

2007 Cathedral City Fire Code

**CATHEDRAL CITY FIRE DEPARTMENT
DEVELOPMENT GUIDELINES**



**CATHEDRAL CITY FIRE DEPARTMENT
32100 DESERT VISTA ROAD
CATHEDRAL CITY, CA, 92234**

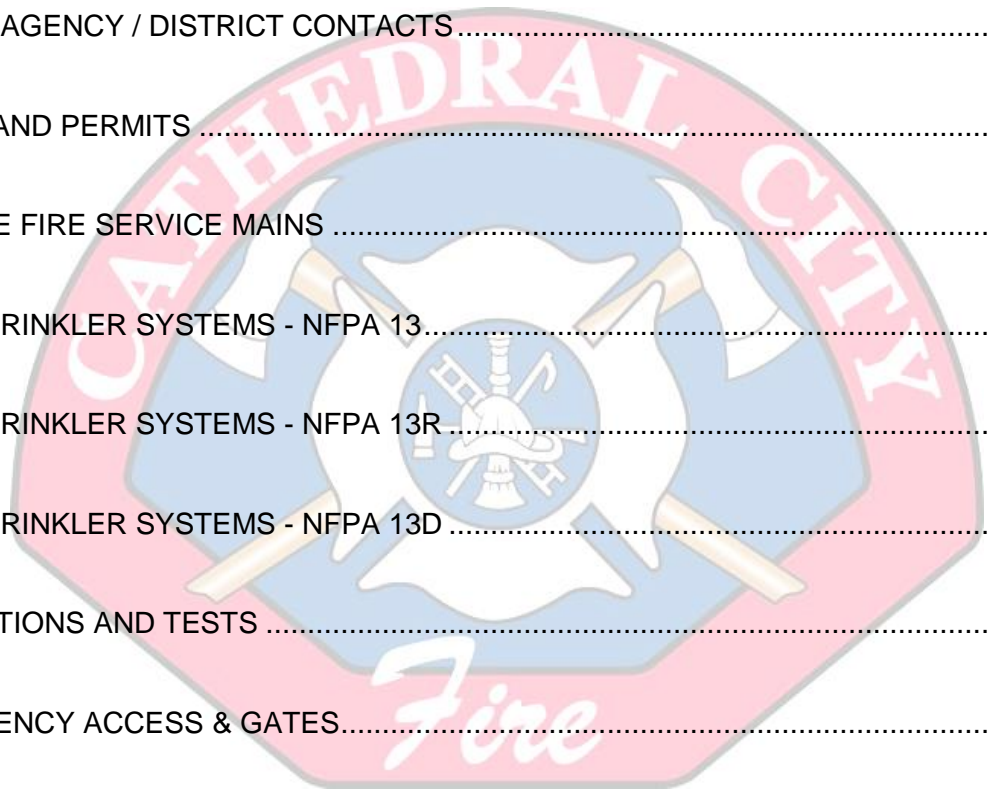
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FIRE PREVENTION BUREAU CONTACTS

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SCOPE

This guideline has been developed to assist development applicants, architects and contractors in determining the minimum requirements for fire protection systems, emergency access/gates, and fire apparatus access roads. It will provide the minimum design, installation, testing, and inspection procedures in the City of Cathedral City based on the following:

- Cathedral City Municipal Code, Chapter 8.12.
- California Fire Code 2007 Edition – CCR Title 24, Part 9, adopted in its entirety including Appendix Chapter 1 and Appendix Chapter 4, Appendix B, C, D, E, F, G and H.
- California Code of Regulations (CCR) - Title 19.
- California Building Code 2007 Edition - CCR Title 24, Part 2.
- FM – Factory Mutual Global
- National Fire Protection Association Standards - adopted and/or most recent Editions including but not limited to:

NFPA 12:	Standard on Carbon Dioxide Extinguishing Systems
NFPA 12A:	Standard on Halon 1301 Fire Extinguishing Systems
NFPA 13:	Standard for the Installation of Sprinkler Systems
NFPA 13D:	Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes
NFPA 13R:	Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height
NFPA 14:	Standard for the Installation of Standpipe and Hose Systems
NFPA 17:	Standard for Dry Chemical Extinguishing Systems
NFPA 17A:	Standard for Wet Chemical Extinguishing Systems
NFPA 20:	Standard for the Installation of Stationary Pumps for Fire Protection
NFPA 22:	Standard for Water Tanks for Private Fire Protection
NFPA 24:	Standard for the Installation of Private Fire Service Mains and Their Appurtenances
NFPA 25:	Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
NFPA 72:	National Fire Alarm Code®
NFPA 80:	Standard for Fire Doors and Other Opening Protectives
NFPA 92B:	Standard for Smoke Management Systems in Malls, Atria, and Large Spaces
NFPA2001:	Standard on Clean Agent Fire Extinguishing Systems

- UL – Underwriters Laboratories Inc.

The Authority Having Jurisdiction in determining compliance with the above codes and standards shall be the Cathedral City Fire Department. The fire code official may waive or modify these requirements based on unforeseen circumstances or other mitigating factors.

WHAT BUILDING PERMIT PLANS REQUIRE ROUTING TO THE FIRE DEPARTMENT?

- Permits limited to electrical, plumbing, mechanical, foundation or structural work does not require routing to the Fire Department unless involving hazardous materials.
- All Building Permit plans including tenant improvements shall be routed to the Fire Department for the following occupancy groups and classifications:
 - Group A: A-1, A-2, A-3, A-4, A-5
 - Group E
 - Group F: F-1
 - Group H: H-1, H-2, H-3, H-4, H-5
 - Group I: I-1, I-2, I-2.1, I-3, I-4
 - Group R: R-1, R-2, R-3.1, R-4
 - Group S: S-1
- Building Permit plans including tenant improvements more than 500 square feet in area shall be routed to the Fire Department for the following:
 - Additions to any building where the end result exceeds 3,600 square feet
 - Businesses Conducting Dry Cleaning Operations
 - City of Cathedral City Buildings
 - High-rise & Mid-rise buildings
 - Government Owned / Occupied Buildings
 - S-2 Occupancy – Cold Storage Buildings or Areas that exceed 1,000 square feet
- Building Permit plans for any new buildings that exceed 3,600 square feet in area or two (2) stories in height shall be routed to the Fire Department.
- Fire Department Access: Building Permit plans shall be routed to the Fire Department for the following:
 - New Buildings when any portion of the building is situated more than one hundred fifty (150) feet from a public street along an approved access road
 - Parking Lot layout changes (Consult with Fire Department before routing)
 - Vehicle Gate installation (Consult with Fire Department before routing)
 - Planned Developments, which include private roadways
- Hazardous Materials: Building Permit plans including tenant improvements shall be routed to the Fire Department for projects intended for the use, storage or handling of hazardous materials in any amount.
- Storage (piles, shelves or racks): Where the project includes any storage in which the actual storage height may exceed 10 feet. The project includes storage of ANY height containing: aerosols, plastics, idle pallets, plastic pallets, rubber tires, baled cotton, rolled paper, flammable liquids, and similar commodities. Modifications to the fire sprinkler system require a separate fire permit.

