CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

A-1

Revision Date:
02-10-20

FIRE PREVENTION STANDARD

FIRE APPARATUS ACCESS ROAD DESIGN, CONSTRUCTION AND MAINTENANCE

AUTHORITY

Sections 102.9, 103, and 104.1 of the 2019 California Fire Code and City of Victorville Municipal Code shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to determine requirements not specifically provided for by the Fire Code. For further requirements on this subject, see sections 503.1 and 503.2 et. seq. of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide for roadways that allow for safe, quick and reliable access by emergency response fire apparatus onto premises to be protected.

SCOPE

This standard shall apply to the design, construction and maintenance of all new fire apparatus access roads within the jurisdiction, as well as fire apparatus access roads at existing facilities when applied at the discretion of the fire code official.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

The applicant shall provide on a scaled site plan or plot plan the following information at a minimum:

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1) Location of all fire apparatus access roads and fire apparatus turnarounds for dead end roadways.
2) Dimensions indicating width, length, and radii of all turns for all fire access roads.
3) Surfacing specifications of fire access roads, including pavement type and thickness. May also require a report from a registered engineer for certain conditions.
4) Gradient, camber (cross slope) and crown of all roadways used for fire access, indicated in percentage at regular intervals (can be submitted on a grading plan and with topographic lines).
5) Locations of any types of obstructions to fire access roads (See also City of Victorville standard A-3).
6) The locations of all temporary and permanent structures, outside storage yards.
7) Location of all fire protection water sources (hydrants, tanks, etc.).
8) Locations of all parking areas, landscaping areas, walkways, and any other adjacent areas.
9) Location of significant hazards (i.e., flammable or combustible liquids, hazardous materials, or LPG tanks).

DEFINITIONS

EMERGENCY VEHICLE ACCESS (EVA) - A road or other passageway developed to allow the passage of fire apparatus. An emergency vehicle access is not necessarily intended for vehicular traffic other than fire apparatus.

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

GENERAL

1) All access roads shall meet minimum fire department access road requirements, including width, distance, turnarounds and height limitations or as approved by the fire code official.
2) Fire apparatus access roads shall be provided to within one hundred and fifty (150) feet of all exterior portions of the first story of every building, facility or structure as measured by an approved route around the exterior of the building or structure.

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3) For the purposes of determining adequate fire access as discussed above, "approved route" is the distance measured along a path that simulates the route a firefighter may take to extend a hose line around the exterior of a structure from a fire engine parked on the nearest fire apparatus access road. This is measured at a point located ten (10) feet from the edge of the roadway or curb. Under most circumstances, the approved route will not be a straight line. Fences, planters, other structures, topography and any significant changes in elevation must be considered when determining whether a building or structure is accessible from a particular location on the fire access roadway. **(See Diagram A-1.1)**

NUMBER REQUIRED

1) For new residential development, additional points of access will be determined by the number of existing or future dwelling units that the roadway will provide fire access to, as well as by measuring the length of the roadway.

   a) For single family uses, a minimum of two points of access, meeting the requirements of the City Engineering department for unrestricted motor vehicle access as well as the requirements of this standard, are required when serving more than thirty (30) dwelling units. For multiple family uses, two or more separate points of access are required when serving more than one hundred (100) dwelling units.

2) In all commercial and industrial development, a minimum of two or more separate points of fire access into a site or premises, which meet the requirements of the City Engineering Department for unrestricted motor vehicle access as well as all the other requirements of this standard, shall be provided whenever fire apparatus access roadways are required onsite. **(See Diagram A-1.3)**

   a) For development projects that are constrained with practical difficulties in providing two points of fire access as described above, one point of fire access for emergency ingress and egress shall be allowed at the discretion of the fire code official if it is unobstructed with no gates or other barriers, provides a minimum of thirty five (35) feet in width, and provides access to buildings or structures totaling no more than sixty two thousand (62,000) square feet and no more than thirty (30) feet or three (3) stories in height.

   b) When a secondary point of fire access into a development is required, it may be permitted to be an Emergency Vehicle Access (EVA) with the approval of the fire code official. The EVA shall be secured with a gate or other barrier acceptable to the fire code official (See City of Victorville Standard A-3.)

3) In all cases, to be considered a separate point of fire access, such access shall be located at least one half (1/2) of the diagonal distance of the development area served, apart from another point of fire access.

4) The fire code official is authorized to require more than two means of fire access based on the potential for impairment of roadways by vehicle congestion, condition of terrain, climatic

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conditions or other factors that could limit access. For example, certain uses or areas may require additional provisions for egress of a large number of the public during major disasters.

LOCATIONS

1) In all development except single family residential, where required, fire apparatus access roadways shall be provided on at least one (1) side of every building or structure, which shall be the side with the greatest length. The access road shall run parallel to the entire length of the building. The roadway shall not be closer than ten (10) feet or farther than thirty (30) feet from the building, as measured from the face of curb or edge of the access roadway to the exterior wall or projection of the building or structure. **(See Diagram A-1.4)**
2) In addition, fire access roadways shall be located as per the following:
   a) Buildings less than 50,000 square feet and greater than 100 feet in depth shall be provided with fire access roadways on two (2) sides, one of which shall be on the longest side.
   b) Buildings that are 50,000 square feet or larger shall have fire access roadways provided on three (3) sides, two (2) of which will be on the longest sides.
   c) Buildings which exceed 100,000 square feet shall have fire access roadways provided on all sides.
   d) Buildings that are four (4) or more stories in height shall have fire access roadways provided on all sides **(See Diagram A-1.4)**

DIMENSIONS

1) Fire apparatus access roadways shall be measured from the face of a vertical curb, the edge of the roadway pavement, or flow line of a rolled curb, or the exterior wall or projection of a building **(See Diagram A-1.5)**
2) Fire apparatus access roadways serving all buildings, structures or facilities shall be a minimum of twenty-six (26) feet in unobstructed width. See (a) through (c) below for exceptions.
   a) Residential driveways that provide fire access to not more than two (2) single family dwellings and accessory structures shall be a minimum of twelve (12) feet in width.
   b) Fire apparatus access roadways serving buildings that are three (3) stories, thirty (30) feet or more in height or more than 300,000 square feet in area shall be a minimum of thirty (30) feet in unobstructed width.

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c) When approved by the fire code official, in Mountain Region areas as designated by the City or where topographical constraints exist, fire apparatus access roads that are less than the minimum width, but no less than twenty (20) feet in width, shall be permitted. Such roadways shall have turnouts that are a minimum of six feet (6') in width and fifty (50') feet in length and spaced at approximately every six hundred (600') feet. If fire hydrants are located on access roads, the turn-out shall be located at each fire hydrants and other points determined necessary for fire protection and emergency response. **(See Diagram A-1.8)**

d) One-way fire access roadways and roadways that have raised medians shall have an unobstructed one-way width of twenty (20) feet. Such medians shall be a maximum of fifty (50) feet in width except where approved by the fire code official. Roadways with raised medians shall have intersections or median breaks located a maximum of six hundred (600) feet apart or as recommended by the City Engineering Department. **(See Diagram A-1.7)**

3) All fire access roadways shall be no less than fourteen (14) feet six (6) inches in unobstructed vertical clearance, as measured from roadway surface at its the highest elevation to the lowest point of any obstruction.

4) All dead-end fire access roadways that exceed one hundred fifty (150') feet in length shall be provided with a turn-around in accordance with the "TURNAROUNDS" section of this Standard. The length of a roadway for the purposes of this standard shall be measured from (A) the center line of the intersecting roadway that provides at least two points of access to (B) the center point of the dead-end roadway terminus, such as a cul-de-sac or other turnaround. **(See Diagram A-1.2.)**

   The maximum length of dead end fire access roadways shall be:

   a) Six hundred (600) feet in length in all residential and commercial development

   b) One thousand (1000) feet in length in industrial development

5) Parking of vehicles shall not be allowed to obstruct fire department access at any time. The following criteria shall be used to determine parking allowed on fire access roadways:

   a) Parking is not permitted on roadways that are less than thirty two (32) feet in width.

   b) Roadways that are a minimum of thirty two (32) feet in width but less than forty (40) feet in width may have parallel parking on one (1) side of the roadway in accordance with City standards.

   c) Roadways that are a minimum of forty (40) feet in width may be designated to have parallel parking on both sides of the roadway. For higher density development, public or private streets that are a minimum of thirty six (36) feet in width may be allowed to have

parking on both sides of the street with the approval of the fire code official, taking into consideration additional access provisions and other factors.

d) In addition, parking that is perpendicular or diagonal to the edge of the roadway shall not obstruct the required minimum width of 26 feet for fire access. **(See Diagram A-1.6).**

SURFACE

1) All fire access roadway surfaces, except for driveways providing fire access to no more than two (2) single family dwellings or accessory structures, shall be capable of supporting a fire apparatus with a gross vehicle weight of 80,000 pounds (lbs.) For design purposes, fire apparatus weight is distributed as 60,000 lbs. on the rear dual axles and 20,000 lbs. on the front axle. When required by the fire code official, the design of fire access roadways shall bear the stamp of a registered professional engineer in order to verify that they meet this requirement.

2) Fire access roadways shall be paved with a concrete or asphalt material in order to provide "all weather" safe driving conditions. The appropriate thickness of surface materials and base materials shall be determined by a qualified engineer and subject to the approval of the City Engineering Department, but shall be in all cases a minimum of four (4) inches.

3) Planted materials that are retained by a solid system such as "Turf Block,"® or "Grass-crete"® may be used for fire apparatus access surfacing, with approval of the fire code official, for limited or isolated areas no more than fifty (50) feet in length and where road grades do not exceed two percent (2%). Such areas shall be clearly signed as Emergency Vehicle Access per City of Victorville Standard A-3, Diagram A-3.1. These, as well as other alternate paving materials such as stone, concrete pavers, chip seal or slag, shall be evaluated based on their ability to support imposed load of a fire apparatus and shall be immediately recognizable to emergency responders as a drivable surface.

4) Where no paved roadways exist and road grades do not exceed eight percent (8%), and where serving only single family dwellings or accessory buildings, roads may be constructed with approved native materials or gravel compacted to eighty five percent (85%) compaction.

GRADIENT

1) Generally, the grade of a fire apparatus access road shall be a maximum of twelve percent (12%) at any point.

2) Fire apparatus access roadways or driveways may be increased to fourteen percent (14%) for a distance not to exceed 500 feet with the approval of the fire code official.

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3) The grade of a driveway providing fire access to one (1) or two (2) single family dwellings may be increased to a maximum of sixteen percent (16%) for a distance not to exceed 500 feet in areas in which City Development Codes allow such increases and with the approval of the fire code official.

4) Grades across the width of a road section or within a turnaround area as described below shall not exceed five percent (5 %.)

5) In order to accommodate proper angles of approach and departure, gradient in fire access roads shall not exceed a five percent (5%) change along any ten (10) foot section.**(See Diagram A-1.9).**

TURNING RADIUS

1) All turns within fire access roadways that accommodate two-way traffic of fire apparatus shall be a minimum of nineteen feet (19') inside radius and forty five feet (45') outside radius. **(See Diagram A-1.10.)**

2) For fire access roadways that accommodate one-way traffic of fire apparatus, as well roadways that have limited traffic such as onsite drive aisles shall be a minimum of nineteen feet (19') inside radius and thirty one feet (31') outside radius. **(See Diagram A-1.10)**

3) Subject to the approval of the fire code official, a computer model fire apparatus turning template, set to the dimensions of a typical fire apparatus, can be used for determining the appropriate radius.

4) A minimum fifty (50) foot straight section of roadway must be provided between radius turns within fire access roadways, measured from the end of one radius turn to the beginning of the next. **(See Diagram A-1.11)** A turning template may also be used to modify this requirement.

TURNAROUNDS

1) An approved fire apparatus turnaround in accordance with this section is required when fire access roadways exceed one hundred fifty (150) feet in length.

2) Driveways, alleys, and other private roadways that are not intended for public access may provide a "hammerhead" style turnaround complying with **Diagram A-1.12**.

3) Public and private streets that are intended for public access shall terminate in an approved cul-de-sac with a minimum radius of forty five (45) feet. When allowed by the City Engineering Department for higher density development, cul-de-sacs that are a minimum of thirty eight (38) feet in radius may be allowed with the approval of the fire code official, taking into consideration potential for parking and other factors. **(See Diagram A-1.13).**

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INSTALLATION

1) All fire access roadways required by the Fire Code and this standard shall be installed to an extent that will provide all-weather paved access for emergency vehicles prior to combustibles being brought to the site or combustible construction taking place. The fire code official shall determine the adequacy of fire access roads during construction; see also City of Victorville Standard B-2.
2) All secondary points of fire access, including those that are EVA only, shall be installed prior to the first phase or the beginning of combustible construction. Subject to the approval of the fire code official, additional points of access may be installed during later phases of construction, provided all other requirements of this Standard are met and all access roads and points of access are installed prior to final for occupancy.
3) Prior to final approval for any development project, fire access roadways shall be complete with final lifts of asphalt, curbs and gutters, fire hydrant markers in accordance with City of Victorville standard W-2, and approved signage and striping in accordance with City Standard A-2.

