
Fire hydrants shall be visible and accessible from a required access road. A fire hydrant shall be substantially supported. Fire hydrant installation details shall be in accordance with NFPA 24 and local water purveyor standards. Roadway turnouts not less than 26 feet wide and 20 feet in length shall be required along the roadway at fire hydrant locations.

Underground Supply Piping
After the hydrant location plans are approved, the engineered underground supply piping

plans, with hydrants shown at the approved locations, are required to be plan checked and approved prior to installation as follows:

Public Hydrants. Underground plans are reviewed and approved by the local water purveyor and Menlo Park Fire District. The installation is inspected by the water purveyor.

On-Site Hydrants. Engineered underground plans are reviewed and approved by the Fire Prevention Division. The installation is inspected by Menlo Park Fire District.

Painting
Public hydrants shall follow local water purveyor standards.

On-Site Fire hydrants shall be painted red.

Reflective Pavement Markers
Prior to occupancy of any structure, blue reflective hydrant location markers shall be placed on the access roads in accordance with Fire District standards. If the final asphalt cap is not in place at the time final occupancy is desired, the hydrant markers shall still be installed and replaced when the final asphalt cap is completed. See drawing marked "TYPICAL HYDRANT MARKER LOCATION."

Hydrant Type and Size
All new hydrants shall be a minimum 6-inch wet barrel fire hydrant. The hydrant outlets shall be National Standard Thread, NST and shall have one 4 ½ inch and two 2 ½ inch.

Minimum Flow per Hydrant/Required Fire Flow
The required fire flow is based on the 2019 California Fire Code Appendix B.

Number of Hydrants
The number of hydrants is based on use/occupancy type, required fire flow, distance and access considerations. See 2019 California Fire Code Appendix C.

Changes/Relocations
Fire hydrants shall be installed at the locations approved by the Fire Prevention Division. Any changes or relocation of fire hydrants from the approved hydrant location on the plan shall be approved by the Fire Prevention Division prior to installation or relocation.

Out of Service Fire Hydrants
When fire hydrants are for any reason, nonoperational, they shall be covered with black plastic bags and the bags shall be secured in place.

SCHOOLS

Public Schools
California Fire Code Appendix BB and CC shall be used to determine

distance/spacing, and number of hydrants. The State Fire Marshal (SFM) requires the Division of State Architect (DSA) to request water and access requirements and approval from the local jurisdiction.

Private Schools

California Fire Code Appendix B and C shall be used to determine distance/spacing, and number of hydrants.

GENERAL GUIDELINES FOR FIRE HYDRANT PLACEMENT

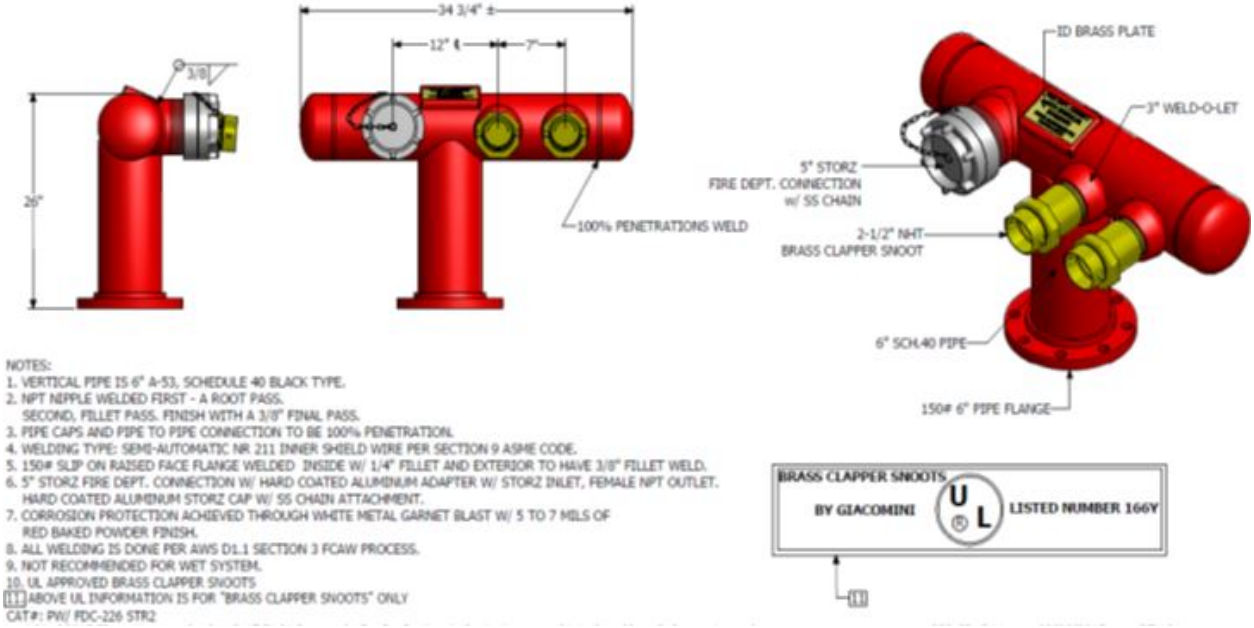
1. Consult local Building & Safety for permit requirements for walls.
2. Hydrants shall have a concrete pad.
3. Bollards may be required.
4. Location of front bollards shall be adjusted to provide clearance for outlets, and shall have approval of the Fire Prevention Division.
5. Start at the entrance (s) to the project under review.
6. Use existing hydrants if within the allowable distance based upon the type of project. (Existing hydrants may need to be upgraded) If not sure about existing hydrants, do a site inspection first.
7. Flag lots may present a problem. Hydrant location is critical and must be verified by the Bureau of Fire Prevention and Life Safety.
8. If there is no on-site access required from the street, measure from the closest point on the street (nearest the structure) to the hydrant in the path of travel.
9. Do not place along sharp bends in access road/driveway.
10. When locating on a corner, place the hydrant 5-10 feet past the BCR (beginning curb return).
11. Do not place in the bulb of a cul-de-sac.
12. Place on the right side of the street if possible, based upon the normal response from the first-in fire station.
13. Place on property lines between lots.
14. If driveways are shown, try to place where there is the least impact to on-street parking.
15. Keep 25-50 feet from any building if possible.
16. Try to place where the road/driveway is level.
17. If there is a slope behind the hydrant, require a retaining wall 3 feet back.
18. Require concrete pads around hydrants.
19. Watch grade level, walls and obstructions, anywhere you are considering placing a hydrant.
20. Any changes in location of fire hydrants shall be approved by the Fire Prevention Bureau prior to installation.
21. Fire hydrants and water lines must be in the water purveyor's easement or within easements to the property owners that will benefit from the hydrant.
22. Make sure you denote the hydrant type, size and number of outlets on the approved hydrant location plans.