WHICH PROJECTS REQUIRE PERMITS TO BE OBTAINED DIRECTLY FROM THE CATHEDRAL CITY FIRE DEPARTMENT?

Alarm Systems (fire, emergency, and toxic gas) where the proposed project includes an alarm system installation or modification.

Battery Systems and Battery Rooms (Stand-by Power, Emergency Power or Uninterrupted Power):

- Stationary battery systems having an electrolyte capacity of more than 50 gallons for flooded lead
- Acid, nickel cadmium (Ni-Cd) and valve-regulated lead acid (VRLA) or 1,000 pounds for lithium ion batteries

Commercial Kitchen Hood System:

- For Type I Hoods (a commercial kitchen hood for collecting and removing grease and smoke) an automatic suppression system is required

Emergency Generators:

- A legally required emergency/standby generator with a fuel tank of 60 gallons or less (separate tank installation).
- A permit is required by the Fire Department when the capacity of the fuel storage tank exceeds 60 gallons.

Tank Installations for the Storage of Hazardous Materials or Waste:

- The proposed project includes tank installation(s) having capacities greater than 60 gallons. This would include generators with fuel tanks greater than 60 gallons.

Water Supply Systems:

- The proposed project includes an underground water supply for fire protection systems (fire hydrants, sprinkler systems, etc.)

Fire Extinguishing Systems:

- The proposed project includes a fire extinguishing system (clean agent, CO₂, dry chemical, Halon, etc.) installation or modification.

Temporary Membrane Structures/Tents/Canopies:

- The proposed project involves the installation of an air supported membrane or tent (>200sq.ft.) and/or canopy (>400sq.ft.).

Hazardous Material Tool Installations, Process Piping, Scrubbers:

- Equipment that utilizes material(s) such as tools, wet sinks, scrubbers, process pipe, etc.

Spray Booth:

- The project includes a spray booth. Fire protection plans shall be submitted with spray booth application.

Fire Sprinklers:

- The proposed project includes a Fire Sprinkler System installation or modification.

Note: Any building permit project that will be modifying/adding fire sprinklers and/or a fire alarm system shall include a requirement from the Building Department stating, "Submit separate plans and fees directly to the Fire Department for any modification/addition of fire sprinklers and/or fire alarm system."



WATER AGENCY/DISTRICT CONTACTS SERVICING CATHEDRAL CITY

<u>Service Area</u>	<u>Service Area</u>
Cathedral City West of Whitewater River	Cathedral City East of Whitewater River

Desert Water Agency
1200 S. Gene Atry Trail
Palm Springs, CA 92264
760-323-4971
www.DWA.org

Coachella Valley Water District
85995 Avenue 52
Coachella, CA 92236
760-398-2651
www.cvwd.org

1.0 WATER AGENCY/DISTRICT REQUIREMENTS

1.1 Contractors or developers will contact the Water Agency/District and request the following information to facilitate designing private fire service mains and fire sprinkler systems:

- Water service size, material type and schedule.
- Length of service, fittings and valves installed.
- Water meter manufacturer, model and size (if fire service is metered)
- Backflow manufacturer, model, size and arrangement.

1.2 The Water Agency/District will assist the Fire Prevention Bureau in providing flow information for water mains or fire hydrants:

- Static pressures.
- Dynamic/residual pressures.
- Gallons per minute.
- Water main size and configuration.
- Fire Hydrant Identification Numbers used in testing and street address or location description. Indicate Fire Hydrant Identification Number where pressure readings were taken.
- The Fire Prevention Bureau attempts to conduct water flow capability tests with a Water Agency/District representative. Contractors are required to call 760-770-8200 to request water hydrant flow tests and static pressure readings.

2.0 PLANS AND PERMITS

- 2.1 When there are significant changes in occupancy, water supply, storage heights, type and quantity of storage, storage configurations, Tenant Improvements or any other changes which may affect the fire sprinkler system design, the owner, tenant or contractor shall submit plans and secure permits.
- 2.2 Complete plans for private fire service mains or fire sprinkler systems should be submitted for approval well in advance of installation. Plan reviews can take up to 20 working days. Submit a minimum of three (3) sets of drawings for review. Upon approval, the Fire Prevention Bureau will retain a set.

- 2.3 Plans shall be submitted to:

**City of Cathedral City
Fire Department Headquarters
32100 Desert Vista Drive
Cathedral City, CA 92234**

Counter Hours: M – F, 8:00 AM – 5:00 PM

A deposit for Plan Check and Inspection Fees is required at the time of Plan Submittal. These fees are established by Resolution of the City of Cathedral City, City Council.

- 2.4 Complete listings and manufacturer's technical data sheets for all system materials shall be included with plan submittals. All system materials shall be UL listed or FM approved for fire protection service and approved by the Fire Prevention Bureau prior to installation.
- 2.5 Plans shall indicate all necessary engineering features, including all hydraulic reference nodes, pipe lengths and pipe diameters as required by the appropriate codes and standards. Plans and supportive data (calculations and manufacturer's technical data sheets) shall be submitted with each plan submittal. Complete and accurate legends for all symbols and abbreviations shall be provided on the plans.

The contractor shall submit a copy of their California Contractors License, Workers Compensation Insurance Certificate and Cathedral City Business License with each submittal. Contractors License and Workers Compensation Insurance shall be verified with the Contractor's License Board. The following contractors shall install the appropriate system components:

- (A) General Engineering Contractor.
- (C-16) Fire Protection Contractor.
- (C-34) Pipeline Contractor.
- (C-36) Plumbing Contractor.

2.6 "As Built Drawings and Calculations" will be required when there is a 5% deviation from approved drawings and calculations.

2.7 The Fire Prevention Bureau will determine the fire flow requirements, number of fire hydrants, and hydrant spacing.

3.0 PRIVATE FIRE SERVICE MAIN

3.1 NFPA 24 (2007) shall establish the minimum requirements for the installation of private fire service mains and their appurtenances supplying automatic sprinkler systems, open sprinkler systems, water spray fixed systems, foam systems, private hydrants, monitor nozzles or standpipe systems with reference to water supplies, private hydrants and hose houses.

3.2 Private fire service mains shall be not less than six (6) inches in diameter when serving private fire hydrants and fire sprinkler systems.