TEMPORARY FIRE ACCESS ROADS

1) When approved by the fire code official, temporary access roads that meet all applicable requirements of City of Victorville Standards may be installed during construction in lieu of permanent access roadways and maintained in place for a maximum period of one (1) year.
2) Temporary fire access roads shall be designed by a registered professional engineer and drawn on plans and submitted to the Fire Department in accordance with this Standard. Such roadways may be designed and constructed of any materials that will provide safe, all-weather drivable surface, provided these are evaluated by the design engineer and meet all applicable requirements of this Standard.
3) See City of Victorville Standard B-2 for maintenance of temporary access roads.

MAINTENANCE

1) All fire apparatus access roads, private or public, shall be maintained unobstructed and in safe, drivable condition for emergency vehicle access at all times by the property owner or other responsible party.
2) In areas subject to snowfall, all roadways used for fire access shall be cleared of snow and repaired on a continual basis.

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3) Landscaping and any other vegetation shall be maintained and cleared horizontally from the edges and extending vertically to fourteen (14) feet, six (6) inches in height for all fire access roads. Landscaping placed in decorative medians or near buildings shall not be obstructive to fire equipment. Consideration should be given as to the size of mature growth, for each species, so plants will not impede firefighting operations or access.

4) All roadways as well as cul-de-sacs and other required turnarounds shall be free of obstructions, including storage or the parking of vehicles.

JOINT EMERGENCY AND FIRE APPURATUS ACCESS ROADS

Emergency and fire apparatus access roads passing through multiple parcels or jurisdictions shall comply with City of Victorville municipal ordinances.

FIREFIGHTER ACCESS TO BUILDINGS

1) Fences, walls, landscaped areas, or other obstructions that may inhibit firefighters from extending hose lines from a fire apparatus parked on a fire access roadway to any building shall have minimum four foot (4’-0”) gates or openings provided, at locations acceptable to the fire code official.

2) A minimum four foot (4’-0”) paved pathway shall be provided from fire access roadways to all fire access doors as required for high piled storage uses per the California Fire Code.

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DIAGRAM A-1.1: ROUTE OF TRAVEL AROUND BUILDINGS

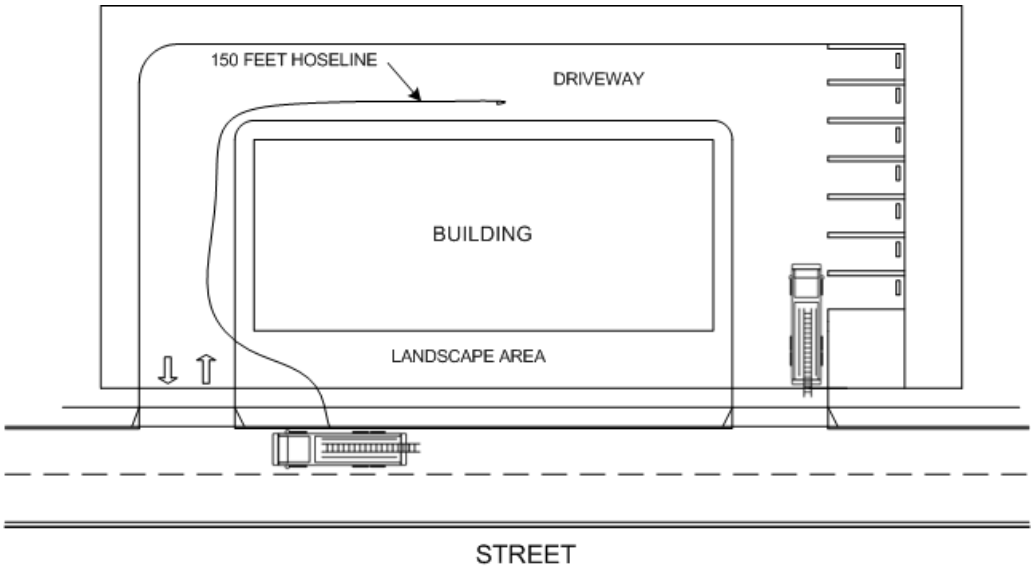

DIAGRAM A-1.2: METHOD OF MEASURING CUL-DE-SAC LENGTH

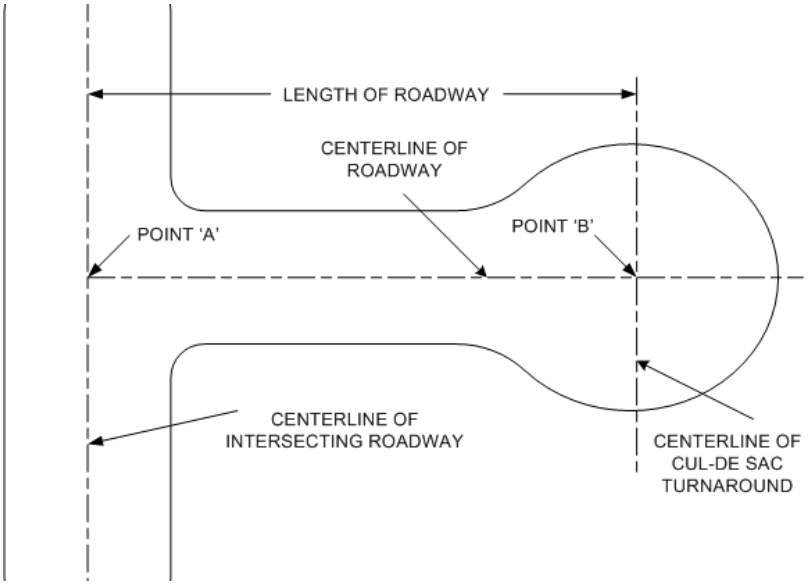

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DIAGRAM A-1.3: MULTIPLE POINTS OF ACCESS

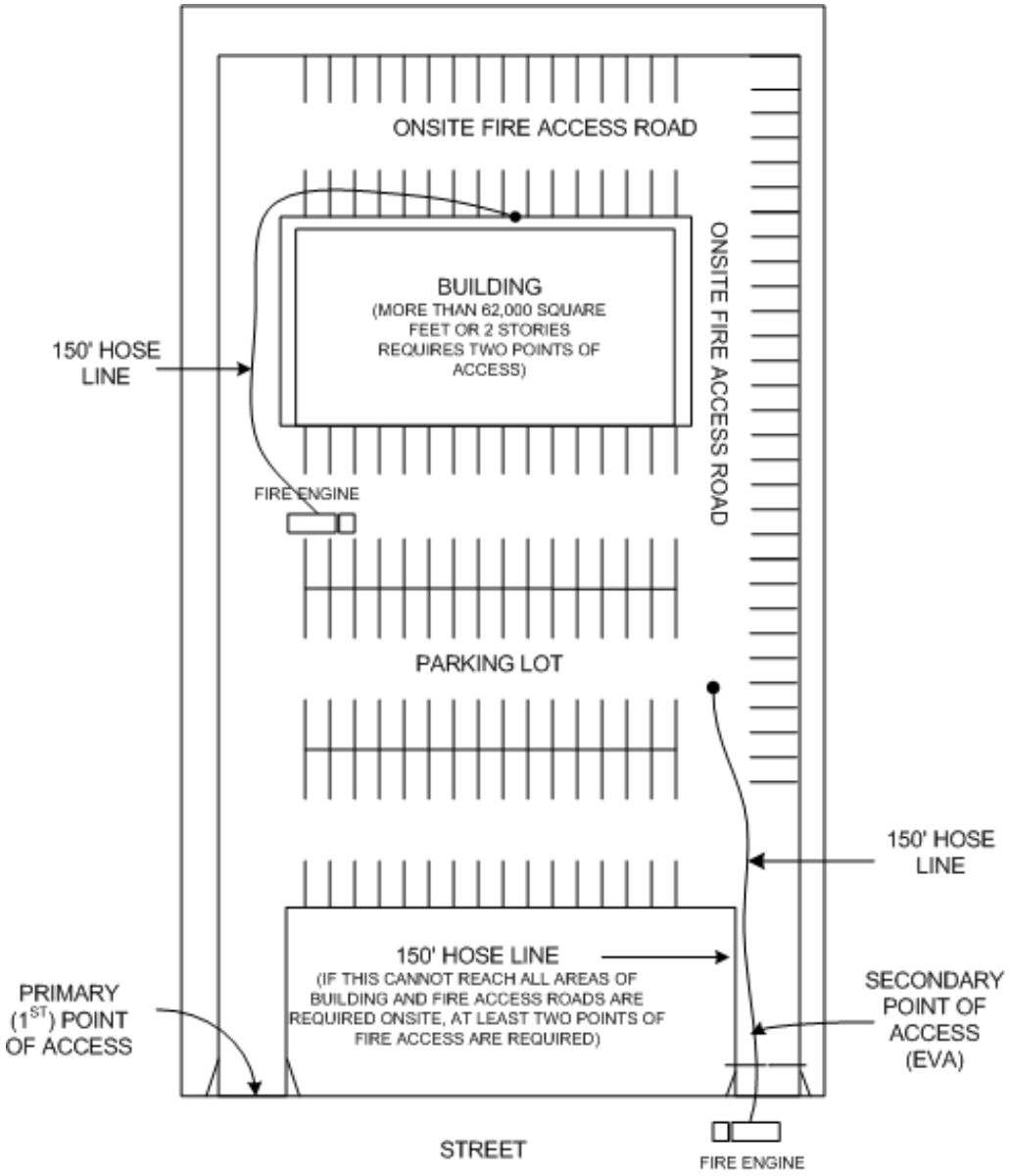

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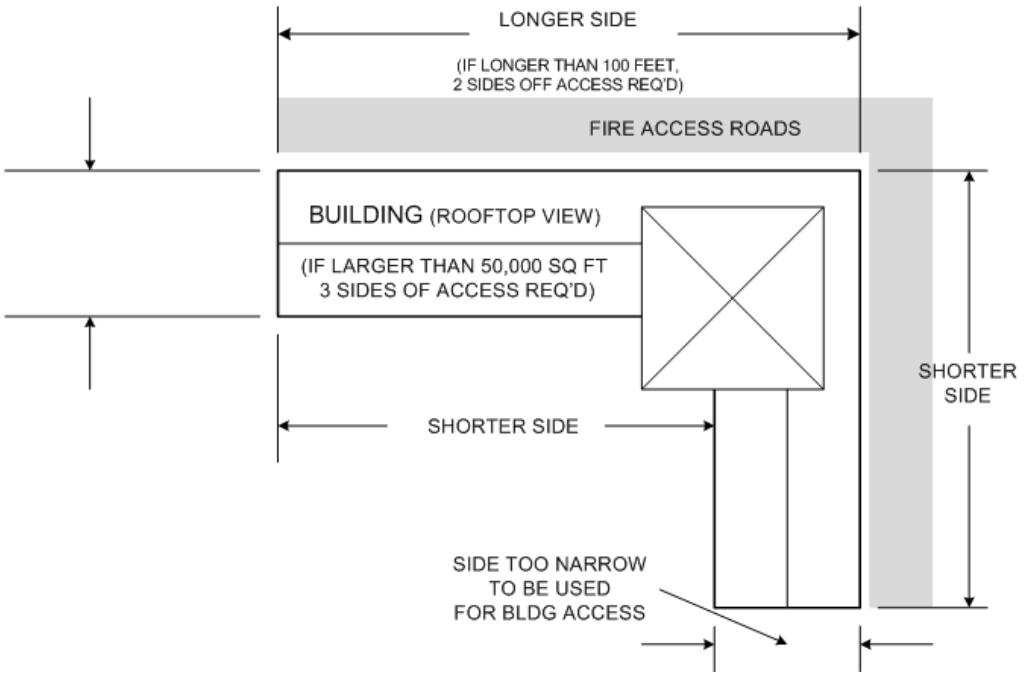
DIAGRAM A-1.4: SIDES OF BUILDING ACCESS



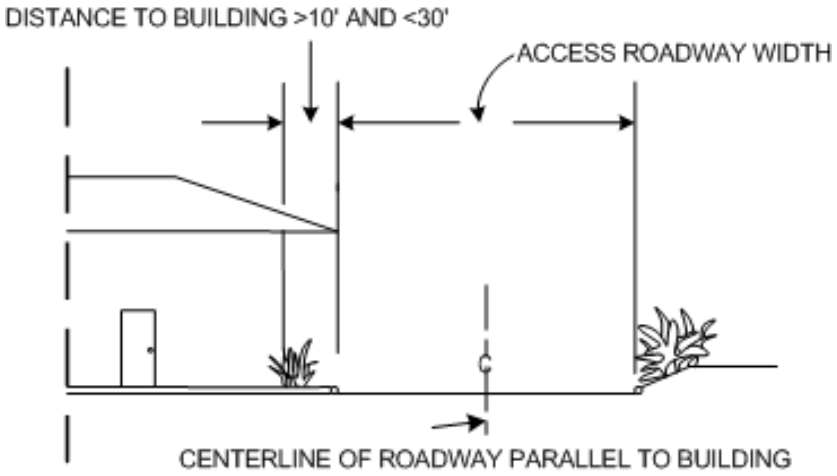


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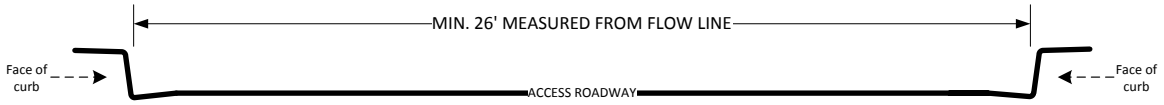
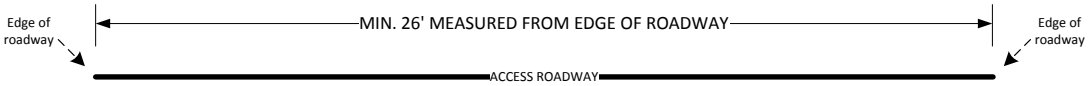
DIAGRAM A-1.5: ROADWAY MEASUREMENT DETAIL