PLAN CHECK

A fire hydrant location plan check is conducted during the civil plan review. All projects where new buildings or additions to buildings are proposed. The following information must be provided on the civil plan sheets:

1. Show existing and proposed hydrant locations.
2. Indicate size of hydrant(s)
3. Number and size of outlets (i.e. 6" wet barrel with one 4 ½" and two 2 ½" outlets)
4. Show streets, driveways, access roads (including parking lots), gates and all structures existing and proposed

FIRE DEPARTMENT CONNECTION DIAGRAM AS MINIMUM DESIGN REQUIREMENTS.



TYPICAL HYDRANT MARKER LOCATION

Figure 1

TWO LANE STREET

Figure 2

MULTI-LANE STREET

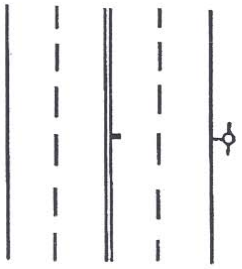


Figure 3

TWO LANE STREET

AT INTERSECTION

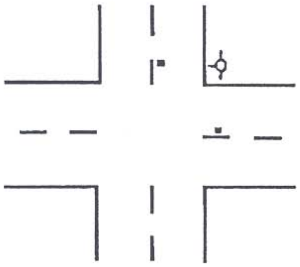
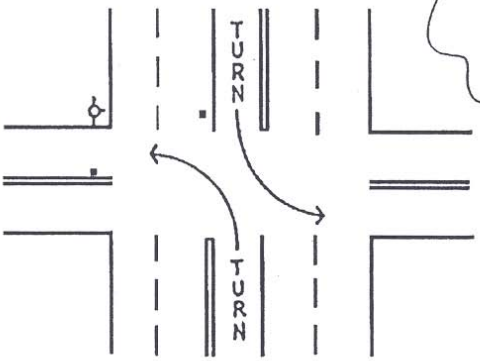


Figure 4

FOUR LANE STREET WITH TURN LANE

AT INTERSECTION



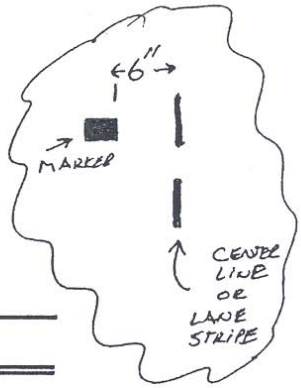


Figure 5

MULTI-LANE STREET WITH

TURN LANE

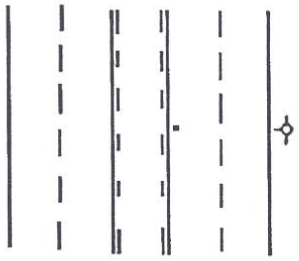
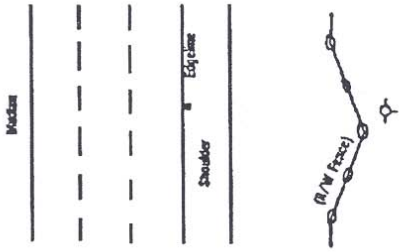


Figure 6

FREEWAYS AND EXPRESSWAYS



MENLO PARK FIRE PROTECTION DISTRICT STANDARD
EMERGENCY RESPONDER RADIO SIGNAL AMPLIFICATION SYSTEMS

SCOPE. To ensure all new buildings to have adequate radio communication coverage for first responders.

Existing buildings shall provide radio coverage for emergency responders as required in Chapter 11 of the California Fire Code.

REFERENCES

California Fire Code, 2019 Edition, Section 510

NFPA 72, National Fire Alarm and Signaling Code

NFPA 1221, Standard for the Installation, Maintenance and Use of Emergency Services

GUIDELINES

Systems, components, and equipment required to provide emergency responder radio coverage system shall comply with the California Fire Code, Sections 510.4.1 through 510.4.2.5.