3.3 Piping with a minimum rating of class 150 installed to NFPA 24 (2007 Edition) standards is required for all private fire service mains. When fire pumps are installed a minimum class 200 fire service main may be required.

3.4 All thrust blocks on private fire service mains, private fire hydrant lines and fire sprinkler laterals shall be calculated as required by NFPA 24 (2007 Edition), or use Water Agency/District Drawings. Calculations shall be submitted and the resulting dimensions of thrust blocks shall be shown on the plans. Restrained Joint Systems are allowed in lieu of thrust blocks if called out on the plans. Minimum design working pressure shall be 150 PSI. Special design considerations may be required with high static pressures or lines in which fire pumps are installed.

3.5 Private fire service mains when supplying three (3) or more fire hydrants shall be designed with a looped water supply.

3.6 In order to isolate the fire sprinkler underground lateral from any private fire hydrant system, a non-indicating listed underground gate valve with an approved roadway box shall be required.

3.7 Non-indicating listed underground gate valves with approved roadway boxes shall be required to sectionalize no more than two commercial buildings, three residential buildings or two private fire hydrants in private fire service mains. Any deviation will require the Fire Prevention Bureau approval.

3.8 On site fire hydrants and Fire Department Connections located less than three (3) feet behind the face of a curb or when no curb is provided shall be protected by guard posts set in concrete to the following specifications:

- Constructed of steel not less than 4 inches in diameter and concrete filled.
- Spaced not more than 4 feet between posts on center.
- Set not less than 3 feet deep in a concrete footing of not less than a 15-inch diameter.
- Set with the top of the posts not less than 3 feet above ground.

- Located not less than 3 feet from the fire hydrants, post indicator valves and Fire Department connections.
 - All guard posts shall be painted yellow. (Rust-Oleum safety yellow #2149 or equivalent).
- 3.9 The installing contractor shall provide a completed **"Contractors Material & Test Certificate for Underground Piping"** as required by NFPA 24 (2007 edition).

Double Check Detector Assemblies (Private)

- 3.10 All Double Check Detector Assemblies shall be UL listed/FM approved for fire protection service in compliance with NFPA 24 (2007).
- 3.11 All Double Check Detector Assemblies shall be installed with two tamper switches and electrically monitored at a UL listed central station service, when there are:
- 100 or more fire sprinkler heads.
 - Fire alarms or security systems installed.
- 3.12 All Double Check Detector Assemblies shall be provided with a chain and breakaway security lock. A key shall be kept in the spare sprinkler head box and KNOX key box.
- 3.13 Reduced pressure zone assemblies or reduced pressure detector assemblies shall not be installed in private fire service mains and fire sprinkler systems.

Fire Department Connections

- 3.14 Fire Department Connections shall be installed at apparatus access roads in locations approved by the Fire Prevention Bureau. Check with the Fire Prevention Bureau prior to plan submittal. The Fire Department Connection shall extend between 18" and 48" above finished grade.
- 3.15 Fire Department Connections shall be visible, accessible, and installed in approved locations downstream of all Double Check Detector Assemblies. Fire Department connections shall be located within 25 feet of a fire hydrant. Exceptions may be made by the fire code official.
- 3.16 Fire Department Connections shall be equipped with protective caps.
- 3.17 When the total sprinkler system demand, including hose allowance, is less than 1,000 G.P.M., the Fire Department Connection riser shall be 4" in nominal diameter and shall have a standard 2-way threaded 2 ½" connection.
- 3.18 When the total sprinkler system demand, including hose allowance, is 1,000 GPM to 1,199 G.P.M., the Fire Department Connection riser shall be 6" in nominal diameter and shall have a standard 3-way threaded 2 ½" connection.
- 3.19 When the total sprinkler system demand, including hose allowance, is greater than 1,200 G.P.M., the Fire Department Connection riser shall be 6" in nominal diameter and shall have a standard 4-way threaded 2 ½" connection.

- 3.20 In a building complex, where two or more buildings are served, or identification of which building is served by separate Fire Department Connections; the Fire Prevention Bureau will require signs of substantial construction to be posted at each Fire Department Connection identifying the respective buildings served. The minimum letter size shall be 1" on a contrasting background.
- 3.21 Fire Department Connections shall be painted red (Rust-Oleum Safety Red # 2163 or equivalent).
- 3.22 Fire Department Connection piping shall be ductile iron from the private fire service main to the Fire Department Connection check valve above ground. The pipe from the Fire Department Connection check valve to the Fire Department Connection shall be galvanized steel pipe. The NFPA 13R Fire Department Connection piping shall be copper from the private fire service main.

Fire Hydrants (Private)

- 3.23 Commercial fire hydrants with 4" x 2 1/2" x 2 1/2" outlets are required when fire flow demand is 1,500 GPM or greater. Residential fire hydrants with 4" x 2 1/2" outlets are required when the fire flow demand is less than 1500 GPM. Existing residential fire hydrants that are located within 150' of a building do not need to be upgraded to commercial fire hydrants if that hydrant/s can provide the required fire flow.
- 3.24 Private fire hydrants shall be painted red (Rust-Oleum Safety Red # 2163 or equivalent).
- 3.25 Blue reflective markers shall be installed to identify location of fire hydrants. These markers shall be visible from both directions of vehicle travel.
- 3.26 Hydraulic calculations shall be provided for all private fire hydrant systems. Calculations shall be calculated back to the point of the flow test. The fire hydrant system shall meet the fire flow requirements as required by the California Fire Code (2007 Edition).
- 3.27 When the private fire service main serves both fire sprinkler system(s) and private fire hydrant(s), the hydraulic calculation shall include the fire hydrant flow rate with associated private fire hydrant(s) and fire sprinkler flow rate for a minimum design of 20 PSI residual pressure for the fire hydrant (s).

Water Plans and Water Main Installation (Private)

- 3.28 Provide the following notes on private the fire service water main plans:

FIRE DEPARTMENT NOTES:

1. *The installation of the private fire service mains shall comply with:*
 - *NFPA 24 (2007 Edition)*
 - *California Building Code (2007 Edition).*
 - *California Fire Code (2007 Edition).*
 - *Cathedral City Fire Prevention Development Guidelines*

2. *No combustibles shall be delivered to building job site prior to the water mains and fire hydrants being operational.*

3. *The following inspections are required:*
 - *Thrust block pre-pour, trench, and backfill inspection.*
 - *Underground hydrostatic test - 200 PSI for two hours.*
 - *Underground flush.*
 - *Underground final. A completed and signed "**Contractors Material & Test Certificate for Underground Piping**" form per NFPA 24 (2007 Edition)*
 - *All inspections will be scheduled with the Fire Prevention Bureau. Sprinkler contractors must request inspections through the project Superintendents.*

TO SCHEDULE INSPECTIONS CALL the Fire Prevention Bureau at 760-770-8200 AT LEAST 24 HOURS PRIOR TO THE REQUESTED INSPECTION DATE AND TIME.