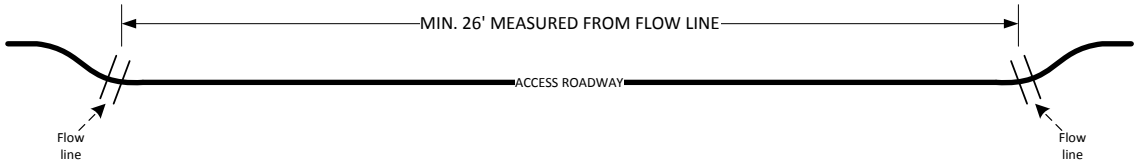
CURBED ROAD



FLAT ROAD



ROLLED CURB



EDGE OF BUILDING OR PROJECTION

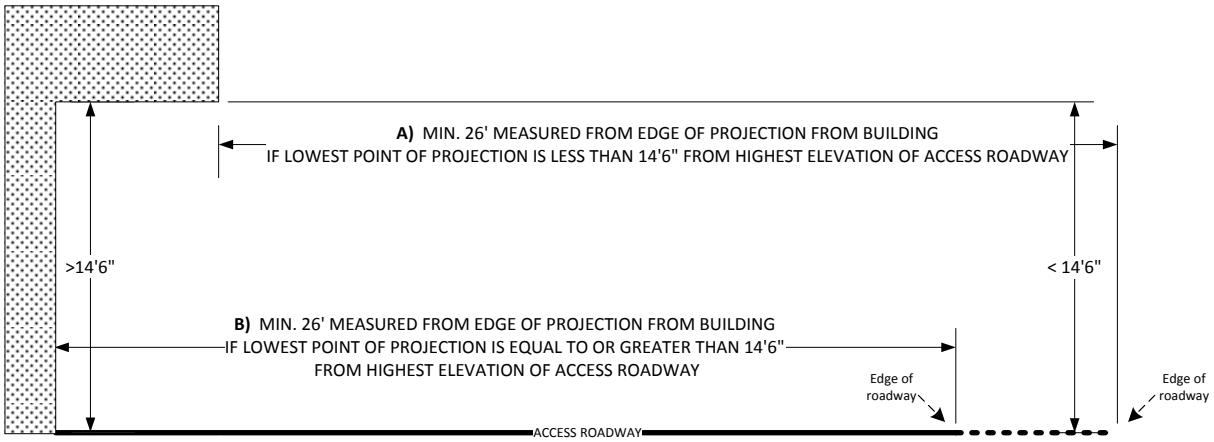


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DIAGRAM A-1.6: PARKING ON FIRE ACCESS ROADWAYS

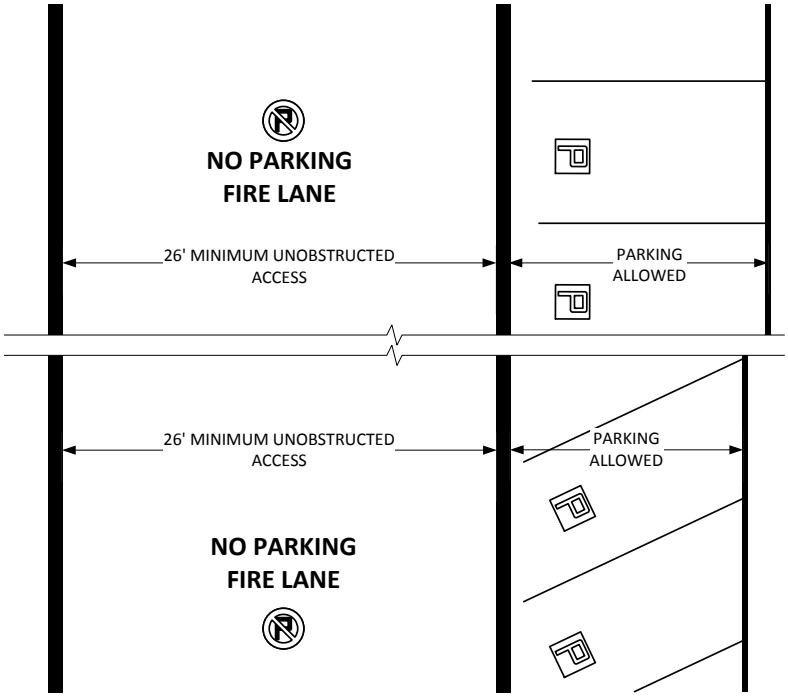
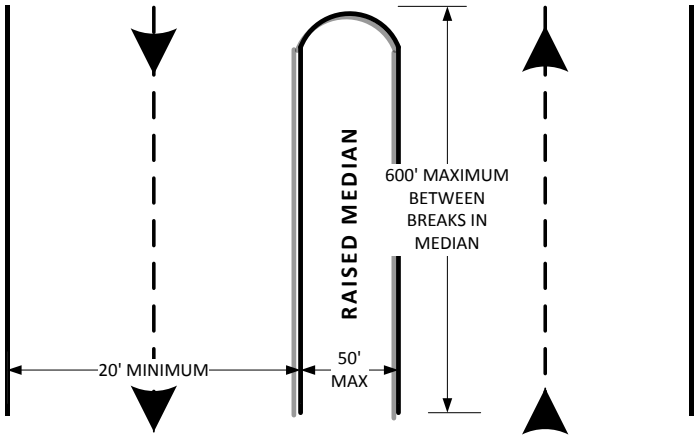


DIAGRAM A-1.7: ROADWAY MEDIAN BREAKS

ROADWAYS WITH RAISED MEDIAN



ONE WAY FIRE ACCESS

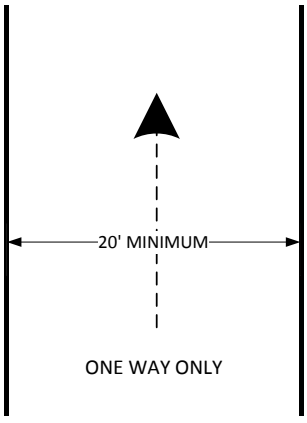


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DIAGRAM A-1.8: ROADWAY TURNOUT DETAILS

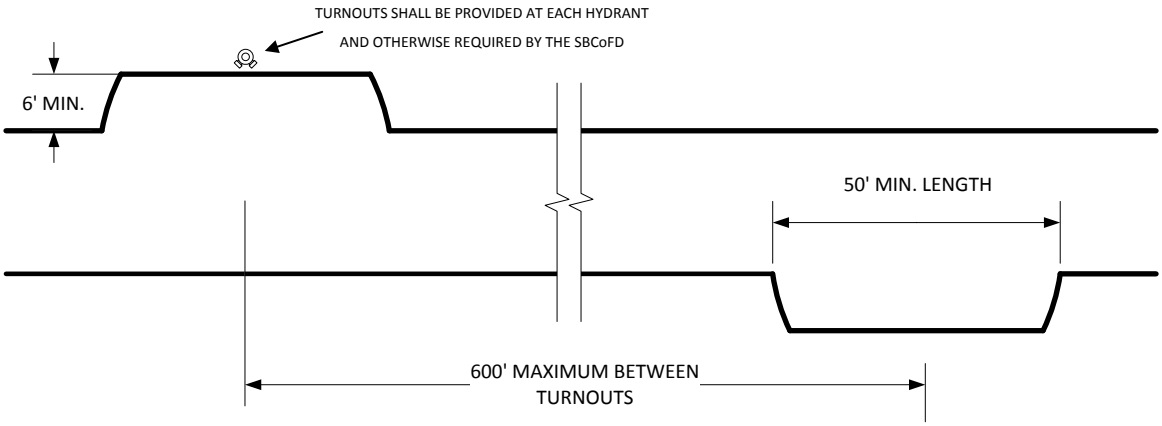

DIAGRAM A-1.9: ROADWAY GRADE DETAIL

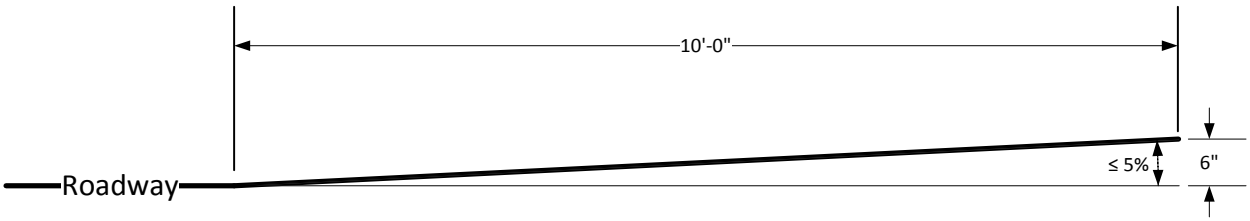

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DIAGRAM A-1.10: TURNING RADIUS DETAIL

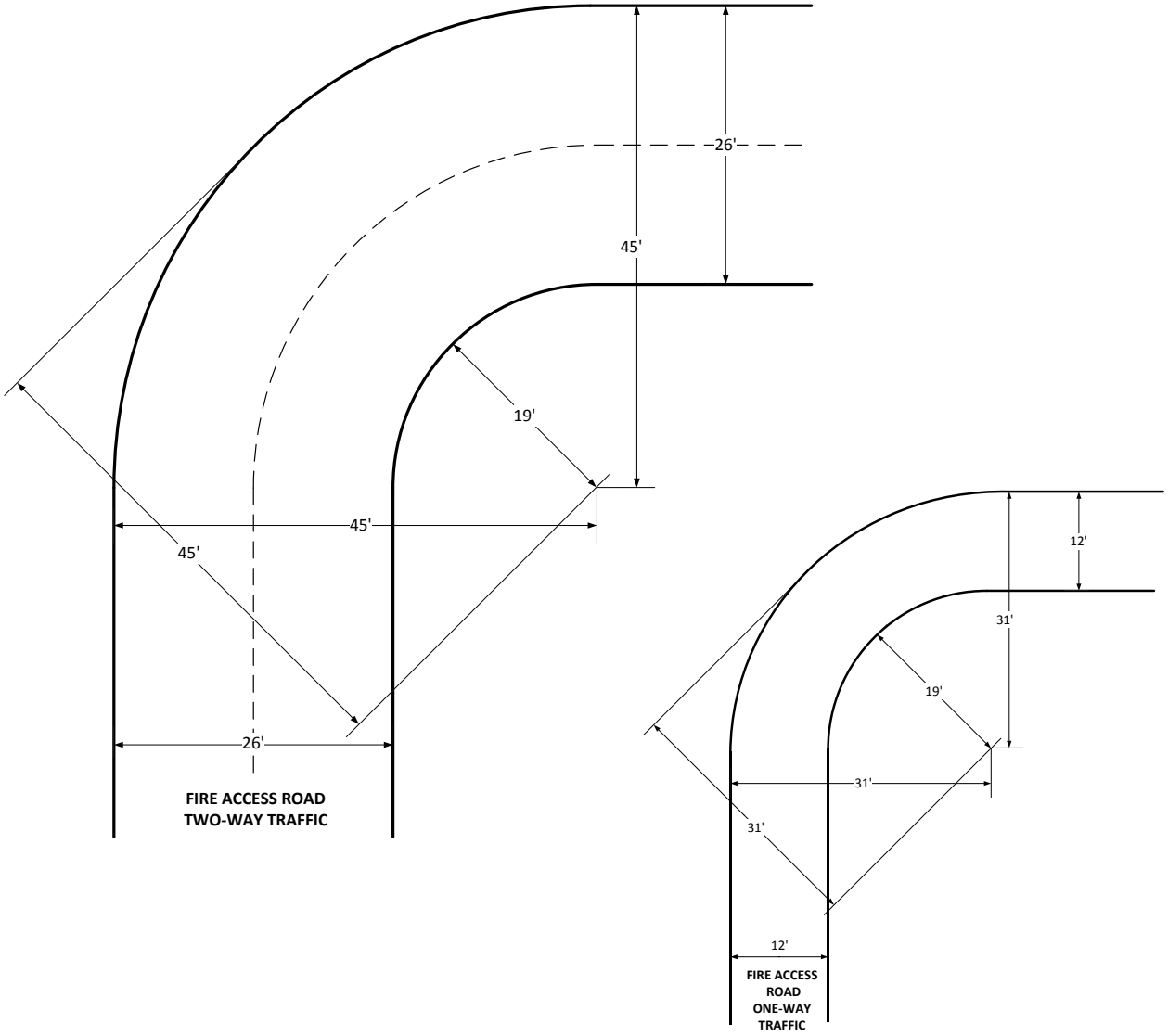

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DIAGRAM A-1.11: ROADWAY CURVES