1. Radio Signal Strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in CFC, Sections 510.4.1.1 and 510.4.1.2.
    a) Minimum signal strength into the building. The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The inbound signal level shall be sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 or an equivalent Signal-to-Interference-Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.
    b) Minimum signal strength out of the building. The minimum outbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The outbound signal level shall be sufficient to provide not less than a DAQ of 3.0 or an equivalent SINR applicable to the technology for either analog or digital signals.
    c) System performance. Signal strength shall be sufficient to meet the requirements of the applicable being utilized by public safety for emergency

operations through the coverage area as specified by the fire code official in Section 510.4.2.2.

2. System Design. The emergency responder radio coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.8 and NFPA 1221.
    a) Amplification systems allowed. Buildings and structures which cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC) – certified signal boosters, or other system approved by the fire code official in order to achieve the required adequate radio coverage.
    b) Technical criteria. The fire code official shall maintain a document providing the specific technical information and requirements for the emergency responder radio coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, effective radiated power of radio sites, and other supporting technical information.
    c) Standby power. Emergency responder radio coverage systems shall be provided with standby power in accordance with CFC, Section 1203. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.
    d) Signal booster requirements. If used, signal boosters shall meet the following requirements:
        i. All signal booster components shall be contained in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet.
        ii. Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet.
        iii. Equipment shall have FCC or other radio license authority certification and be suitable for public safety use prior to installation.
        iv. Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20dB greater than the system gain under all operating conditions.
        v. Bi-Directional Amplifiers (BDAs) used in emergency responder radio coverage systems shall have oscillation prevention circuitry.
        vi. The installation of amplification systems or systems that operate on or provide the means to cause interference on any emergency responder radio coverage networks shall be coordinated and approved by the fire code official.
    e) System monitoring. The system shall be monitored by a listed fire alarm control unit, or where approved by the fire code official, shall sound an audible signal at a constantly attended on-site location. Automatic supervisory signals shall include:
        i. Loss of normal AC power supply.
        ii. System battery charger(s) failure.
        iii. Malfunction of the donor antenna(s).

iv. Failure to active RF-emitting device(s).
v. Low-battery capacity at 70-percent reduction of operating capacity.
vi. Failure of critical system components.
vii. The communications link between the fire alarm system and the emergency radio enhancement system.

f) Additional frequencies and change of frequencies. The emergency ·responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required or additional frequencies are made available by the FCC or other radio licensing authority.

g) Radio communication antenna density. Systems shall be engineered to minimize the near-far effect. The system design shall include sufficient antenna density to address reduced gain conditions.
Exceptions:
i. Class A narrow band signal booster devices with independent AGC/ALC circuits per channel.
ii. Systems where all portable devices within the same band use active power control features.

3. Installation Requirements. The installation of the public safety radio coverage system shall be in accordance with CFC, Sections 510.5.1 through 510.5.4.

a) Approval prior to installation. Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC or other radio licensing authority shall not be installed without prior coordination and approval of the fire code official.

b) Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include:
i. A valid FCC-issued general radio operators license; and
ii. Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed. These qualifications shall not be required where demonstration of adequate skills and experience satisfactory to the fire code official is provided.

c) Acceptance Test Procedure. Upon completion of installation, the building owner shall have the radio system tested to ensure the two-way coverage on each floor of the building is a minimum of 95 percent. The test procedure shall be conducted as follows:
i. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.
ii. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.
iii. Failure of more than one test area shall not result in failure of the test.
iv. In the event that two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than two nonadjacent test areas shall not result in failure of the test. If the system fails the 40-area test,

the system shall be altered to meet the 95 percent coverage requirement.

v. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered failure of that test area. Additional test locations shall not be permitted.

vi. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building *owner* shall be required to rerun the acceptance test to reestablish the gain values.

vii. As part of the installation, a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of installation and subsequent annual inspections.

viii. Systems incorporating Class B signal-booster devices or Class B broadband fiber remote devices shall be tested using two portable radios simultaneously conducting subjective voice quality checks. One radio shall be positioned not greater than 10 feet from the indoor antenna and the second radio shall be positioned at the distance that represents the farthest distance from any indoor antenna. With both radios simultaneously keyed up on different frequencies within the same band, subjective audio testing shall be conducted and comply with DAQ levels as specified in CFC, Sections 510.4.1.1 and 510.4.1.2.

d) FCC Compliance. The emergency responder radio coverage system installation and components shall comply with all applicable federal regulations including, but not limited to, FCC 47 CFR Part 90.219.

4. Maintenance**.** The emergency responder radio coverage system shall be maintained operational at all times in accordance with CFC, Sections 510.6.1 through 510.6.4.

a) Testing and Proof of Compliance. The emergency responder radio coverage system shall be inspected and tested annually or whenever structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

i. In-building coverage test as described in Section 510.5.3.

ii. Signal boosters shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance or set to optimize the performance of the system.

iii. Backup batteries and power supplies shall be tested under load of a period of 1-hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery

exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.

iv. All other active components shall be checked to verify operation within the manufacturer's specifications.

v. At the conclusion of the testing, a report, which shall verify compliance with CFC, Section 510.5.3, shall be submitted to the fire code official.

b) Additional Frequencies. The building owner shall modify or expand the emergency responder radio coverage system at their expense in the event frequency changes are required or additional frequencies are made available by the FCC or other radio licensing authority. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

c) Nonpublic safety system. If installation of a nonpublic safety amplification system interferes with the performance of the emergency responder communication coverage system, the nonpublic system shall be corrected or removed.

d) Field Testing. Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.