4. *All Double Check Detector Assemblies shall be installed with two tamper switches and electrically monitored at a UL listed central receiving station service, when there are:*
 - *100 or more fire sprinkler heads.*
 - *Fire alarms or security systems installed.*
5. *Ductile iron underground piping shall be installed beginning five feet from a building and continue into the building.*
6. *No joints shall be installed under the building.*
7. *The civil engineer who designed the water system hereby certifies that this water system is in accordance with the requirements as prescribed by the Fire Prevention Bureau, the California Fire Code (2007 Edition) and NFPA 24 (2007 Edition).*
8. *Breakaway spools or breakaway bolts are required.*

4.0 FIRE SPRINKLER SYSTEMS - NFPA 13

Controls

- 4.1 All control valves shall be UL Listed indicating valves.
- 4.2 All control valves with tamper switches for private fire service mains/fire sprinkler systems and all water flow switches on fire sprinkler systems shall be electrically monitored at a UL listed central station service when there are:
 - 100 or more fire sprinkler heads.
 - Fire alarm or security systems installed.
- 4.3 An approved audible sprinkler flow alarm (Wheelock horn/strobe # MT4-115-WH-VFR with WBB back box or equal) shall be provided on the exterior of the building in an approved location. A second horn/strobe shall be installed in the interior of the building in a normally occupied location. An approved sign shall be provided at or near the outdoor audible device stating the following: "SPRINKLER FIRE ALARM-WHEN ALARM SOUNDS CALL 9-1-1".

- 4.4 A dedicated electrical circuit with a circuit breaker lock shall be required for the water flow horn/strobes.

Fire Sprinkler Risers (NFPA 13)

- 4.5 When more than one fire sprinkler riser is served by a single private fire service main lateral, a separate system riser with a UL Listed indicating control valve, alarm check valve and water flow indicator is required for each fire sprinkler riser.
- 4.6 In multi-story buildings, each floor shall have a sectional riser with a UL Listed indicating control valve, alarm check valve and water flow indicator.
- 4.7 In order to provide access to the riser for future maintenance and repair, all fire sprinkler system riser locations shall provide with a minimum 18" clearance to each side and to the front of the riser. If a riser is to be concealed by means of a wall or closet, access to the riser shall be provided by means of a door with dimensions of 2'-6" x 6'-8".

Piping and Hangers (NFPA 13)

- 4.8 Threaded steel pipe shall have a minimum wall thickness of "Dyna-Thread" or Schedule 30 for branch lines less than 25" and Schedule 40 for all other piping.
- 4.9 Rolled groove steel pipe shall have a minimum wall thickness of Schedule 10.
- 4.10 The discharge area for the main drain and inspector's test valve shall be protected with a concrete splash pad to prevent damage to landscaping during periodic testing or other appropriate means.
- 4.11 Trapeze hangers shall be installed according to NFPA 13 (2007 Edition). The acceptable trapeze methods as outlined in NFPA 13 (2007) shall be Schedule 10, Schedule 40 or angles. All other methods will not be accepted unless a structural engineer or the architect of record provides to the Fire Prevention Bureau calculations and diagrams wet stamped and signed for each application.
- 4.12 Where a beam or joist thickness will not accommodate a fastener of a required length, a through bolt with the required diameter of the bolt and washer will be acceptable. All-thread rod is not acceptable for the required bolt.
- 4.13 Lag bolts and screws are not acceptable for seismic bracing.
- 4.14 Seismic sway bracing shall use Schedule 40 pipe as a minimum.

Design (NFPA 13)

- 4.15 For commercial and industrial "Shell Buildings", with the potential for high-pile storage and/or wherein no specific end use is identified at the time of plan check, the sprinkler system shall provide a minimum density of .25 GPM/square foot for a 2,000 square foot design area. 175-225 deg. F sprinkler heads shall be used in these buildings. Roof coverage over mezzanine areas shall also be built to this standard. Any deviation from this requirement will require the Fire Prevention Bureau approval.

- 4.16 It is incumbent upon the sprinkler system designer to advise the building owner that the above density and design area are minimums for shell buildings; and that increases in sprinkler protection may be required based on future occupancy hazard classification, storage commodity classification, and storage configuration according to NFPA 13 (2007 Edition) and the California Fire Code (2007 Edition).
- 4.17 When a shell building is built without a hard lid or T-bar ceiling, the upright fire sprinklers shall be designed to the unfinished ceiling height and the density and design area for the required floor area.
- 4.18 Fire sprinkler design shall be limited to 90 percent of the available water supply.
- 4.19 *Non-combustible construction* shall be as defined by the California Building Code (2007 Edition). Wood frame construction shall be considered combustible construction regardless of materials used for surface covering.
- 4.20 Sprinklers with a temperature rating of not less than an intermediate temperature rating are required in all main electrical panel and meter rooms. No combustible materials shall be stored in these rooms.
- 4.21 Light fixtures, soffits and other potential obstructions shall not interfere with the spray patterns of fire sprinklers. The sprinkler contractor shall insure that the type and location of potential obstructions is considered in the design and installation of the system. The sprinkler contractor is responsible for coordinating and resolving conflicts in coverage patterns.
- 4.22 Fire sprinklers shall not be installed directly below automatic smoke and heat vents.
- 4.23 A dedicated electrical circuit with a circuit breaker lock shall be provided for the water flow horn/strobes.
- 4.24 Inspector Test valve access panels and doors to fire sprinkler riser rooms shall have a signs with an appropriate description.
- 4.25 All electrical rooms, upright sprinklers at the roof or in the attic space, non-conditioned rooms or exterior sprinkler heads shall be 200 – 212 degree Fahrenheit heads.

Plans (NFPA 13)

- 4.26 Complete detailed work sheets and computer hydraulic calculations as required by NFPA 13 (2007 Edition) shall be included with all submittals for hydraulically designed sprinkler systems. Calculations shall extend to the point at which the water supply data was determined.
- 4.27 Water supply curves and system demand curves, including underground friction loss, hose allowance, and applicable in-rack sprinkler demand, shall be plotted on semi-logarithmic graph paper or computer generated graphs. Sprinkler system design, including hose demand, shall be limited to 90 percent of the available water supply. Water supply data may be obtained from the Fire Prevention Bureau by calling 760-770-8200 if unavailable from the water purveyor.