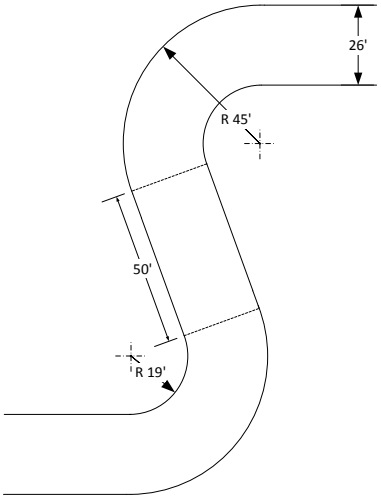
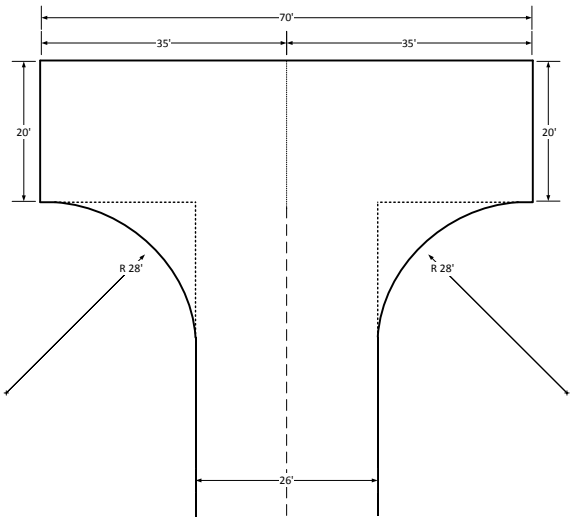


DIAGRAM A-1.12: HAMMERHEAD TURNAROUND DETAIL



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FIRE PREVENTION DIVISION

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Victorville, CA 92392
(760) 955-5227

Standard Number

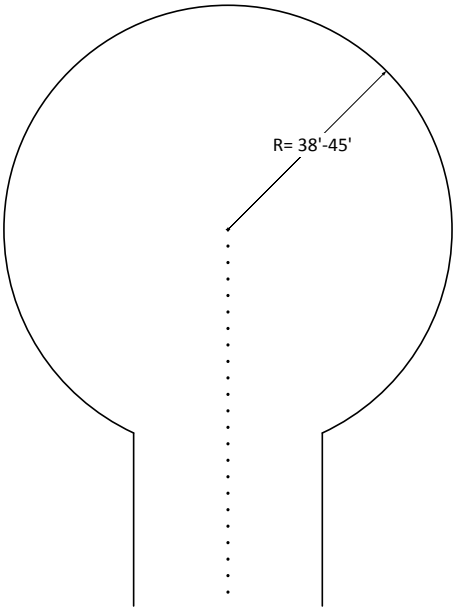
A-1

Revision Date:
2-10-20

FIRE PREVENTION STANDARD

FIRE APPARATUS ACCESS ROAD DESIGN, CONSTRUCTION AND MAINTENANCE

DIAGRAM A-1.13: CUL-DE-SAC TURNAROUND DETAIL



CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

A-2

Revision Date:
02-10-20

FIRE PREVENTION STANDARD

FIRE APPARATUS ACCESS ROAD DESIGNATION AND MARKING

AUTHORITY

Sections 102.9, 103, and 104.1 of the 2019 California Fire Code and City of Victorville Municipal Code shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to determine requirements not specifically provided for by the Fire Code. For further requirements on this subject, see sections 503.3 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide the minimum requirements for the designation of fire lanes in accordance with the provisions of the California Fire Code (CFC), the California Vehicle Code (CVC) §22500 et seq., and §22658, as well as any locally adopted amendments to these codes.

SCOPE

This standard applies to the marking of all Fire Department access roadways for new construction and development. Existing roadways identified as fire access roadways or otherwise required for emergency access shall also be marked per this standard.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

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Revision Date:
2-10-20

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FIRE APPARATUS ACCESS ROAD DESIGNATION AND MARKING

SUBMITTALS

Fire Department access roads shall be clearly identified on all new construction or tenant improvement plans submitted to the Fire Department for approval.

When required, a separate set of plans or an exhibit showing the details and identifying the specific means of fire apparatus access road designation shall be submitted to the Fire Department for approval. Such plans or exhibit shall be a scaled site plan or plot plan and shall contain the following information at a minimum:

1) Location(s) of all fire apparatus access roads, parking areas, fire appliances, buildings or structures, and any other significant features on the site
2) Location(s) of all "NO PARKING" signage, striping, or red curb markings per this standard
3) Details of all signage and striping, as it complies with this standard.

DEFINITIONS

EMERGENCY VEHICLE ACCESS (EVA) - A road or other passageway developed to allow the passage of fire apparatus. An emergency vehicle access is not necessarily intended for vehicular traffic other than fire apparatus.

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

FIRE APPLIANCE Apparatus or equipment provided or installed for Fire Department use in the event of an emergency.

FIRE LANE - A fire access roadway on private property that is identified and marked in accordance with this Standard and that must remain unobstructed at all times, including the parking of vehicles or loading or unloading activities.

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FIRE PREVENTION STANDARD

FIRE APPARATUS ACCESS ROAD DESIGNATION AND MARKING

GENERAL

1) Fire lanes shall be designated and marked adjacent to all multi-family residential, commercial and industrial building access points and approaches.
2) All roadways equal to or less than City of Victorville standards for width, including private roads, where the roadway width would preclude any parking along the sides of the roadway or where parking along only one side of the road is allowed shall be designated and marked as a fire lane.
3) All roadways encircling and/or providing direct access to commercial, industrial or multi-residential buildings and manufactured home developments shall be designated as a fire lane.
4) Areas within fifteen (15) feet of any fire appliance shall be designated as a fire lane.
5) Any other roadways may be designated as a fire lane by the fire code official on a case-by-case basis.
6) All fire apparatus access roads shall be identified by at least one of the following methods:
    a) Approved signs
    b) Approved red curbs
    c) Approved pavement striping

SIGNAGE

1) Signs shall be no less than eighteen (18) inches high by twelve (12) inches wide and made of durable material.
2) Signs shall be labeled, “NO PARKING”, “FIRE LANE”, and “CVC22500.1” in all upper case letters.
3) Lettering shall be no less than three inches (3”) high with red lettering on a white background. “CVC 22500.1” shall be in one inch (1”) letters.
4) The perimeter of the sign shall have a one inch (1”) red border.
5) Signs shall be installed with no less than a seven foot (7”) clearance from the bottom of the sign to finish grade.
6) Signs shall be installed within twenty four inches (24”) of the curb face.
7) Signs shall be located no more than fifty feet (50’) apart when installed on one side of the street and one hundred feet (100’) apart when installed on both sides of the street.

FIRE PREVENTION STANDARD

FIRE APPARATUS ACCESS ROAD DESIGNATION AND MARKING

8) There shall be a sign within five feet (5') of the beginning and end of any fire lane.

9) Signs designed to a recognized City, County or State standard shall be deemed acceptable if they meet the intent of the specifications above. **(See Diagram A-2.1)**

RED CURBING

1) Curbing used to designate fire lanes shall be painted in a weather-resistant red paint. Reflective paint may be used for higher visibility.
2) Curbing shall be labeled, "NO PARKING – FIRE LANE – CVC 22500.1" in all upper case letters
3) Lettering shall be no less than three (3") inches high with white lettering on a red background and placed on the face and top of the curb.
4) Lettering shall be located no more than fifty feet (50') apart and within five feet (5') of the beginning and end of any fire lane. **(See Diagram A-2.2)**

ROADWAY STRIPING

1) Roadway striping shall only be used where there are no curbs or adequate area to install signs.
2) Stripes shall not be less than eight inches (8") wide.
3) Striping used to designate fire lanes shall be painted in weather-resistant white and red paint. Reflective paint may be used for higher visibility.
4) Stripes shall have white lettering centered within the stripe, a minimum of six inches (6") in height, reading, "NO PARKING – FIRE LANE" as well as "CVC 22500.1," in all upper case letters.
5) Lettering blocks shall be located no more than thirty five feet (50') apart and within five feet (5') of the beginning and end of any fire lane. **(See Diagram A-2.3)**

PROVISIONS FOR TOWING

1) In order to tow vehicles parked in fire lanes, private property owners, including Home-Owners Associations (HOA's,) shall install signs in addition to standard fire lane markings, in

FIRE PREVENTION STANDARD

FIRE APPARATUS ACCESS ROAD DESIGNATION AND MARKING

plain view at all entrances to the property, pursuant to California Vehicle Code section 22658.

2) Signs for the purposes of towing vehicles for fire lane violations shall conform to the following:
   a) Signs shall be no less than eighteen inches (18") wide and twenty four inches (24") high
   b) Lettering shall be no less than one inch (1") high.
   c) Signs shall state "PARKING IN A FIRE LANE IS PROHIBITED" and "VEHICLES IN VIOLATION WILL BE TOWED AT THE OWNER'S EXPENSE"
   d) Signs shall provide the phone number of the local traffic enforcement agency
   e) Signs shall provide the name and phone number of each company participating in a towing agreement with the property owner or association. **(See Diagram A-2.4)**

MAINTENANCE OF MARKINGS AND SIGNAGE

1) Installation and maintenance of red curbing, signage, striping, and all other markings or designators required by this Standard located on private property and private roadways shall be the responsibility of the property owner, management company representing the property owner, or an association.

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FIRE PREVENTION STANDARD

FIRE APPARATUS ACCESS ROAD DESIGNATION AND MARKING

DIAGRAM A-2.1: "NO PARKING" SIGNAGE DETAIL

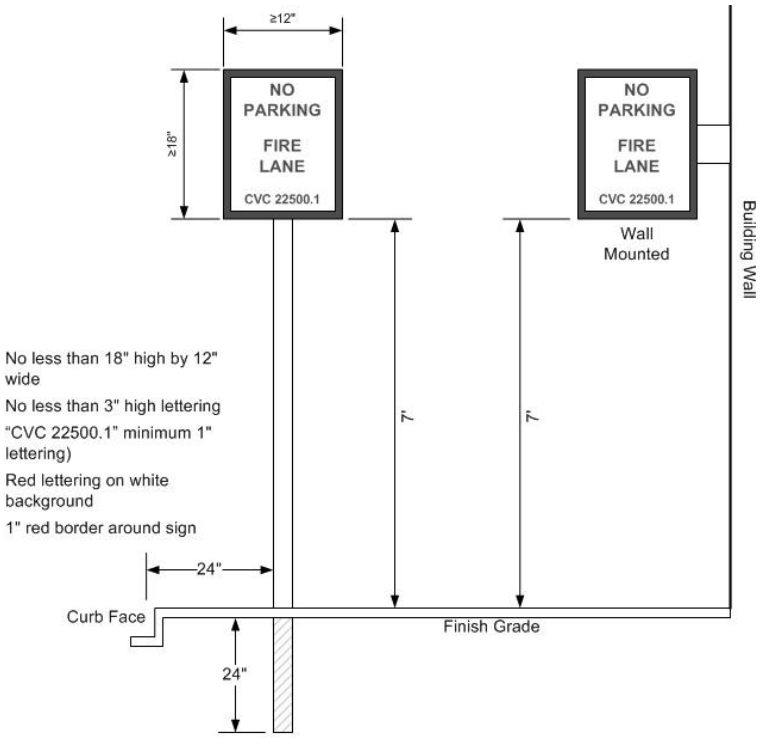
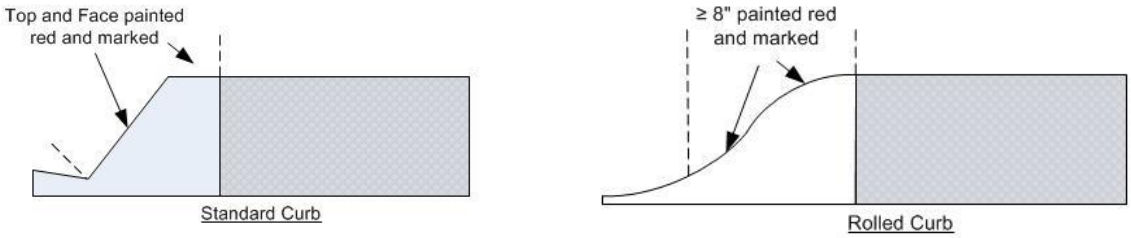


DIAGRAM A-2.2: CURB PAINTING DETAIL



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FIRE APPARATUS ACCESS ROAD DESIGNATION AND MARKING

DIAGRAM A-2.3: ROADWAY STRIPING DETAIL

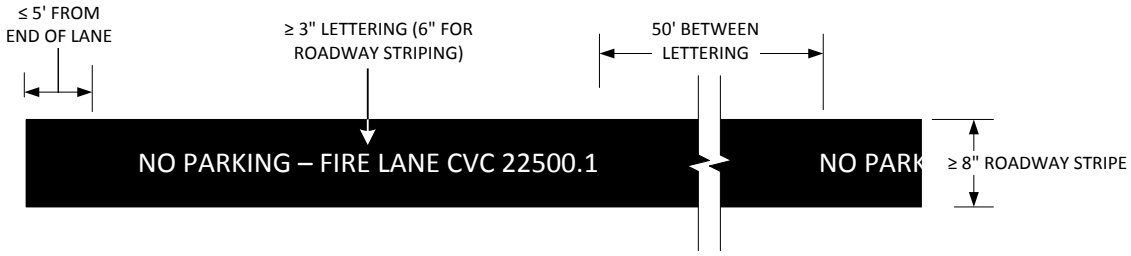
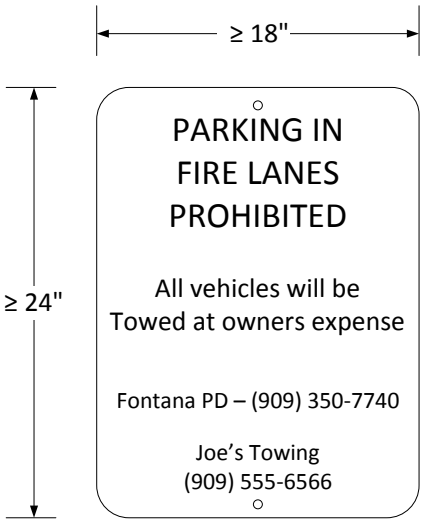


DIAGRAM A-2.4: DETAIL OF SIGNAGE FOR THE PURPOSES OF TOWING VEHICLES



CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

A-3

Revision Date:
2-10-20

FIRE PREVENTION STANDARD

GATES AND OTHER OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS

AUTHORITY

Sections 102.9, 103, and 104.1 of the 2019 California Fire Code and City of Victorville Municipal Code shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to determine requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 503.4.1, 503.5 and 503.6 et. seq. of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide guidance for the approved methods of installation and maintenance of gates and other obstructions to fire department access.