PLAN CHECK

A permit for the installation of or modification to an emergency responder radio coverage system and related equipment is required. Maintenance performed in accordance with the CFC is not considered a modification and does not require a permit.

EMERGENCY RESPONDER RADIO SYSTEM FREQUENCY REQUIREMENTS

Display	RX FREQ	RX CTCSS	TX FREQ	TX CTCSS	NOTES
FIRE					
CONTROL 1A	153.89000	114.8	159.07500	107.2	South Dispatch
COMMAND 11	154.37000	114.8	156.01500	123.0	South Command
TAC 15	154.04000	118.8	154.04000	118.8	South Tactical
TAC 16	154.01000	110.9	154.01000	110.9	South Tactical
TAC 17	155.40000	141.3	155.40000	141.3	South Tactical
COMMAND 51	151.47500	167.9	159.01500	167.9	County Command

VFIRE 26	154.30250	156.7	154.30250	156.7	Stand by TAC
Repeated Channels					
Easter Cross Site	N 37.46328	W - 122.26303			
POLICE					
Atherton PD	489.0875	162.2	492.0875	162.2	Police Dispatch
East Palo Alto PD	488.38.75	114.8	491.3875	114.8	Police Dispatch
Menlo Park PD	488.3375	152.2	491.3375	152.2	Police Dispatch
ALL PD					
TAC 2	488.7125	114.8	491.7125	114.8	Police Secondary
TAC 3	488.5375	114.8	491.5375	114.8	Police Tactical
Green/CWMA	488.8875	114.8	491.8875	114.8	County Wide Mutual Aid
SHERIFF/EMS	**TRUNKED**	**SYSTEM**			
700 MHz system range	770.03125	To	773.48125	Downlink base	To portable
	795.03125	To	798.48125	Uplink Portable	To base
400 County Center	N 37.48825	W - 122.23047			

*The Fire VHF system listed the simplex channels so that they can be set up as uplink only. We require all the repeated frequencies to be in the BDA system.

MENLO PARK FIRE PROTECTION DISTRICT
STANDARD FOR PIPED AIR SCBA REFILLING SYSTEMS

PURPOSE. This standard applies to all new high-rise buildings as defined by the California Building Code and new underground transportation and pedestrian tunnels exceeding 300 feet in length, except as provided below.

SCOPE. To outline the minimum requirements for the design, fabrication, engineering, installation, testing and maintenance of Piped Air SCBA Refilling System.

> Note: Any materials specified by a trade mark or product name within this specification necessary to design, fabricate, test, maintain and use the equipment described and regulated by this standard or code, may be substituted with a like product provided it meets or exceeds those specifications and be in accordance with nationally recognized and accepted standards, principals and tests.

CODES AND STANDARDS

This system shall be installed in accordance with this standard and all applicable codes and nationally recognized standards for high pressure breathing air systems. If/when a requirement within this standard is not specific, then, the requirement/standard which is more specific shall apply. The following codes/standards shall apply but not be limited to:

A. Chapter 53 of the 2019 Edition of the California Fire Code.
B. Compressed Gas Association, Inc., Pamphlet CGA-G-7.1: Commodity Specification for Air.
C. Current Edition of NFPA 1989: Breathing Air Quality for Firefighter and Emergency Services Respiratory Protection.
D. Current Edition of NFPA 1981: Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services
E. ANSI and ASTM standards may be used which are specific to high pressure breathing air systems

DESCRIPTION

The SCBA Piped Air Refilling System is a permanently installed, self-contained high-pressure air system with remote filling stations, supply standpipe and equipment/materials to isolate, interconnect and allow the remote filling of high pressure SCBA (Self Contained Breathing Apparatus) air bottles (6,000 psi) within the building/structure or accessory areas. Provisions shall be made to allow the Air Support Vehicle to interconnect directly to the system, allowing a continuous supply of air from the vehicle to the installed system.

A high-pressure air maintenance tank shall be installed in such a manner as to keep constant air pressure on the entire installed system to prevent any contamination of the air within the system while in a static state.

The air supply from the Air Support Vehicle shall be able to be isolated from the on-site air pressure maintenance tank and be diverted directly to the main air piping riser by means of check valve(s), and a two-way selector valve allowing the air to be supplied directly to the remote fill cabinets.

The building shall be equipped with floor landing filling station(s) installed in each fire department equipment storage room. Each filling station shall have the capability of manually being isolated from the remainder of system by means of valves and check valves should a leak failure occur from the filling station.

An additional valve shall be placed within the main riser allowing the individual isolation of all piping and filling stations above a leak or failure of the main piping riser.

SAFETY

This system shall be designed to provide a reliable, clean air source within the building/structure via the installed piping and associated equipment and materials for fire department personnel to refill SCBA bottles and perform firefighting, rescue or other type of incident requiring self-contained breathing apparatus. Nothing within the content of this specification shall be reduced in quality in any manner including but not limited to materials, equipment, installation, design, testing, maintenance or construction. All portions of the system shall be designed to meet manufactures specifications.