- 4.28 If installed piping is six (6) inches or larger, structural load calculations will be required for the structural elements/systems supporting the load.
- 4.29 Provide separate drawings for the piping plan and reflective ceiling plan.
- 4.30 Provide a fire sprinkler legend including sprinkler symbol, Manufacturer, Sprinkler Identification Number (SIN), model, style, K-factor, degree, finish, escutcheon and quantity.
- 4.31 Provide the occupancy type of each room, ceiling heights and ceiling slopes with direction, slope pitch and ceiling height at the beginning of the slope as applicable.
- 4.32 Provide soffit and ceiling pocket details including widths, depths and heights.
- 4.33 Provide Seismic Bracing Calculations on the drawings per NFPA 13 (2007 Edition) using **Cp of 0.74 and I/r Ratio of 200**. Separate Seismic Bracing Calculations shall be provided for lateral and longitudinal braces. Show details of the seismic bracing and branch line restraints on the drawings.
- 4.34 Hydraulic Plate information shall be included on the drawings.
- 4.35 Provide calculations of the Number of Sprinklers to Calculate and the Number of Sprinklers on a Branch Line and list Assumed Remote Area Sq. Ft.
- 4.36 Mark on the drawings the Most Hydraulically Demanding Remote Area.
- 4.37 In order to provide access to the riser for future maintenance and repair, all fire sprinkler system riser locations shall provide with a minimum 18" clearance to each side and to the front of the riser. If a riser is to be concealed by means of a wall or closet, access to the riser shall be provided by means of a door with dimensions of 2'-6" x 6'-8".
- 4.38 The location of the Fire Department Connection shall be within twenty-five (25) feet of a commercial fire hydrant with 4"x2½"x2½" outlets.
- 4.39 All Fire Department Connections shall have protective caps.
- 4.40 Pipe Schedule Design shall not be used in existing systems, extension of existing systems and new systems.
- 4.41 Provide the following notes on fire sprinkler plans:

FIRE DEPARTMENT NOTES (NFPA 13)

1. *The installation of the sprinkler systems or modifications to existing sprinkler systems shall comply with:*
 - *NFPA 13 (2007 Edition).*
 - *California Fire Code (2007 Edition).*
 - *California Building Code (2007 Edition).*

- *The City of Cathedral City Municipal Code Chapter 8.12.*
- *Cathedral City Fire Department Development Guidelines*

2. *The Fire Prevention Bureau will require the following inspections and tests as a minimum:*

- *Fire sprinkler piping weld inspection.*
- *Overhead installation and hydrostatic test – 200 PSI for two hours.*
- *Fire sprinkler system final inspection. A completed and signed "Contractors Material and Test Certificate for Aboveground Piping" form per NFPA 13 (2007 Edition) is required.*
- *All inspections will be conducted Monday through Friday. Sprinkler contractors must request inspections through the project Superintendents.*

TO SCHEDULE INSPECTIONS CALL the Fire Prevention Bureau at 760-770-8200 AT LEAST 48 HOURS PRIOR TO THE REQUESTED INSPECTION DATE AND TIME.

3. *A dedicated electrical circuit with a circuit breaker lock shall be required for the water flow horn/strobes.*
4. *All control valves with tamper switches for private fire service mains/fire sprinkler systems and all water flow switches on fire sprinkler systems shall be electrically monitored at a UL listed central station service when there are:*
 - *100 or more fire sprinkler heads.*
 - *Fire alarm or security systems installed.*
5. *The fire sprinkler branch lines shall be restrained against excessive vertical and lateral movement by use of a wrap-around U-hook or by other approved means per NFPA 13 (2007).*

5.0 FIRE SPRINKLER SYSTEMS (NFPA 13R)

Design (NFPA 13R)

- 5.1 The sprinkler contractor shall calculate the friction loss for all pipe, meters, valves, fittings and other appurtenances when designing the hydraulic calculations for the NFPA 13R (2007) fire sprinkler system.
- 5.2 Fire sprinkler design shall be limited to 90% of the available water supply.
- 5.3 Fire sprinkler systems shall require a single 2 ½" Fire Department Connection when the building exceeds 2,000 Sq. Ft. or more than one story.
- 5.4 An inspector's test valve must be provided from a remote portion of the system. Orifice size to be the same as the smallest sprinkler in the system. This valve shall be a full port ball valve with signed access panel and a copper stub outside the wall.
- 5.5 Access panels for fire sprinkler risers and Inspector Test valves and doors for fire sprinkler riser rooms shall have a signs with an appropriate description.

- 5.6 Fire sprinkler protection is required in entrance foyers.
- 5.7 Fire sprinkler protection is required in any sized bathroom when a walk-in closet must exit through a bathroom.
- 5.8 Garages, attics and outside mechanical and/or electrical rooms shall use commercial Quick Response fire sprinkler heads with a 200 – 212 deg. F temperature rating. Garage fire sprinkler spacing shall be 130 Sq. Ft. Garage fire sprinklers shall be designed for a flow rate of 13 GPM with a 4.2 K factor head and 14.8 GPM for a 5.6K factor head.
- 5.9 Pilot heads shall be installed in attic areas based on one head per 1,000 square feet, or fraction thereof and the highest priority is over the Forced Air Units.
- 5.10 Fire sprinkler protection is required for carports, garages, casitas and similar structures, regardless of construction, unless physically separated by a minimum of 10 feet from fire sprinkler protected dwellings or other fire sprinkler protected structures.
- 5.11 Minimum piping size shall be one (1) inch.
- 5.12 Light fixtures, soffits and other potential obstructions shall not interfere with the spray patterns of sprinkler heads. The sprinkler contractor shall insure that the type and location of potential obstructions is considered in the design and installation of the system. The sprinkler contractor is responsible for coordinating and resolving conflicts in coverage patterns.
- 5.13 A dedicated electrical circuit with a circuit breaker lock shall be provided for the water flow horn/strobes.
- 5.14 An approved audible sprinkler flow alarm (Wheelock # MT4-115-WH-VFR with WBB back box or equal) shall be visible from the street. The horn/strobe shall be listed for outdoor installation. An approved sign shall be provided at or near the horn/strobe stating: "SPRINKLER FIRE ALARM-WHEN ALARM SOUNDS CALL 9-1-1".
- 5.15 Additional exterior horn/strobes shall be required when there are more than four dwelling units per building.
- 5.16 Contractor shall provide a spare head box with sprinkler wrench and three spare sprinkler heads of each type, unless there is less than three heads of that type.

Plans (NFPA 13R)

- 5.17 Piping shall be detailed on drawing from public water main to riser including pipe sizes, pipe types, pipe lengths, all fittings, all valves, water meter manufacturer and model, back flow device manufacturer, model and size and elevations of house finished floor relative to fire hydrant outlet where pressures were taken.
- 5.18 Provide a riser detail on the drawing, including a flow control valve with a tamper switch.
- 5.19 Provide an Inspector Test detail on drawing.