SCOPE

This standard shall apply to all obstructions, access control devices, traffic calming devices, or other similar systems within any roadways that serve as fire access in all new or existing residential, commercial, and industrial development. This standard does not apply to obstructions within parking aisles that do not serve as fire apparatus access roads.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

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FIRE PREVENTION DIVISION

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FIRE PREVENTION STANDARD

GATES AND OTHER OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS

SUBMITTALS

Detailed plans shall be submitted to the Fire Department for approval and permit prior to the installation of any obstructions, security gates or other vehicle access control device or system. The plans shall contain at a minimum the following information:

1) Plot plan showing the locations of all fire department access roads, nearby buildings, fire protection equipment and appliances, means of emergency operation, and location(s) of any proposed gates or other obstructions.
2) Elevations and cross sections of all gates or other obstructions, with dimensions.
3) Details of the installation and manufacturer's specifications sheets for all materials and associated equipment.
4) Proposed signage and/or striping on all fire apparatus access roadways as required by the City of Victorville Standard A-1.
5) Any other important details and information as required by this Standard.

Once approved for installation, the work shall be inspected by the Fire Department prior to placing the system into operation.

Note: Please see the City of Victorville Standard A-4 pertaining to Knox ® key switches and key boxes.

DEFINITIONS

EMERGENCY VEHICLE ACCESS (EVA) – A road or other passageway developed to allow the passage of fire apparatus. An emergency vehicle access is not necessarily intended for vehicular traffic other than fire apparatus.

SPEED BUMP – A raised portion of roadway that is out of conformance with the minimum criteria in this Standard and not approved by the Fire Department.

SPEED HUMP – A raised portion of roadway that meets the minimum criteria as specified in this Standard as well as that of a City or County Traffic Engineering Department

TRAFFIC CALMING FEATURES – Roadway devices such as bottlenecks, curves, and roundabouts which are designed to slow the speed of traffic

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FIRE PREVENTION STANDARD

GATES AND OTHER OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS

GENERAL

1) All obstructions to fire department access shall be installed so as to provide both emergency ingress and egress. Direction-limiting devices with no override provision, such as fixed tire spikes, shall be prohibited.
2) The total number of obstructions to fire department access or associated systems, through which emergency responders must pass through to reach any address, shall not exceed one unless specifically approved by the fire code official.
3) The placement of gates or obstruction shall not at any time interfere with the use of fire protection equipment; i.e. fire hydrants, fire department connections, fire sprinkler valves etc.
4) All access control devices must be operable to emergency responders with no prior special knowledge, device, or effort.
5) All obstructions to fire department access which require electrical, hydraulic, or pneumatic power or force for normal operation shall automatically retract into an open position ("fail open") when there is a malfunction or power loss, and shall stay secured in an open position until normal operation is restored.

MANUALLY OPERATED SECURITY GATES

1) Access roads designated for Fire Department (EVA) use only may be gated with manually operated gates which are marked with a sign reading "EMERGENCY AND AUTHORIZED VEHICLES ONLY" per **Diagram A-3.1**, with red letters contrasting from their background and visible from all directions of approach, and must meet other applicable requirements of the California Fire Code and City of Victorville Fire Department Standards.
2) Manual gates shall have a means of emergency operation that allows manual operation by one person. Manually operated gates shall be equipped with an approved "Knox ®" padlock or an equivalent locking system acceptable to the Fire Department.
3) Manual gates shall either slide open horizontally or swing inward in the direction of emergency vehicle ingress to open.
4) For development other than single family dwellings, fire apparatus access openings or driveway approaches serving two-way vehicular traffic shall provide a minimum width of twenty (20) feet of clearance fully open. When medians or center dividers are present and openings or approaches serve one-way traffic, a minimum of twelve (12) feet of clearance shall be required when gates are fully open. One way openings or approaches shall be within fifteen (15) feet of each other, and shall meet all the requirements of this Standard.

FIRE PREVENTION STANDARD

GATES AND OTHER OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS

5) For private driveways serving single family dwellings, gates shall have a minimum clear open width of twelve (12) feet, and shall meet all other applicable requirements of this Standard.

6) Gates that provide emergency access to fuel modification zones or wildland areas shall be a minimum clear open width of fifteen (15) feet of and shall meet all other applicable requirements of this standard.

7) Parking of vehicles shall not obstruct any entrance or the operation of any gate installed per the requirements of this standard. “NO PARKING” signs designed and installed in accordance with City of Victorville Standard A-3 may be required as directed by the fire code official.

8) When required by the fire code official, entry gates shall be installed so as to provide a minimum of forty feet (40’) of fire apparatus stacking from the intersecting road. **(See Diagram A-3.2)**

ELECTRICALLY OPERATED SECURITY GATES

1) Electrically operated security gates shall meet all the requirements of the “MANUALLY OPERATED SECURITY GATES” section above and must meet other applicable requirements of the California Fire Code and this section, as well as all other City of Victorville Fire Department Standards.

2) Electric gates shall be equipped with an emergency preemption device, or an automatic means of opening the gate for emergency access by fire department personnel. The location and type of emergency opening devices shall be approved by the fire code official, and may include Opticom® or equivalent sensors and/or Knox key switches as deemed necessary by the fire code official. **(See Diagram A-3.3)**

3) Any preemption devices on electric gates shall override all normal gate operations and completely open the gate(s). After preemption devices are activated, gates shall be maintained in an open position for a minimum of twenty (20) minutes, after which the gate controller shall automatically reset and close the gate.

4) All electric motors operating security gates that obstruct fire department access roadways or systems shall be listed in accordance with ASTM F2200 and UL 325, and shall reach the fully open position within a total time not to exceed one second for each one foot of obstructed required width.

5) A safety loop that prevents the gate from closing on vehicles going through the gate shall be installed on all electric gates.

FIRE PREVENTION STANDARD

GATES AND OTHER OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS

6) An automatic exit loop that activates the gate in the direction of egress shall be installed on all electric gates, or an additional preemption device may be installed in the direction of emergency vehicle egress when approved by the fire code official.

7) Electric gates shall be provided a manual release to allow the gate to be operated manually when electrical service is interrupted.

REMOVABLE OR RETRACTABLE BOLLARDS AND BARRICADES

1) Bollards and barricades of any type that are installed across fire apparatus access roads shall be either automatically retractable into an open position or manually removable. The location, type and design of such obstructions shall be approved by the fire code official prior to installation.

2) Bollards or barricades that are automatically retractable shall have an approved means of emergency operation for Fire Department use, installed in a highly visible location.

3) Manually removable bollards or barricades shall not exceed forty pounds (40 lbs.) per bollard or barricade. Any padlocks or other security devices installed on removable bollards or barricades shall be a “break-away” type that can be easily forced open.

4) Bollards and barricades shall be painted with bright colored reflective yellow paint and have reflective decals installed for high visibility during the hours of darkness.

SPEED HUMPS

1) Speed humps installed within fire access roadways shall be designed pursuant to this standard or other recognized equivalent specification; and if installed on public streets, shall be approved by the City Engineering Department having jurisdiction. In general, speed humps shall be designed for vehicles with a travel speed of 25 mph, a minimum width of twelve feet (12’), a maximum height of four inches (4") and a minimum taper of 24 inches (24”) **(See Diagram A-3.4)**

2) Speed humps shall be spaced no closer than 300 feet apart. Speed humps shall not be placed within five feet (5’) of an intersection or driveway, or within twenty feet (20’) of a fire hydrant.

3) Warning signs as well as reflective pavement marking shall be required per City Standards if speed humps are placed on public streets. Speed humps placed on private property shall have signage and diagonal pavement “hash” markings as shown in **Diagram A-3.5.**

4) Existing, non-conforming speed humps (such as speed bumps) will be subject to removal when deemed by the fire code official as a hazard to emergency response vehicles.

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(760) 955-5227

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GATES AND OTHER OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS

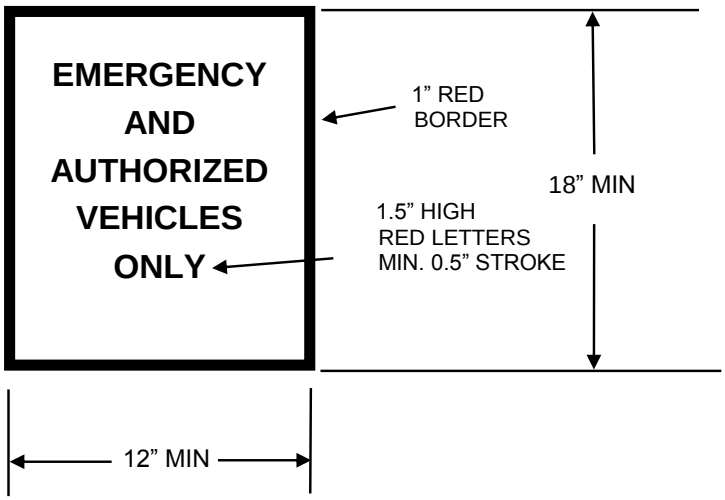
OTHER TRAFFIC CALMING FEATURES

1) Traffic calming features designed to slow the speed of traffic may be utilized subject to approval by the fire code official. At no time will traffic calming devices be allowed to restrict the minimum width or turning radius within a fire department access route.
2) When approved, traffic calming devices shall be constructed and maintained as per appropriate standards. Plans shall be submitted to the Fire Department for review and approval prior to any construction taking place.

MAINTENANCE OF OBSTRUCTIONS

1) In order to ensure proper maintenance, a copy of a maintenance contract for automatic devices and systems is required to be supplied to the Fire Department for review. Regular inspections of equipment, on a minimum of a bi-annual basis, shall be performed and a record kept on file for Fire Department review.
2) The property owner and/or property owners association shall be responsible to maintain all equipment. All system components shall be maintained in an operative condition at all times and shall be replaced or repaired when defective.
3) The Fire Department shall have the authority to perform inspections to ensure proper maintenance and integrity of any systems or equipment on an as-needed basis.