GENERAL REQUIREMENTS

All systems shall have the following:

A. Street level inlet control fill station
B. Building piping and associated components
C. Filling control station cabinet (every 3 floors)
D. High pressure maintenance tank
E. Low pressure air switch
F. All associated valves,
G. Gauges (up to 7,500 psi oil filled)
H. Check valves
I. Isolation valves

PRESSURE RATING

All components of the SCBA air refilling system shall be constructed of materials and equipment tested and certified for a minimum working pressure of 6000 psi

DESIGN ENGINEER

The complete system shall be designed by a current State of California licensed mechanical engineer. The engineers license stamp and signature shall be provided on all submitted plans. (wet stamp)

CONTRACTOR QUALIFICATIONS

Installing contractor shall have an active California C-36 license.

PLAN SUBMITTAL

The Menlo Park Fire Protection District and the associated Building Department shall be provided with plans for review and approval. Installation shall not commence until plans have been approved and a permit is issued.

The plans shall provide the minimum information:

A. Manufactures technical product data and installation data for all equipment and materials used.
B. All piping, fittings, valves, gauges, hangers/supports and fasteners.
C. System calculations to support the minimum required filling specification at the uppermost remote filling station plus a minimum 25% safety factor.
D. All technical data sheets, UL certifications, and nationally recognized listing agency for the products to be used.
E. Codes and standards used for the system design.

CERTIFICATE OF INSTALLATION

A letter shall be submitted by the installer and engineer at the completion of the installation to certify that all portions of the piped air system has been designed, installed, tested and inspected and is proper working order and free of defects.

System shall be accepted with a final inspection and system test by Menlo Park Fire District Inspector.

RECORD DRAWINGS

Any changes to the originally approved plans shall be submitted for approval prior any changes being made to the system.

At the completion of the installation, a set of As-builts shall be provided to the following:

A. The Menlo Park Fire Protection District
B. The building owner
C. Building Department

TRAINING

The installer/contractor shall provide the Menlo Park Fire Protection District no less than 6 (six) hours of on-site training divided into 3 separate and equal sessions for the use and operation of the system. Scheduling of the training shall be coordinated through the Menlo Park Fire Protection District. A final shall not be granted for the installation of the system until the training has been completed.

MAINTENANCE

The building owner and/or authorized agent shall provide regular testing and maintenance of the piping and air quality of the system. This shall be performed by a State of California licensed mechanical engineer and be in accordance with the current editions of NFPA 1989 and NFPA 1500. The system components shall be examined to ensure they are leak and damage free.

SYSTEM COMPONENTS

Materials of Construction

A. All materials used in the construction of the system shall be rated for a minimum working pressure of 6000 psi and shall be built to manufactures specifications. The internal surface of all components shall be free of all contaminants so that the air within the system meets all provisions of breathing air.
B. All materials with openings, such as piping, shall be shipped and remain sealed with the approved caps until installed. All piping, materials or equipment found not to be suitably protected will not be used or installed. Any materials installed which has not been properly protected will require the entire system to be properly cleaned and verified that the system is free of contamination by a certified independent contractor.
C. Should cleaning of the piping or other components be necessary, at no time shall an organic solvent be used.

Piping

A. All piping shall be stainless corrosion resistant steel suitable for breathing air. All piping shall be welded except for the connection to the air filling cabinet. Welding shall not produce contaminants within the piping and be maintained cleaned as necessary.
B. All mechanical fittings when approved to join piping shall be listed for the minimum working pressure and listed for compatibility to the materials being joined. All

piping shall be sized to provide the minimum SCBA filling time at the top most filling cabinet.

C. All piping shall be protected by a minimum listed 2-hour fire resistive construction and protected from physical damage. Piping below 6 feet from the finished floor shall be physically protected in a manner which will not allow any person to access the piping.
D. Any time the piping must pass through a fire rated wall or solid material, it shall be protected by a sleeve at least 3 times the diameter of the piping and properly filled with a listed fire stop material.
E. All piping shall be permanently labeled to identify its content and working pressure. I identification shall be placed at no less than 20-foot intervals or as is necessary to clearly identify whether in plain view or hidden from view, i.e. such as within the cavity of a wall.
F. The SCBA system piping shall not share any penetration, opening or raceway with any other system or equipment.

Fire Department Exterior Fill Riser Inlet

A. A remote fill inlet shall be provided on the exterior of the building to the main riser and maintenance pressure tank. The filling inlet and associated parts shall be located in a locked, weather tight cabinet. Access to this connection shall not be obstructed in any manner and the location shall be approved by the fire department prior to installation.
B. When the location of this fill inlet is not possible to be located on the building, the inlet may be at a remote location as approved by the fire department. All piping shall be installed in a protected raceway or conduit to the building
C. The panel cabinet door shall be of solid construction and be permanently labeled, "Fire Department Air Connection". All lettering shall be a minimum 3 inch in height with ½ inch stroke block letters. The lettering shall be of contrasting color from the enclosure door.
D. Keys to the cabinet shall be provided in a KNOX box installed within 10 feet of the cabinet
E. The following items shall be provided within the inlet fill cabinet:
    1. Male inlet fitting (compatible with fire department equipment)
    2. Inlet pressure gauge
    3. System pressure gauge
    4. Bleed valve
    5. Safety whip attachment device

On-site Pressure Maintenance Tank

A. The on-site maintenance tank shall be listed for breathing air and be protected from back flow by means of a check valve on the supply inlet and discharge side of the system piping. All pressure tanks and related equipment and materials shall be installed within a room of no less than 2-hour fire rated construction and accessible directly from the exterior of the building.