- 5.20 Provide a table on the drawings for piping support spacing and one and two point sprinkler head vertical restraint spacing.
- 5.21 Provide a fire sprinkler legend including sprinkler symbol, Manufacturer, Sprinkler Identification Number (SIN), model, style, K-factor, degree, finish, escutcheon and quantity.
- 5.22 Provide occupancy type of each room, ceiling heights and ceiling slopes with direction, slope pitch and ceiling height at the beginning of the slope as applicable.
- 5.23 Provide soffit and ceiling pocket details including widths, depths and heights.
- 5.24 Provide beam details including widths, heights and spacing.
- 5.25 Design a looped fire sprinkler piping system where possible.
- 5.26 Provide location of required horn/strobes.
- 5.27 Provide the following notes on fire sprinkler plans:

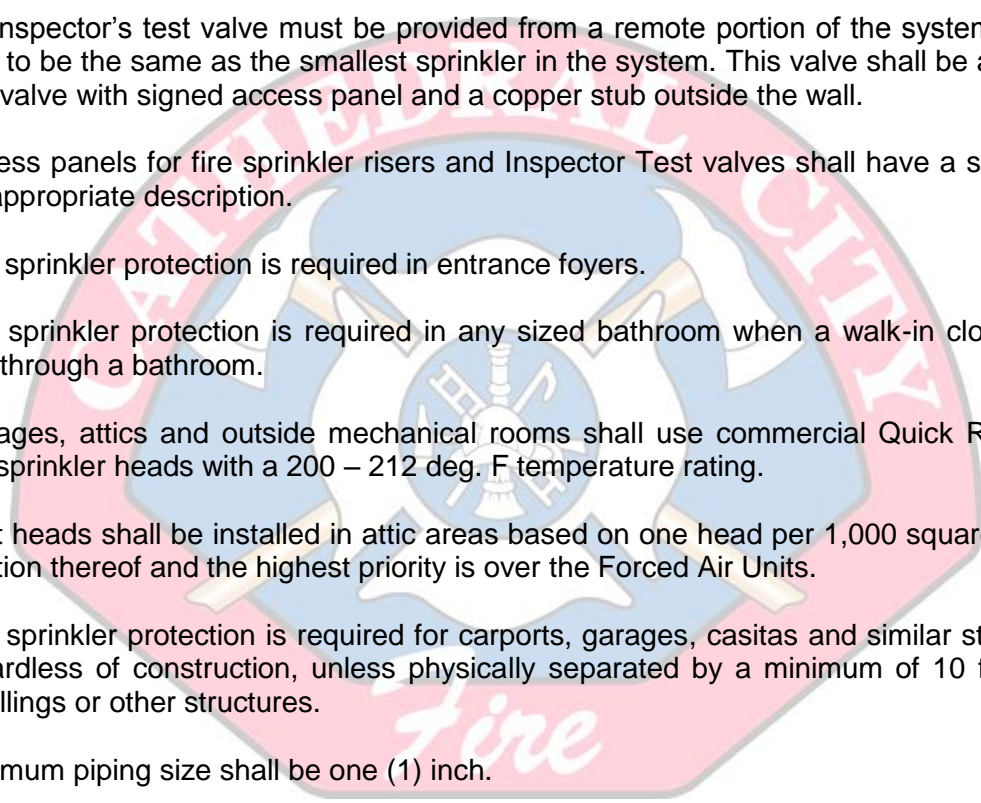
FIRE DEPARTMENT NOTES (NFPA 13R)

1. *The installation of the sprinkler system or modifications to existing sprinkler systems shall comply with:*
 - *NFPA 13R (2007 Edition).*
 - *California Building Code (2007 Edition).*
 - *California Fire Code (2007 Edition).*
 - *The City of Cathedral City Municipal Code Chapter 8.12.*
 - *Cathedral City Fire Department Development Guidelines*
2. *The Fire Prevention Bureau will require the following inspections and tests as a minimum:*
 - *Overhead installation and hydrostatic test – 200 PSI for two hours.*
 - *Fire sprinkler system final inspection. A completed and signed "Contractors Material and Test Certificate for Aboveground Piping" form per NFPA 13R (2007 Edition) is required.*

TO SCHEDULE INSPECTIONS, call the Fire Department on the day before the inspection between 8:00 a.m. and 5:00 p.m. (760)770-8200.
3. *A dedicated electrical circuit with a circuit breaker lock shall be provided for the water flow horn/strobes.*
4. Water flow switches and control valves on fire sprinkler systems shall be electrically monitored when there are 100 fire sprinkler heads or more.

6.0 FIRE SPRINKLER SYSTEMS (NFPA 13D)

Design (NFPA 13D)

- 
- 6.1 A full port ball valve shall be installed at one- and two-family Dwelling units as a shut-off valve for both domestic and fire sprinkler water supply. A shut-off valve shall be installed for the domestic water supply after the fire sprinkler system take-off.
- 6.2 Fire sprinkler system design shall be limited to 90 percent of the available water supply.
- 6.3 Fire sprinkler systems shall be combined domestic and fire sprinkler service. Hydraulic calculations shall include 5 GPM domestic water demand at the domestic water take-off.
- 6.4 The water flow switch on the fire sprinkler system shall be electrically monitored at a UL listed central station service when the dwelling has an approved household fire alarm or security system.
- 6.5 An inspector's test valve must be provided from a remote portion of the system. Orifice size to be the same as the smallest sprinkler in the system. This valve shall be a full port ball valve with signed access panel and a copper stub outside the wall.
- 6.6 Access panels for fire sprinkler risers and Inspector Test valves shall have a signs with an appropriate description.
- 6.7 Fire sprinkler protection is required in entrance foyers.
- 6.8 Fire sprinkler protection is required in any sized bathroom when a walk-in closet must exit through a bathroom.
- 6.9 Garages, attics and outside mechanical rooms shall use commercial Quick Response fire sprinkler heads with a 200 – 212 deg. F temperature rating.
- 6.10 Pilot heads shall be installed in attic areas based on one head per 1,000 square feet, or fraction thereof and the highest priority is over the Forced Air Units.
- 6.11 Fire sprinkler protection is required for carports, garages, casitas and similar structures, regardless of construction, unless physically separated by a minimum of 10 feet from dwellings or other structures.
- 6.12 Minimum piping size shall be one (1) inch.
- 6.13 Light fixtures, soffits and other potential obstructions shall not interfere with the spray patterns of sprinkler heads. The sprinkler contractor shall insure that the type and location of potential obstructions is considered in the design and installation of the system. The sprinkler contractor is responsible for coordinating and resolving conflicts in coverage patterns.
- 6.14 A dedicated electrical circuit with a circuit breaker lock shall be provided for the water flow horn/strobes.
- 6.15 An approved audible sprinkler flow alarm (Wheelock # MT4-115-WH-VFR with WBB back box or equal) shall be visible from the street. The horn/strobe shall be listed for outdoor installation. An approved sign shall be provided at or near the horn/strobe stating: "SPRINKLER FIRE ALARM-WHEN ALARM SOUNDS CALL 9-1-1".