DIAGRAM A_3.1: "EMERGENCY VEHICLES ONLY" SIGN DETAIL



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GATES AND OTHER OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS

DIAGRAM A-3.2: ENTRY GATE STACKING

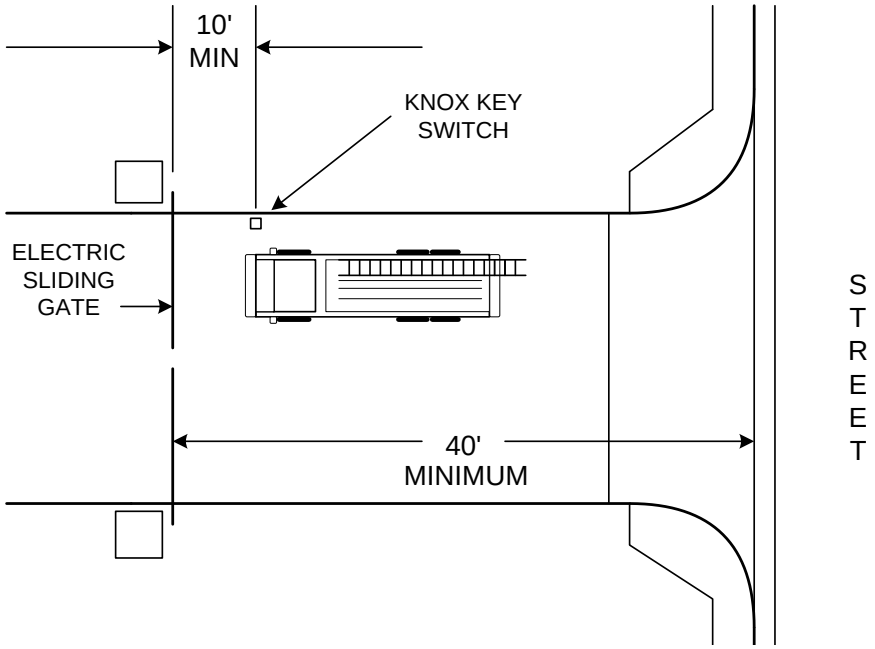

DIAGRAM A-3.3: ELECTRICALLY OPERATED GATE

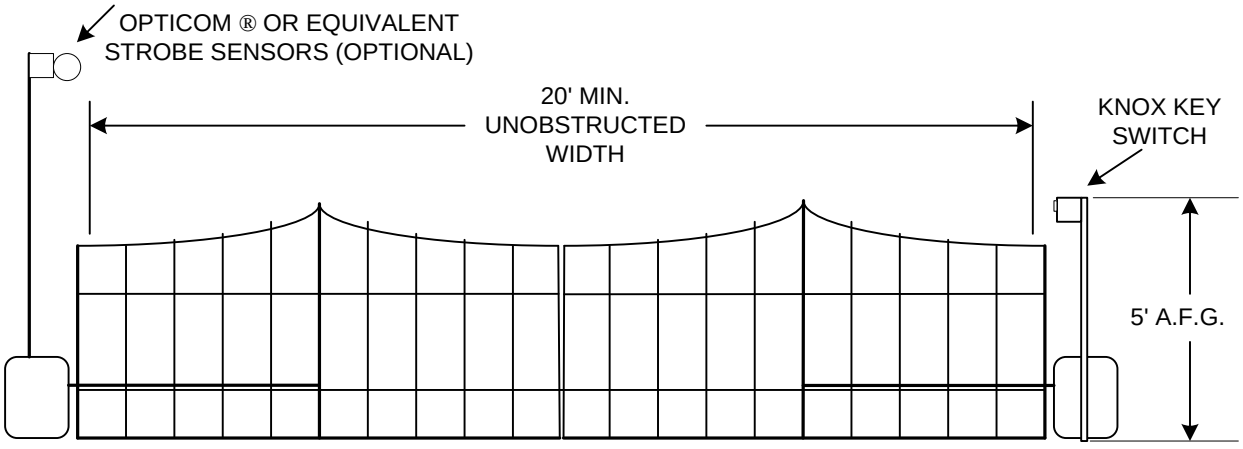

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DIAGRAM A-3.4: SPEED HUMP

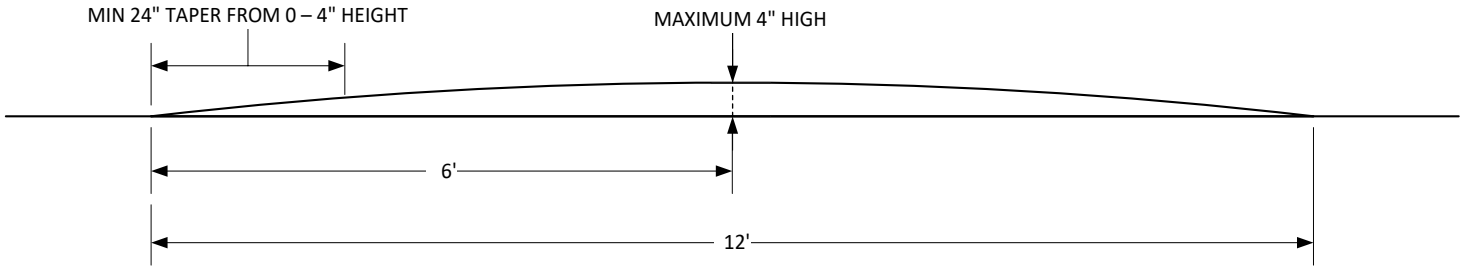
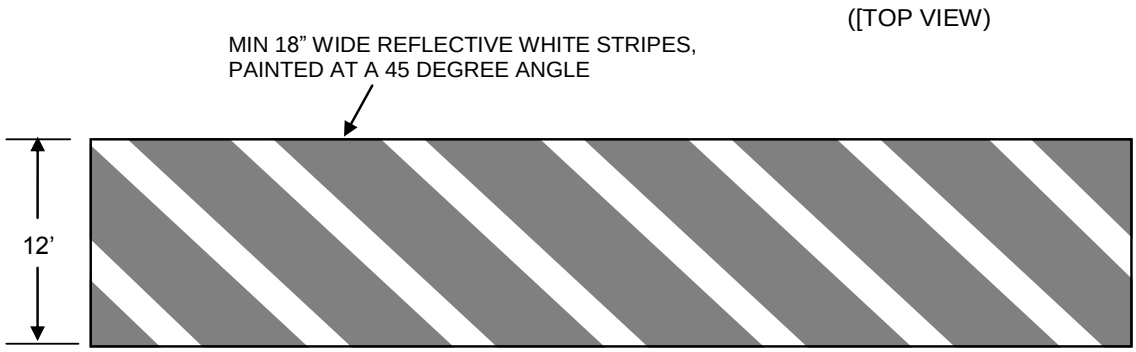


DIAGRAM A-3.5: SPEED HUMP STRIPING



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FIRE PREVENTION STANDARD

FIRE DEPARTMENT ACCESS KEY BOXES

AUTHORITY

Sections 102.9, 103, and 104.1 of the 2019 California Fire Code and City of Victorville Municipal Code shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to determine requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 506 et. seq. of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide guidance for the approved methods of installation and maintenance of fire personnel access key boxes for buildings within the scope of this standard.

SCOPE

This standard shall apply to all fire personnel access key boxes on all new and existing residential, commercial, and industrial developments and structures as determined by the Fire Code Official using the criteria set forth in this standard.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

An application shall be made to the Fire Department for approval and installation of all key box devices. The application shall contain the following information:

1) Plot plan, to scale, on minimum 8 ½" X 11" size paper, showing the locations of all buildings, fire apparatus access roads, and all fire department key boxes.

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FIRE DEPARTMENT ACCESS KEY BOXES

2) Size(s) and type(s) of all key boxes or other access devices

All orders forms for key boxes shall be made on an original current year Knox ® Company Authorization form, which must be signed by a Fire Department representative. Applications may be obtained at the appropriate Fire Prevention office location.

DEFINITIONS

KEY BOX - An approved secure device with a lock operable only by a fire department master key, and containing building entry keys and other keys, devices, or information that may be required in order to allow emergency responders easier access to a building or premises. For the purposes of this Standard, the terms “key box” and “Knox® box” mean the same thing.

GENERAL

1) All buildings or portions of buildings newly constructed that are protected with either an automatic fire sprinkler system, a fire alarm system, or both, shall have at least one (1) key box installed on the exterior of the building.
2) Key boxes shall be of a secure design and of a recessed mounted type with a hinged door, unless otherwise approved by the Fire Code Official for a retrofit installation.
3) Key boxes shall be ordered and purchased by the owner, contractor, developer or other responsible party only from the approved vendor, the Knox ® Company.
4) Key boxes shall be installed by a minimum of five feet (5’) and a maximum of six feet (6’) above adjacent finished grade and within a maximum of ten feet (10’) of the main entrance door or as approved by the Fire Code Official. **(See Diagram A-4.1)**
5) Key boxes shall be sized large enough to contain all keys, electronic access cards, or other entry devices or information as required by the Fire Code Official that will enable access to all necessary areas and rooms within the facility. See “CONTENTS” section below.
6) Key boxes shall not be installed on gates or in used in applications other than buildings without specific approval of the Fire Code Official. For installation of Knox ® locks on gates, see City of Victorville Standard A-3.

CONTENTS

1) A minimum of one (1) key, magnetic card, or other access device or information as required by the Fire Code Official shall be provided for the following areas:

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FIRE DEPARTMENT ACCESS KEY BOXES

a) Locked doors at all points of entry to buildings and areas, whether internal or external

b) Locked electrical, mechanical, and other similar rooms

c) Locked fire control rooms or rooms containing fire sprinkler risers

d) Locked Fire Alarm Control Panels (FACP's)

e) All elevator control systems, panels, and/or keyed firefighter recall switches

f) Any other area, room, equipment, and/or system as directed by the Fire Code Official.

2) In buildings that are larger than 100,000 square feet or greater than three (3) stories in height, multiple sets of master keys shall be provided as required by the Fire Code Official. All keys and cards in key boxes shall be permanently labeled indicating the area that it provides access to.

3) When possible, and in particular for any multi--family or multi-tenant building, master keys and magnet cards shall be provided in order to minimize the number of different access devices in key boxes.

MONITORING

1) Key boxes shall not be connected to, or monitored by, any fire alarm system.

2) With the approval of the Fire Code Official, key boxes may be monitored by a security or burglar alarm system. Key boxes that are monitored by a security system shall bear a sticker or other marker indicating the name and phone number of the monitoring company.

3) The method of connection or otherwise securing of any key box shall not interfere with the quick, safe and easy operation of the key box.

INSPECTIONS AND MAINTENANCE

1) After installation and regularly thereafter, key boxes shall be inspected and secured by the Fire Department inspector.

2) The property owners or other representative shall be solely responsible for maintaining key boxes operable and secure at all times.

3) The property owners or other representative shall be responsible for ensuring that keys, cards, and other access devices and information contained within key boxes is current will operate all locks effectively for all areas described within this Standard.

CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

A-4

Revision Date:
2-10-20

FIRE PREVENTION STANDARD

FIRE DEPARTMENT ACCESS KEY BOXES

RETROFITS ON EXISTING BUILDINGS

1) When required by the Fire Code Official, a minimum of one (1) key box shall be installed on the exterior of existing buildings or premises if the one or more of the following conditions exist:
    a) Emergency access would be extremely difficult or time consuming, which could likely result in an increased risk to life safety or cause extensive fire damage
    b) Forcible entry operations could cause significant and costly damage to the premises, and such damage could be avoided by the installation of an access key box(s.)
2) Key boxes required on existing buildings shall be permitted to a be surface mounted type with a hinged door, installed at an elevation of five (5) feet to six (6) feet above finished grade and within ten (10) feet of the main entrance door(s,) or in a location approved by the Fire Code Official.

SPECIAL SITUATIONS

1) Buildings which have multiple tenant spaces and have no apparent main front entry door shall have a key box installed on the address side of the building, near the door providing access to the fire alarm panel, fire sprinkler riser, and other common area fire protection systems as required by City of Victorville codes and standards. If this location is not possible or practical, then the key box shall be installed near the center of the length or width of the building.
2) Key boxes shall not be installed on columns, architectural features such as “pop-outs,” or any other place where security or visibility may be compromised.
3) For large buildings with multiple entrances, there shall be a key box at each entrance that is separated from other main entrances more than five hundred (500) feet along fire access roadways.
4) Buildings or facilities that have staff on the premises 24 hours a day may submit a written request to the Fire Code Official to waive the requirement for a key box. All such requests are subject to final approval by the Fire Code Official.
5) In high-rise and other large buildings where numerous sets of access devices may be required, master keys or cards may be placed in a secure vault or cabinet immediately inside the main entrance or fire control room within the building. The exterior key box shall contain keys to this vault or cabinet.

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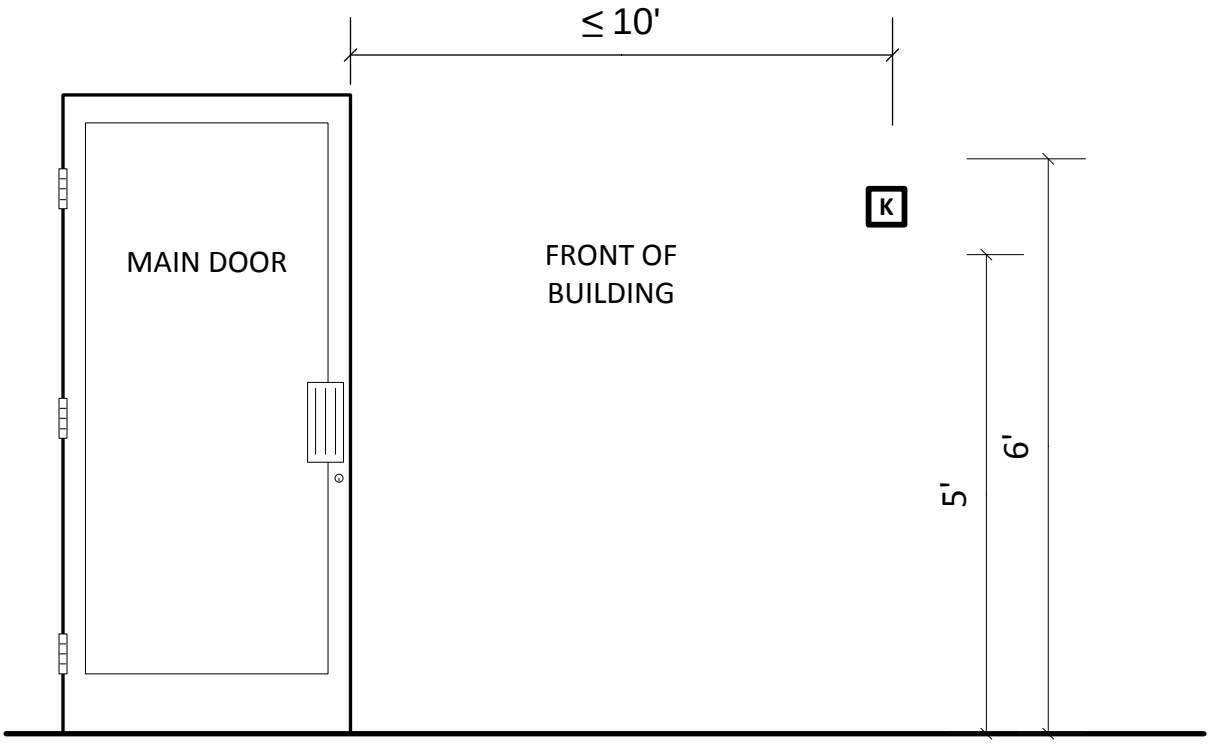
FIRE PREVENTION STANDARD

FIRE DEPARTMENT ACCESS KEY BOXES

DIAGRAM A-4.1: KNOX BOX MOUNTING HEIGHT



CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

B-1

Revision Date:
2-10-20

FIRE SAFETY STANDARD

PREMISE AND BUILDING IDENTIFICATION AND ADDRESSING

AUTHORITY

Sections 102.9, 103, and 104.1 of the 2019 California Fire Code and City of Victorville Municipal Code shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to determine requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 505 et. seq. of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide the minimum requirements for the identification and addressing of buildings and premises in accordance with the provisions of the California Fire Code (CFC) as well as any locally adopted amendments to these codes.