B. No other equipment or storage not associated with this equipment will be stored in the room. The room shall be of sufficient size to permit the installation/removal and maintenance of the pressure maintenance tank and associated equipment.
C. An electronic low-pressure switch shall be installed on the discharge side of the system and interconnected to the main fire alarm panel to indicate a supervisory signal when the pressure has dropped below 1000 psi within the system.

Remote Filling Cabinets

A. All remote filling cabinets shall be list by a recognized testing laboratory for the filling of high-pressure air SCBA air bottles.
B. Each cabinet shall allow 2 (two) SCBA bottle to be simultaneously and the control valves, pressure gauges for each bottle filling compartment
C. Each cabinet shall be able to fill two 5,500 psi, 45 cubic foot SCBA bottles simultaneously.
D. Filling time for two tanks simultaneously shall take no more than two minutes with two filling stations being used simultaneously.

ACCEPTANCE TEST PROCEDURES

A. Pre-inspect all components for proper assembly.
B. Isolate the maintenance storage tank by closing all necessary isolation valves.
C. Verify that the emergency shut-off valves (isolation valves) at each fill station on each floor are closed.
D. Pressurize the entire system with oil free, breathing grade air or nitrogen to a pressure of 7,500 psi for a minimum of two hours. During this time, verification will be made by monitoring gauges placed at every outlet of the system. Any leak detected shall be documented and a copy of the report shall be submitted to the installer/contractor and the fire department.
E. After the system has satisfactorily passed the pneumatic pressure test and determined to be free of leaks/defects, the system shall be retested in the following manner:
    1. Re-pressurize the entire system to 5.500 psi.
    2. Close the main supply valve
    3. Disconnect the test gas source
F. The entire system shall remain leak free for a minimum of 24 hours.

FINAL TESTING

Final testing shall be accomplished in the following manner:

A. Place a sign at the fill station inlet and each filling cabinet to read: **DO NOT USE. AIR PURITY ANALYSIS TESTING IN PROGRESS. DO NOT FILL OR USE ANY AIR FROM THIS STATION.**
B. The signs shall be a minimum of 81/2 X 11 inches in size with lettering in bold font a minimum 2 inch in height and 3/8-inch stroke.

C. Pneumatically fill the entire system to 1000 psi.
D. Calibrate and adjust the air pressure monitoring switch to the low- pressure alarm point of 1000 psi.
E. Fill the entire system to the normal operating pressure of 2,500 psi.
F. A minimum of two air samples shall be taken from two separate filling stations and submitted to an independent certified gas analysis laboratory to verify the system cleanliness, and that the air meets or exceeds the minimum standard for breathing air for self-contained breathing air apparatus. This report shall be returned to the authority having jurisdiction in writing from the testing laboratory.
G. When the testing results are satisfactory, the signs shall be removed from the main filling inlet and all filling cabinets and the system put into full and normal operation.
H. A fire department fire prevention officer shall be present during all testing.

MAINTENACE

A Fire Department SCBA refilling system installed shall be properly inspected, tested and maintained in accordance with this standard to provide at least the same level of performance and protection as designed. The owner shall be responsible for maintaining the system and keeping it in good working order. All test results shall be maintained by owner and sent to MPFD annually and upon request.

A. The SCBA refilling system shall be inspected annually and certified by the installer and/or licensed mechanical engineer specializing in high pressure breathing air that the systems are in proper working condition and free of defects. All components of the system shall be included in the inspection.
B. Should the system need repair and or modification, then a re-certification will be necessary as if the system was newly installed and described in this standard.

MENLO PARK FIRE PROTECTION DISTRICTGUIDELINE FOR REMOTE ELECTRICAL SERVICE DISCONNECT

PURPOSE. This guideline applies to all new commercial buildings providing a means for remote electrical disconnect of service entrance conductors.

SCOPE. To secure building utilities (gas & electrical services) in a timely manner without subjecting firefighters to added hazards or added time to disconnect electrical.

Where the electrical service disconnect is remotely located inside the building or accessible through a locked exterior door, having access to a Knox Key disconnect for electrical service at predetermined location(s) can assist firefighters with either securing a possible ignition source, aide firefighters to get resources to fight the fire and possibly confine the fire damage to either a point of origin or limit its extension.

DEFINITIONS

Electric Power Production and Network. Power production, distribution and utilization equipment and facilities such as electrical power systems that deliver electrical power to the connected loads that are external to and not controlled by an interactive system.

Disconnecting Means. A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of power.

Emergency Power System. A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection and ventilation systems in the event of a failure to primary power. Emergency power systems are required for electrical loads where interruption of primary power could result in loss of human life or serious injury.

Standby Power System. A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or ventilation systems in the event of failure of primary power. Standby power systems are required for electrical loads where interruptions of primary power could create hazards or hamper rescue or fire-fighting operations.

Remote Control. Where a remote-control device(s) is used to actuate the service, disconnecting means the service disconnecting means shall be located in accordance to those provisions listed in CEC Article 230.70(A)(1), and as per MPFPD Standard:

- Readily Accessible Location. The service disconnecting means shall be installed at a readily accessible location outside the building at the main entrance, or at an agreed location as per MPFPD discretion.