- 6.16 An approved audible sprinkler flow alarm (FIREX # 0498 accessory module connected to multi-station FIREX smoke detectors or equal) to alert the occupants shall be provided.
- 6.17 Contractor shall provide a spare head box with sprinkler wrench and two spare sprinkler heads of each type, unless there is less than two heads of that type.

Plans (NFPA13D)

- 6.18 Piping shall be detailed on drawing from public water main to riser including pipe sizes, pipe types, pipe lengths, all fittings, all valves, water meter manufacturer and model, back flow device manufacturer, model and size and elevations of house finished floor relative to fire hydrant outlet where pressures were taken.
- 6.19 Provide a riser detail on the drawing.
- 6.20 Provide an Inspector Test detail on drawing.
- 6.21 Provide a table on the drawings for piping support spacing and one and two point sprinkler head vertical restraint spacing.
- 6.22 Provide a fire sprinkler legend including sprinkler symbol, Manufacturer, Sprinkler Identification Number (SIN), model, style, K-factor, degree, finish, escutcheon and quantity.
- 6.23 Provide occupancy of each room, ceiling heights and ceiling slopes with direction, slope pitch and ceiling height at the beginning of the slope as applicable.
- 6.24 Provide soffit and ceiling pocket details including widths, depths and heights.
- 6.25 Provide beam details including widths, heights and spacing.
- 6.26 Design a looped fire sprinkler piping system where possible.
- 6.27 Provide the following notes on fire sprinkler plans:

FIRE DEPARTMENT NOTES (NFPA 13D)

1. *The installation of fire sprinkler systems or modifications to existing fire sprinkler systems shall comply with:*
 - *NFPA 13D (2007 Edition).*
 - *California Building Code (2007 Edition).*
 - *California Fire Code (2007 Edition).*
 - *The City of Cathedral City Municipal Code Chapter 8.12.*
 - *Cathedral City Fire Department Development Guidelines*
2. *The Fire Prevention Bureau will require the following inspections and tests as a minimum:*

- *Overhead installation and hydrostatic test – 200 PSI for two hours.*
- *Final fire sprinkler and underground inspections.*

TO SCHEDULE INSPECTIONS, CALL THE FIRE DEPARTMENT on the day before the inspection between 8:00 a.m. and 5:00 p.m. (760) 770-8200.

3. *An approved audible sprinkler flow alarm (FIREX # 0498 accessory module connected to multi-station FIREX smoke detectors or equal) to alert the occupants shall be provided.*
4. *A dedicated electrical circuit with a circuit breaker lock shall be provided for the water flow horn/strobes.*

7.0 INSPECTIONS AND TESTS

- 7.1 Buildings must pass all the fire protection systems inspections prior to a certificate of occupancy.
- 7.2 The Inspection, Testing and Maintenance of Water-Based Fire Protection Systems shall comply with California Code of Regulations (CCR) Title 19.
- 7.3 The California State Fire Marshal has adopted NFPA 25 with California Amendments, which will modify Title 19.
- 7.4 The Fire Prevention Bureau shall require completed "**Contractors Material and Test Certificate for Underground Piping**" per NFPA 24 (2007 Edition) and "**Contractors Material and Test Certificate for Aboveground Piping**" per NFPA 13 (2007 Edition) and NFPA 13R (2007 Edition) at the time of fire sprinkler final inspection. Aboveground sprinkler system piping and underground piping will not pass final inspection until **the Fire Prevention Bureau receives all certificates**. NFPA 13D fire sprinkler systems are exempt from the above certificates.
- 7.5 The Fire Prevention Bureau will require the following inspections and test as a minimum:
 - **THRUST BLOCK PRE-POUR, TRENCH AND BACKFILL INSPECTION**
All private fire service mains shall have an inspection of the areas where the thrust blocks are to be poured prior to their installation.
 - **UNDERGROUND AND HYDROSTATIC TEST**
All thrust blocks and joints exposed with center loading are acceptable. Hydrostatic test is required at 200 PSI for two hours. All valves, Fire Department Connections, fire hydrants and fire sprinkler service mains shall be installed. Private fire service mains shall be complete and installed per approved plans.

- UNDERGROUND FLUSH
Complete flushing of underground system shall be completed before any connection to the overhead sprinkler piping. Flushing shall be performed according to NFPA 24 (2002 Edition), Section 10.10.2 and referenced in NFPA 13, 13D and 13R (2002 Editions).
- FIRE SPRINKLER PIPING WELD INSPECTION
PRIOR TO INSTALLATION, all pipes with welded fittings shall be inspected for compliance with NFPA 13 (2007 Edition). Any pipe with welded fittings installed prior to inspection, shall be removed and inspected on the ground. Provide at this inspection, copies of certified records, as outlined in NFPA 13 (2007 Edition) to the Fire Prevention Bureau.
- OVERHEAD INSTALLATION AND HYDROSTATIC TEST
Hydrostatic test at 200 PSI for two hours is required and **ALL AREAS MUST BE VISIBLE**. Contractor shall schedule inspections before insulating, dry walling or installation of ceilings occurs. Inspection shall review compliance with approved plans, spacing, hangers, seismic bracing, etc. All areas must remain visible for any corrections from this inspection. **A REINSPECTION OF CORRECTIONS WILL BE REQUIRED.**

The following is required prior to walk-through:

- **Approved drawings and hydraulic calculations available on site**
- **Water service to sprinkler riser shall be installed and live**
- **All HVAC registers shall be installed**
- **All electrical shall be installed for lights, ceiling fans and smoke detectors**
- FINAL SPRINKLER AND UNDERGROUND INSPECTIONS

ALL CORRECTIONS FROM PREVIOUS INSPECTIONS MUST BE COMPLETED AND SIGNED OFF.

- 7.6 A complete approved set of sprinkler system and private fire service main plans stamped approved (wet stamp and signature) by the Fire Prevention Bureau shall be kept on the job site at all times. **INSPECTIONS WILL NOT BE CONDUCTED WITHOUT THE APPROVED PLANS.**
- 7.7 The permit and inspection record card (Job Card) shall be available with the approved plans at the job site. **INSPECTIONS WILL NOT BE CONDUCTED WITHOUT THE APPROPRIATE INSPECTION RECORD CARD (Job Card).**
- 7.8 Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this guideline or of other ordinances of the jurisdiction shall not be valid.