GENERAL REQUIREMENTS

- Installation of a Knox Key Switch keyed only to Menlo Park Fire Protection District.

- Signage shall be installed for components and systems deriving emergency back-up power from an on-site generator. Signage shall be located in the generator room and at the main service panel. Signs shall list the specific electrical components and systems having emergency power/standby power. Additionally, the specific branch circuit or feeder circuit shall be listed alongside its system serviced.

  In the event firefighting operations require these systems shut down this may be accomplished without shutting off all emergency power, but simply segregating the required system(s).

CODES AND STANDARDS

Systems shall be installed in accordance with this standard, all applicable codes and nationally recognized standards for electrical systems. If/when a requirement within this standard is not specific, then the requirement/standard which is more specific or has special conditions shall apply. Most common applicable codes/standards are:

- California Electrical Code 2019 Edition, Article 230 for Services and Article 700 Emergency Systems.
- California Building Code 2019 Edition Chapter 27, Electrical.
- California Fire Code 2019 Edition Section 604, Electrical Equipment, Wiring and Hazards.

PLAN SUBMITTAL

Reviewed at the time of building submittal.

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR PUBLIC ASSEMBLAGES AND EVENTS

SCOPE. This guideline applies to carnivals, fairs, public events and trade shows including, but not limited to, annual or weekend events. The guideline is meant to work together with applicable sections of the 2019 California Fire Code.

DEFINITIONS

Deep Frying - Any cooking operation or process whereby the product floats or is submerged in hot oil during the cooking process.

Flambé Cooking - Any cooking operation whereby the product is prepared by applying a flammable or combustible liquid onto a cooking surface and igniting it.

GENERAL REQUIREMENTS

All vendors and participants of the event shall be provided copies of the following requirements:

Vehicle Protection. At locations where normal city streets are closed off for an event, or at any other location that may be adjacent to normal vehicle traffic, it is highly suggested that K-Rail type vehicle protection be placed between the event and vehicle traffic.

Emergency Vehicle Access. The layout of the event and/or midway shall provide a minimum 20-foot clearance between rows of booths, exhibits, or any other types of displays or structures that are part of the event for emergency vehicle access. A clear space of not less than 15-feet shall be maintained to provide access to fire hydrants both inside and outside the event.

Electrical Equipment. Electrical equipment and installations shall comply with the California Electric Code.

Internal Combustion Power Sources. Fuel tanks shall be of adequate capacity to permit uninterrupted operation during normal operating hours. Refueling shall be conducted only when the ride or appliance is not in use. Internal combustion power sources shall be isolated from the public.

Fire Extinguishers. Fire extinguishers shall be provided and meet the following requirements:

1. Portable fire extinguishers shall be located every 150 feet, with not more than 75 feet travel distance to a fire extinguisher. Depending on the distribution of cooking booths, exhibits, or the carnival midway, fire extinguishers provided in cooking areas may be used to meet this requirement. Internal combustion power sources, cooking booths, and cooking exhibits shall all have their own fire extinguishers.
2. Fire extinguishers shall be mounted adjacent to the exit from booths or exhibits and

secured so that they will not fall over. Fire extinguishers must be visible and accessible.

3. Extinguishers shall be a minimum 2A10BC rated. Each cooking booth or cooking exhibit using deep fat cooking oil shall be provided with at least one "Wet Chemical" Type K fire extinguisher.
4. Fire extinguishers shall have been serviced within the last year and be provided with an attached service tag.

Waste Accumulation. Combustible waste materials shall be removed regularly throughout the event.

Compressed Gases. Compressed gas cylinders shall be secured in an upright position and away from cooking operations, rides, or any other operations that may damage the cylinder or expose cylinders to excessive heat.

Decorative Materials. All decorative materials used for the event shall be inherently fire resistive, or may be treated by the owner with a State Fire Marshal approved fire retardant chemical (empty can and dated sales receipt may serve as proof).

Booths or Exhibits. Booths or exhibits shall be adequately roped, braced and anchored in order to uphold during any weather conditions. The shall be located a minimum of 10 ft. from any permanent structure. Vehicles required for the operation of the event shall be parked a minimum of 20 ft.

Tents, Canopies and Temporary Membrane Structures. Tents and air supported temporary membrane structures in excess of 400 square feet require additional safety measures as specified by the California Fire Code.

Additional Documentation. Applicants proposing to install tents and/or membrane structures that meet any of the following three criteria shall provide a Report of Installation Inspection prepared by a California licensed structural engineer after the installation is complete, but prior to occupancy:

1. The square footage of the structure is 7500 square feet or more.
2. The approved occupant load is 500 or more.
3. The clear span width of the structural support is 60 feet or more.

The report shall minimally state that in the engineer's professional opinion, the tent is designed, installed, and anchored to withstand expected forces and climate conditions including a wind force of 80 mph. The report shall be signed and stamped with the engineer's professional seal.

COOKING REQUIREMENTS

Openings in Booths or Exhibits. Booths or exhibits utilized for cooking shall be provided with openings containing a minimum of 30 sq ft each on 2 opposing sides of the booth/exhibit to prevent the accumulation of carbon monoxide produced by cooking processes.

Separation Distances. Cooking booths, mobile food trucks or exhibits shall be separated from non-cooking booths or exhibits by 10 feet and shall not be located within 10 feet of amusement rides, devices, or buildings.