7.9 All inspections for NFPA 13 (Commercial) systems will be conducted from Monday through Friday. Sprinkler contractors must request inspections through the project Superintendents. **TO SCHEDULE INSPECTIONS CALL THE FIRE PREVENTION BUREAU 760-770-8200 AT LEAST 48 HOURS PRIOR TO THE REQUESTED INSPECTION DATE AND TIME.**

7.10 All inspections for NFPA 13R and NFPA 13D systems must be requested and scheduled by the project Superintendents. **TO SCHEDULE INSPECTIONS, CALL THE FIRE DEPARTMENT on the day before the inspection between 8:00 a.m. and 5:00 p.m. (760) 770-8200.**

8.0 EMERGENCY ACCESS & GATES

General

8.1 This section has been developed to assist development applicants, architects, contractors, and building/business owners in determining the minimum requirements for Knox Key Switches on powered access gates, Knox Boxes for non powered gates, Knox Box Vaults for residential & commercial facilities, Knox Locks and minimum access gate requirements for fire department access during emergency responses.

Plans

8.2 Plan submittals must identify all access gates and locations of Knox access switches and Knox boxes.

Gate Access Requirements

8.3 The installation of security gates across a fire apparatus access road shall be approved by the fire chief during the plan check review. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained at all times.

8.4 A Knox key operated switch shall be installed at every automatic gate. Residential complexes using secured automated vehicle entry gates or entries shall utilize an approved Knox key electric switch and/or an optical pre-emption device when required by a fire code official. Secured non-automated vehicle gates or entries shall utilize an approved Knox padlock and chain (maximum link or lock shackle size of ¼ inch) when required by a fire code official.

8.5 In the event of a power failure, the gates shall be defaulted or automatically transferred to a fail safe mode allowing the gate to be pushed open without the use of special knowledge or any equipment. If a two-gate system is used, the override switch must open both gates.

8.6 Gate arms securing parking lots and parking structures shall be equipped with a fire department approved dual-keyed Knox key electric switch. When activated, the arm or arms shall open to allow fire and law enforcement access.

- 8.7 If there is no sensing device that will automatically open the gates for exiting, a fire department approved Knox electrical override switch shall be placed on each side of the gate in an approved location.
- 8.8 Approved security gates shall be a minimum of 20 feet in unobstructed drive width on the entrance side with gate in open position and 14 feet minimum on the exit side. An unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm) shall be provided and maintained at all times.
- 8.9 Cathedral City fire apparatus require an unobstructed vertical clearance of not less than 8 feet 6 inches for all both subterranean parking structures as well as above ground parking structures.

Building Access Requirements

- 8.10 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 a Knox Box Vault will be required.
- 8.11 Knox Box locations shall be mounted at 5 feet above grade in proximity to the main entrance. Show locations of Knox access controls on plan elevation views. Show requirement in plan notes. Contact the Fire Department at 760-770-8200 for a Knox application form.
- 8.12 The key box shall be of an approved type and shall contain keys to gain necessary access as required by the fire code official.
- 8.13 Secured emergency access gates serving apartment, town home or condominium complex courtyard must provide a key box in addition to association or facility locks. The nominal height of Knox lock box installations shall be 5 feet above grade. Contact the Fire Department at 760-770-8200 for determination of box location.

Inspection Requirements

- 8.14 A final field inspection by the fire code official or an authorized representative is required before electronically controlled gates may become operative. Prior to final inspection, electronic gates shall remain in a locked-open position.
- 8.15 A final field inspection by the fire code official or an authorized representative for the installation of Knox Box Vaults is required at time of final inspection.

9.0 FIRE APPARATUS ACCESS ROADS

General

- 9.1 This section has been developed to assist development applicants, architects, contractors, and building/business owners in determining the minimum requirements for the design of fire apparatus access roads for consistency with the best practices of the fire code in the interest of public safety.

Plans

- 9.2 Detailed fire apparatus access roads shall be submitted to the Fire Department for review and approval prior to construction. Plans shall include certification from a Registered Professional Engineer stating the roads are of all weather construction and capable of supporting fire apparatus weighing 73,000 lbs G.V.W.

Requirements

- 9.3 Private streets shall have a minimum width of at least 20 feet, pursuant to California Fire Code 503.2.1 however, a greater width for private streets may be required by the City engineer to address traffic engineering, parking, and other issues. The Cathedral City Fire Department requirements for two-way private streets, is a minimum width of 20 feet, unless otherwise allowed by the City engineer. No parking shall be allowed on either side of the roadway. The following text, developed in concert with Engineering, Planning, and Fire is proposed as alternative text for the Circulation Element,:
- **Designated fire lanes** in private developments shall be not less than 20 feet wide (curb face to curb face) with no parking on either side.
 - **Reduced Roadway Width:** Areas with reduced roadway width (such as entry and exit gates, entry and exit approach roads, traffic calming areas) that are under 36 feet wide require red painted curb to maintain minimum 20 foot clear width. Red curb shall be stenciled "NO PARKING" and "FIRE LANE" with white paint.
- 9.4 The grade of the fire apparatus access road shall within the limits established by the fire code official based on the fire department's apparatus. No grade shall exceed 12%. Grade transitions shall not exceed maximum angle of approach and angle of departure based on the fire department's apparatus as determined by the Fire Chief.
- 9.5 A secondary access shall be provided for all developments with 25 or more dwelling units.
- 9.6 Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with approved provisions for the turning around of fire apparatus. The City of Cathedral City has two approved turn around provisions. One is a cul-de-sac with an outside turning radius of 35 feet from centerline and 15 feet inside radius from centerline. The other is a hammerhead turnaround extending 65 feet from centerline in each direction.
- 9.7 Fire department access roads/driveways shall be provided so that no portion of the exterior wall of the first floor of any building will be more than 150 feet from such roads.
- 9.8 Mid Rise/High Rise: High-rise and mid-rise buildings shall be accessible on a minimum of two sides. Street access shall not be less than 15 feet or more than 30 feet from the building. Landscaping or other obstructions shall not be placed or maintained around structures in a manner so as to impair or impede accessibility for fire fighting and rescue operations.

Construction Requirements

- 9.9 Access for firefighting equipment shall be provided to the immediate job site at the start of construction and maintained until all construction is complete. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet and an unobstructed vertical clearance of not less than 13'6". Fire Department access roads shall have an all weather driving surface at 90% compaction and support a minimum weight of 73,000 lbs.



10.0 FEE SCHEDULE

Estimated fees are to be paid at the time of plan submission to the Fire Marshal.
Additional fees, if applicable, are due when plans are returned from the Fire Marshal.

Plan check	\$115.00/hour
Inspection	\$138.00/hour
Administrative	10% of fees

Plan rechecks and re-inspections will be charged at the above rates.

Porterage will be estimated based on ground transportation rates and will vary based on weight. Additional transportation charges will apply for expedited service.