Floor Materials. It is highly suggested that flooring materials used within festival cooking booths/exhibits, and under all equipment, shall be non-combustible or fire retardant treated.

Cooking Surfaces. All cooking surfaces shall be cleaned regularly to reduce accumulations of grease.

Cooking Equipment. All cooking equipment shall be approved for its intended use. A minimum clearance of 18 inches shall be provided between cooking appliances and any booths, exhibits, structures or combustible materials. **Menlo Park Fire District encourages the use of noncombustible materials in booths or exhibits used for cooking purposes.**

Portable Stoves. Coleman style stoves or equivalent may be used only with approved fuel and the following requirements:

1. The fueling or refueling of stoves or cooking appliances is prohibited inside booths/exhibits.
2. The storage of fuel in booths/exhibits is prohibited.
3. The use of gasoline or kerosene is prohibited.

Butane and Propane Equipment. Butane and propane equipment shall conform to the following requirements:

1. Fuel tanks for butane and propane cooking appliances shall be limited in size to 10-gallon water capacity.
2. Fuel tanks shall be located outside the booth/exhibit. Tanks are prohibited inside booths/exhibits.
3. Fuel tanks shall be protected from damage and secured in an upright position.
4. Storage of tanks shall not exceed two,15-gallon water capacity tanks for each cooking appliance.
5. All tanks shall have an approved shut off valve.
6. All appliances shall have a fuel control and shut off valve.
7. Fuel supply shall be shut off at the tank when not in use.
8. Hoses and connections shall be approved for use with the appliance and type of fuel used.
9. All connections shall be tested. Vendors/exhibitors shall provide a spray bottle of soapy water.

Charcoal or Wood Barbecue Cooking. Charcoal/Wood barbecue cooking shall be in accordance with the following requirements:

1. Charcoal/Wood Barbecue cooking is prohibited inside booths/exhibits.
2. Located away from public access. There shall be a minimum 10 ft distance from any booth/exhibit or permanent structure.
3. Only commercially sold charcoal fuel may be used.

4. Only commercially sold charcoal lighter fluid or electric starters may be used. Gasoline and kerosene are prohibited.

Deep Fat Frying and Flambé Cooking. Deep Fat Fry/Flambé Cooking shall be in accordance with the following requirements:

1. The cooking area shall not be accessible to the public.
2. Deep Fat/Flambé Cooking operations shall be located outside booths, exhibits and tents and shall be no closer than 18 inches from combustible materials.
3. A minimum 18-inch clearance shall be provided between deep fat frying appliances/woks and open flame stoves.

MORE THAN 1,000 ATTENDEES THE FOLLOWING ADDITIONAL ITEMS APPLY

Crowd Manager

Trained crowd managers shall be provided for events where more than 1,000 persons are expected to congregate. The minimum number of crowd managers shall be established at a ratio of one crowd manager to every 250 persons. CFC 403.3

Fire Evacuation Plans

Fire evacuation plans shall be in accordance with the following:

1. Emergency egress or escape routes and whether evacuation of the building is to be complete or, where *approved*, by selected floors or areas only.
2. Procedures for employees who must remain to operate critical equipment before evacuating.
3. Procedures for assisted rescue for *persons* unable to use the general *means of egress* unassisted.
4. Procedures for accounting for employees and occupants after evacuation has been completed.
5. Identification and assignment of personnel responsible for rescue or emergency medical aid.
6. The preferred and any alternative means of notifying occupants of a fire or emergency.
7. The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.
8. Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.
9. A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.

Fire Safety Plans

Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance.

3. Site plans indicating the following:
    a. The occupancy assembly point.
    b. The locations of fire hydrants.
    c. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:
    a. Exits
    b. Primary evacuation routes
    c. Secondary evacuation routes
    d. Accessible egress routes
    e. Areas of refuge
    f. Exterior areas for assisted rescue
    g. Manual fire alarm boxes
    h. Portable fire extinguishers
    i. Occupant-use hose stations
    j. Fire alarm annunciators and controls
5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.
6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.
7. Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

PLAN CHECK SUBMITTAL

1. A completed Event Application
2. Fees (due at submittal)
3. Two sets of documentation and a site plan showing the following:
    a. Location of event access points
    b. Location of on-site event staff
    c. First aid stations (if provided)
    d. Road closure points and K-Rail placement
    e. Fire lane and fire hydrant locations
    f. Layout of midway
    g. Location of vending booths
    h. Locations of food service booths and/or food trucks
    i. Locations of power sources or generation of fuel supply (if needed)
    j. Location of portable fire extinguishers

MENLO PARK FIRE PROTECTION DISTRICT
GUIDELINE FOR VEGETATION MANAGEMENT AND HOME HARDENING

SCOPE. This guideline provides recommended resources necessary for vegetation management and home hardening for wildfire mitigation for "Communities at Risk".

These recommendations may be modified to ensure adequate fire apparatus access and public safety and adhering to local Town or City Ordinances.

GENERAL REQUIREMENTS

Landscaping shall not interfere with the required fire apparatus access. Landscaping around roads shall provide limited fuel, no ladder fuels, and provide thinning of tree canopy.

Recommendations for landscaping and home hardening shall follow current San Mateo County Fire Safe Council "Living with Fire" page and Resources tab.

https://firesafesanmateo.org/resources/living-with-fire

1. Defensible Space
2. Hardening Your Home