SCOPE

This standard applies to the marking of all buildings with address numbers for identification.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

B-1

Revision Date:
2-10-20

FIRE SAFETY STANDARD

PREMISE AND BUILDING IDENTIFICATION AND ADDRESSING

SUBMITTALS

Address and suite numbers shall be clearly identified on all new construction or tenant improvement plans submitted to the Fire Department for approval.

When required, a separate set of plans or an exhibit showing the details of the address or suite numbers shall be submitted to the Fire Department for approval. Such plans or exhibit shall be a scaled site plan or plot plan and shall contain the following information at a minimum:

1. Location of the address or suite numbers.
2. Size of the address or suite numbers.
3. Color of the address or suite numbers.

GENERAL

Building and premises identification shall be in accordance with the CA Fire and Building codes and the City of Victorville Fire Dept Standard.

COMMERCIAL, CONDOMINIUMS AND INDUSTRIAL BUILDINGS

1) The street address shall be posted with a minimum of twelve (12) inch in height numbers with a one (1) inch stroke, visible from the street of the corresponding address. During the hours of darkness, they shall be electrically illuminated either externally or internally.
2) Posted numbers shall contrast with their background and be legible from the street of the corresponding address prior to occupancy.
3) Where building setbacks exceed one hundred (100) feet from roadway, additional non-illuminated contrasting numbers twelve (12) inch in height with a one (1) inch stroke, shall be displayed at property access entrance on a permanent monument.
4) Commercial/Industrial buildings - Secondary or rear entrance doors shall be marked with unit designators with a minimum of four (4) inch high and 3/8 inch stroke numbers/letters.
5) In multifamily complex there shall be positioned at each entrance of the complex, an illuminated diagrammatic representation of the complex showing the location of fire hydrants, egress/ingress, building and unit designators within the complex **(see Diagram B-1.1).**
6) Where interior buildings exist, completely detached from roadway circulation, illuminated or reflector signs shall be posted along walkway entrances from road circulation points, indicating interior buildings that take access from that particular path.

FIRE SAFETY STANDARD

PREMISE AND BUILDING IDENTIFICATION AND ADDRESSING

a) Each individual unit/building within the complex shall display a prominent identification letter, not less than six (6) inches in height and one-half (1/2) inch stroke, which is easily visible to approaching vehicular and/or pedestrian traffic. During the hours of darkness, these letters shall be internally or externally electrically illuminated.

7) Each individual unit shall have a number/letter with the first digit indicating floor level, not less than four (4) inches in height and one-half (1/2) inch stroke.

SINGLE FAMILY HOMES

1) The street address shall be posted with a minimum of four (4) inches in height numbers with a one-half (1/2)-inch stroke, visible from the legal access road. During the hours of darkness, they shall be internally illuminated.
2) Prior to occupancy the posted numbers shall be installed with numbers that contrast with their background and are legible from the street
3) Where building set-backs exceed fifty (50) feet from roadway, additional non-illuminated contrasting four (4) inch stroke, shall be displayed at property access entrance on a permanent monument.

STREET/ROAD SIGNS

1) The street sign shall be posted at the intersection closest to the project being constructed and the location shall be approved by the local engineering dept or the fire code official. **(See Diagram B-1.2).**
2) The sign shall be a 2” galvanized post. as described on **Diagram B-1.2**
3) Alternative method when approved by the fire department may be a 4” x 4” post constructed of redwood s4s (surface 4 sides) or equivalent. **(See Diagram B-1.3).**
4) All wood surfaces shall be given two coats of white enamel paint.
5) Street name letters shall be 3 inches high. Letters shall be stenciled with black enamel paint on all sides.

NEW DEVELOPMENT TRACTS, COMMERCIAL AND INDUSTRIAL

All new development projects shall have a temporary street sign installed on all street corners within that project prior to the placing of combustible materials on site. Permanent signs shall be installed prior to occupancy and shall comply with this Standard.

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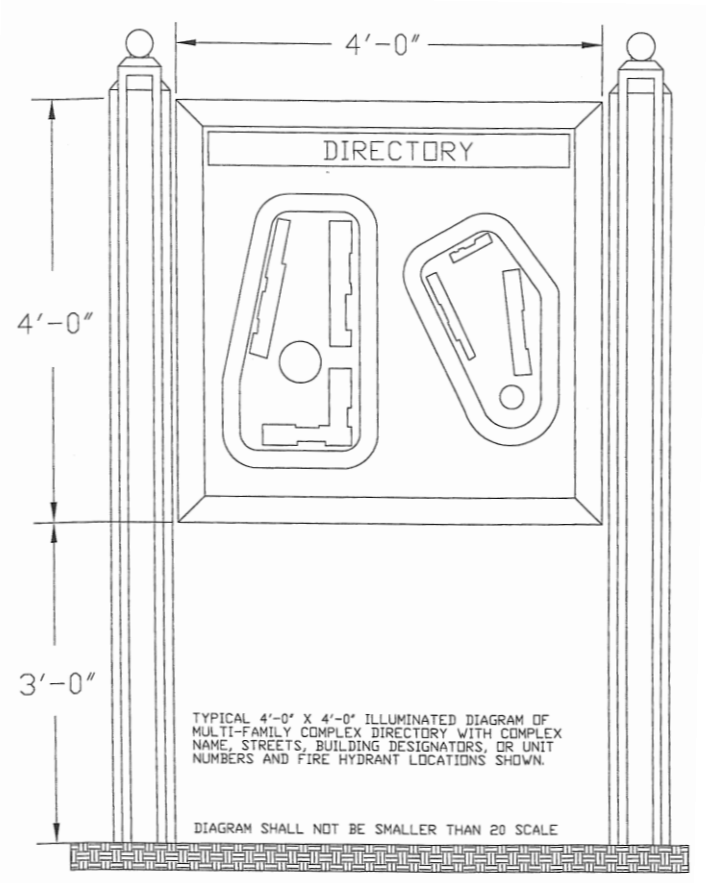
FIRE SAFETY STANDARD

PREMISE AND BUILDING IDENTIFICATION AND ADDRESSING

DIAGRAM B-1.1: ILLUMINATED DIRECTORY DETAIL



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FIRE PREVENTION DIVISION

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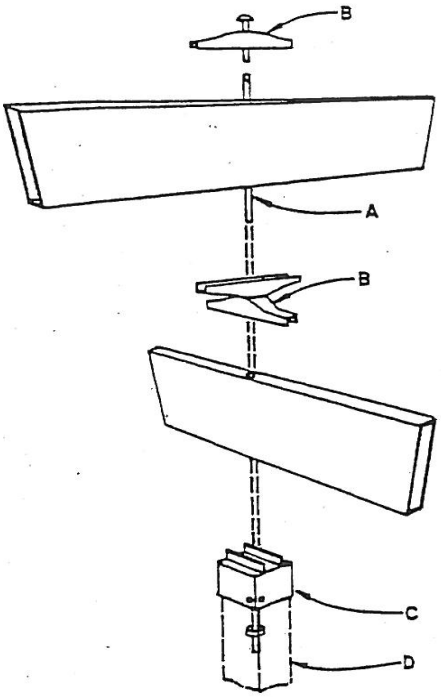
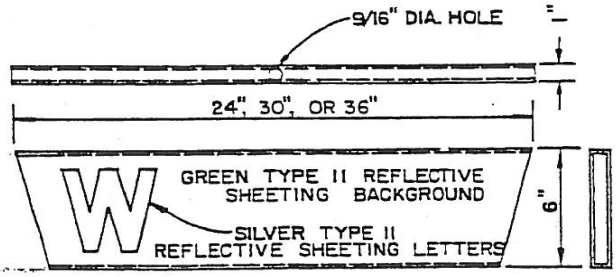
FIRE SAFETY STANDARD

PREMISE AND BUILDING IDENTIFICATION AND ADDRESSING

DIAGRAM B-1.2: STREET SIGN DETAIL



ASSEMBLY



A $\frac{5}{8}$"X15" CADMIUM PLATED CARRIAGE BOLT.

B ORNAMENTAL TOP SHALL BE 14 GAGE ANODIZED ALUMINUM. CENTER CROSS SADDLE SHALL BE ONE PIECE CAST ANODIZED ALUMINUM.

C ONE PIECE 2" CAST ANODIZED ALUMINUM POST CAP WITH FOUR 3/8" STAINLESS STEEL ALLEN HEAD SET SCREWS.

D 2" SQ. STEEL POST 8'-12' LONG INSTALLED WITH A DRIVEN 2 1/2" SQ. STEEL BREAKAWAY BASE 3' LONG AS PER COUNTY INSTALLATION STD. 303b.

DESIGN: EACH FOUR-WAY UNIT SHALL CONSIST OF TWO DOUBLE FACE SIGNS WITH STREET NAMES MOUNTED AT RIGHT ANGLES WITH CENTER ROD ASSEMBLY.

BRACKET ASSEMBLY: THE POST CAP, ORNAMENT, AND CENTER ROD ASSEMBLY SHALL BE MADE TO MOUNT ON 2" SQ. GALVANIZED POST. THE CENTER ROD SHALL BE A $\frac{5}{8}$" CADMIUM PLATED CARRIAGE BOLT. HEAD OF BOLT SHALL FORM TOP OF ORNAMENT. BOLT SHALL EXTEND THROUGH SIGNS AND FASTEN WITH NUT INSIDE OF POST CAP. POST CAP SHALL BE DEEPLY GROOVED TO SECURELY HOLD SIGN FROM TWISTING AND SHALL BE SECURED TO THE PIPE WITH THREE 3/8" STAINLESS STEEL ALLEN HEAD SET SCREWS.

MATERIAL: SIGN SHALL BE GREEN ANODIZED ALUMINUM EXTRUSION OF 6063T-4 ALLOY MATERIAL. ALL ANODIZING SHALL CONFORM WITH ALUMILITE SPECIFICATION #215-R1.

FINISH: SIGN FACES SHALL BE FHWA TYPE II REFLECTIVE SHEETING. THE TRANSPARENT SCREEN PROCESS COLOR SHALL BE AS RECOMMENDED BY THE REFLECTIVE SHEETING MANUFACTURER. APPLICATION OF THE REFLECTIVE SHEETING TO THE SIGN SHALL BE BY METHODS AS APPROVED BY THE REFLECTIVE SHEETING MANUFACTURER.

LETTERING: STREET NAMES SHALL BE 4" HIGH. EACH NAME SHALL BE INDIVIDUALLY LAID OUT TO FIT EITHER THE 24" OR 30" SPACE. THE LETTERS SHALL BE OF THE ROUNDED TYPE STYLE CONFORMING WITH THE STANDARD ALPHABET FOR HIGHWAY SIGNS DESIGNED BY THE U.S. PUBLIC ROADS ADMINISTRATION. LETTERS SHALL BE FHWA TYPE II REFLECTIVE SHEETING.

CITY OF VICTORVILLE
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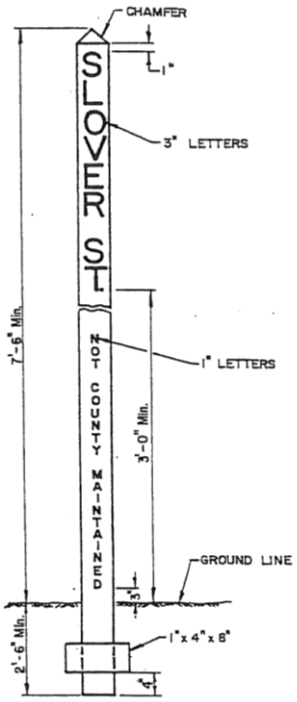
FIRE SAFETY STANDARD

PREMISE AND BUILDING IDENTIFICATION AND ADDRESSING

DIAGRAM B-1.3: STREET SIGN POST



NOTES:

1. SEE STANDARD NO 303a FOR MARKER LOCATIONS.
2. POST SHALL BE 4"x 4" CONSTRUCTION HEART STRUCTURAL REDWOOD, S.4 S. AND/OR EQUIVALENT AS APPROVED BY STANDARD SPECIFICATIONS.
3. ALL WOOD SURFACES SHALL BE GIVEN ONE COAT OF WOOD PRIMER AND TWO COATS OF ENAMEL; SIGN POST YELLOW, IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
4. LETTERS SHALL BE STENCILED WITH BLACK PAINT ON ALL SIDES.
5. STREET NAME LETTERS SHALL BE 3" HIGH AND NOT COUNTY MAINTAINED LETTERS 1" HIGH ROUNDED TYPE STYLE CONFORMING WITH THE STANDARD ALPHABET FOR HIGHWAY SIGNS DESIGNED BY THE U.S. PUBLIC ROADS ADMINISTRATION.

CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

B-2

Revision Date:
2-10-20

FIRE SAFETY STANDARD

CONSTRUCTION SITE FIRE SAFETY

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the fire code official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 3301 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to prescribe minimum safeguards for new building construction and significant building alteration projects in order to provide a reasonable degree of safety to life and property from fire. They are based on the provisions for fire safety during building construction as set forth in Chapter 33 of the CA Fire Code.

SCOPE

This standard establishes minimum requirements for fire safety during construction and demolition. This document shall not be construed to be in lieu of any other applicable State or Federal law or regulation related to construction site safety. The general contractor or other designee of the building owner shall be responsible for compliance with these standards.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
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Standard Number

B-2

Revision Date:
2-10-20

FIRE SAFETY STANDARD

CONSTRUCTION SITE FIRE SAFETY

SUBMITTALS

A written Fire Protection Plan shall be developed for significant or complex construction projects at the discretion of the Fire Code Official. The plan shall be approved by the Fire Code Official prior to proceeding past foundation work for new buildings or commencement of demolition work in alteration projects. The written plan shall be consistent with the fire safety precautions as specified in this Standard. The general contractor is responsible for carrying out the provisions of the Fire Protection Plan and communicating it to all subcontractors. The Fire Protection Plan shall include the following:

a. Procedures for reporting emergencies to the Fire department.
b. Procedures for emergency notification, evacuation and/or relocation of all persons in the building under construction and on the site.
c. Procedures for hot work operations, management of hazardous materials and removal of combustible debris and maintenance of emergency access roads.
d. Floor plans identifying the locations of exits, exit stairs, exit routes and portable fire extinguishers.
e. Site plans identifying the designated exterior assembly areas for each evacuation route.
f. Site plans identifying required fire apparatus access roadways and on-site fire hydrants.
g. The name and contact phone number of the person(s) responsible for compliance with the Fire Protection Plan.

ACCESS AND PARKING

1) Construction projects shall provide and maintain Fire Department Access Roadways in accordance with the current CA Fire Code and City of Victorville Fire Department Standards A-1 through A-4.

2) All construction sites shall be accessible by fire department apparatus by means of roadways having an all-weather driving service of not less than twenty six (26) feet of unobstructed width for two (2)-story buildings, thirty (30) feet for three (3)-story buildings. The roads shall have the ability to withstand the live loads of fire apparatus weighing 80.000 lbs., and have a minimum fourteen (14) feet six (6) inches of vertical clearance. Dead end fire access roads in excess of 150 feet in length shall be provided with approved turnarounds.

3) When approved by the Fire Code Official, temporary access roadways may be utilized until such time as permanent roadways are installed. At a minimum, the roadway shall consist of a compacted sub-base and 6 inches of road base material (Class 2 aggregate base rock) both compacted to a minimum 85%. The perimeter edges of the roadway

shall be contained and delineated by curb and gutter or other approved method. The use of geotextile reinforcing fabric underlayment or soils lime-treatment may be required if so determined by the project civil engineer. Provisions for surface drainage shall also be provided where necessary. The integrity of the roadway shall be maintained at all times.

PREMISES IDENTIFICATION

1) The address numbers of the property or project location shall be plainly visible and legible from the street or road fronting the property at the fire apparatus access point or as otherwise approved.

2) Premises identification shall comply with City of Victorville Fire Department Standard B-1.

FIRE PROTECTION SYSTEMS

1) Fire Hydrants: Where underground water mains and hydrants are required for the building(s) under construction, they shall be installed, completed, and in service prior to combustible construction materials accumulating on site. Fire hydrants shall comply with City of Victorville Fire Department Standard W-2.

2) Standpipes: Where standpipes are required, the standpipes shall be installed when the progress of construction is not more than 35 feet in height above the lowest level of the fire department access. Standpipes shall be provided with fire department hose connections and outlets at accessible locations adjacent to usable stairs. The standpipe system shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring. Each floor shall be provided with a 2½-inch valve outlet for fire department use. Where construction height requires installation of a Class III standpipe, fire pumps and water main connections shall be provided to serve the standpipe. Standpipes shall comply with City of Victorville Fire Department Fire Standard.

3) Area Separation Walls: When area separation walls are required, the wall construction shall be completed (with all openings protected) immediately after the building is sufficiently weather-protected at the location of the wall(s).

4) Fire Sprinkler Systems: Where automatic fire sprinkler systems are required to be installed in new buildings, the system shall be placed in service as soon as possible. Immediately upon the completion of sprinkler pipe installation on each floor level, the piping shall be hydrostatically tested and inspected. After inspection approval from the Fire Code Official, each floor level of sprinkler piping shall be connected to the system supply riser and placed into service. For system activation notification, an exterior alarm

bell can be installed and connected to the sprinkler water flow device prior to installation of the monitoring system.

For buildings equipped with fire sprinkler systems that are undergoing alterations, the sprinkler system(s) shall remain in service at all times except when system modifications are necessary. Fire sprinkler systems undergoing modifications shall be returned to service at the end of each workday unless otherwise approved by the Fire Code Official. The General contractor or his/her designee shall check the sprinkler control valve(s) at the end of each workday to confirm that the system has been restored to service.

5) Fire Alarm Systems: Fire alarm systems shall be maintained operational at all times during building alterations. When an alteration requires modification to a portion of the fire alarm system, the portion of the system requiring work shall be isolated and the remainder of the system shall be kept in service whenever practical. When it is necessary to shut down an entire fire alarm system a fire watch or other mitigation approved by the Fire Code Official shall be implemented by the general contractor until the system is returned to full service.

6) Fire Extinguishers: Portable fire extinguishers shall be provided and shall be mounted on a wall or post at each usable stairway and such that the travel distance to any extinguisher does not exceed 75 feet. Mounting height to the top of the extinguisher shall not exceed 5 feet. Extinguishers shall not have less than a 2A10BC rating or as otherwise directed by the fire department. The general contractor shall ensure that an adequate number of individuals are trained in the proper use of portable fire extinguishers.

EXIT REQUIREMENTS

1) Minimum Number of Exits: All new buildings under construction shall have a least one unobstructed exit. All exits shall be identified in the Fire Protection Plan.

2) Multi-Story Buildings: Each level above the first story in new multi-story buildings shall be provided with at least two usable exit stairs after the floor decking is installed. The stairways shall be continuous and discharge to grade level. Stairways serving more than two floor levels shall be enclosed (with openings adequately protected) after exterior walls/windows are in place. Exit stairs in new and in existing, occupied buildings shall be lighted and maintained clear of debris and construction materials at all times.

FIRE SAFETY STANDARD

CONSTRUCTION SITE FIRE SAFETY

Exception: *For new multi-story buildings, one of the required exit stairs may be obstructed on not more than two contiguous floor levels for the purposes of stairway construction (i.e., installation of gypsum board, painting, flooring, etc.).*

3) Assembly Points: Designated exterior assembly points shall be established for all construction personnel to relocate to upon evacuation. The assembly points shall also be identified in the Fire Protection Plan.

FLAMMABLE AND COMBUSTIBLE LIQUIDS

1) Storage Areas: The following requirements shall apply to storage areas for flammable and combustible liquids:
   a. Storage areas shall be kept free of weeds and extraneous combustible materials.
   b. Open flames and smoking shall be prohibited in storage areas.

2) Containers: Metal containers for Class I or II liquids shall be in accordance with DOT requirements or shall be of an approved design. Discharge devices shall not cause an internal pressure on the container. Individual containers shall not be interconnected and shall be kept closed when not in use.

3) Secondary Containment: Secondary containment or a means of spill control, drainage control, and diking shall be required for containers and tanks as approved by the fire department and, if applicable, local hazardous materials program agency.

4) Marking: Tanks and containers shall be marked with the name of the product and "FLAMMABLE — KEEP FIRE AND FLAME AWAY." Tanks (i.e., containers in excess of 60 gallons) shall also be labeled "KEEP 50 FEET FROM BUILDINGS."

5) Tank Installation Plans/Permit: Plans for the installation/use of any aboveground storage tank (i.e., container greater than 60 gallons) shall be submitted to the Fire Code Official and, if applicable, local hazardous materials program agency for review and permit prior to the proposed tank arriving at the site.

OTHER COMBUSTUIBLE MATERIALS

1) Combustible Material Storage: Combustible construction materials shall be stored a minimum of 20 feet from buildings under construction or undergoing remodel.

   Exceptions:

a.) Materials that are staged for installation on a floor level.

b.) When approved by the Fire Code Official, materials may be stored in parking garages of Type I construction if the automatic fire sprinkler system is in service and vertical openings are protected.

2) Combustible Debris: Wood, cardboard, packing material, forms lumber, and similar combustible debris shall not be accumulated within buildings. Such debris, rubbish, and waste material shall be removed from buildings on a daily basis.

COMPRESSED GASSES

1) Protection of Gas Containers: Gas containers/cylinders shall be protected as follows:
   a. Combustible materials shall be kept a minimum of 10 feet from gas containers.
   b. Cylinders shall be protected against physical damage.
   c. Cylinders shall be stored upright and secured to prevent falling.
   d. Cylinders shall not be placed near elevators, unprotected platform edges or other areas where they could drop more than 2 feet.
   e. Cylinders shall not be placed in areas where they may be damaged by falling objects.
   f. When cylinders are not in use, protective valve caps shall be in place.
   g. Ropes, chains or slings shall not be used to suspend gas cylinders, unless the cylinder was manufactured with appropriate lifting attachments.

2) Separation: When stored, gas cylinders shall be separated from each other based on their hazard classes.

3) Marking: Gas cylinders shall be marked with the name of the contents.

4) Use in Buildings: Propane containers may be used in buildings under construction or undergoing major renovation as a fuel source for temporary heating for curing concrete, drying plaster and similar applications in accordance with the following:
   a. Heating elements (other than integral heater-container units) shall be located at least 6 feet from any LP-Gas container.
   b. Integral heater-container units specifically designed for the attachment of the heater to the container, or to a supporting standard attached to the container, may be used provided they are designed and installed so as to prevent direct or radiant heat application to the LP-Gas container.

c. Blower and radiant type units shall not be directed toward any LP-Gas container within 20 feet.
d. Heat producing equipment shall be installed with clearance to the combustibles in accordance with the manufacturer's installation instructions.
e. Cylinders shall comply with DOT cylinder specifications and shall be secured in an upright position.
f. Regulators shall be approved for use with LP-Gas. Fittings shall be designed for at least 250 p.s.i.g. service pressure.
g. Hose shall be designed for a working pressure of at least 350 p.s.i.g. (unless limited to 5 p.s.i.g.) and shall be a maximum of 6 feet in length.
h. Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas to the main burner and to the pilot in the event of flame extinguishment or combustion failure. Portable heaters with an input of more than 50,000 Btu/hr shall be equipped with either a pilot that must be proved before the main burner can be turned on or an approved electronic ignition system.

5) Occupied Buildings: In addition to the above, for LPG storage/use in buildings undergoing alteration and that are fully or partially occupied, the following shall also apply:
a. Specific approval must be obtained from the fire department prior to bringing LP-Gas containers on-site.
b. The maximum water capacity of individual containers shall be 5-gallon water capacity and the number of containers in the building shall not exceed the number of workers assigned to using the LP-Gas.
c. Containers having a water capacity greater than 2½ pounds (1 quart) shall not be left unattended.

HOT WORK

1) Hot work includes any work involving operations capable of initiating fires or explosions, including cutting, welding, brazing, soldering, grinding, thermal spraying, thawing pipe, torch applied roofing, or any other similar activity. The use of hot work equipment shall be in accordance with the following requirements, including a pre-site inspection, fire watch and post inspection procedures.

2) Pre-Site Inspection: An inspection of the hot work site shall be conducted by the General Contractor or his/her designee prior to hot work operations to ensure that:

a. The hot work site is clear of combustibles or that combustibles are protected.
b. Exposed construction is of noncombustible materials or that combustible materials are protected.
c. Openings are protected.
d. There are no exposed combustibles on the opposite side of partitions, walls, ceilings, floors, etc.
e. Fire extinguishers are available, fully charged and operable.
f. Fire watch personnel are assigned, equipped and trained.

3) Fire Watch: The sole duty of fire watch personnel shall be to watch for the occurrence of fire during and after hot work operations. Individuals designated to fire watch duty shall have fire extinguishing equipment readily available and shall be trained in the use of such equipment. Personnel assigned to fire watch shall be responsible for extinguishing spot fires and communicating an alarm. Hot work conducted in areas with vertical and horizontal fire exposures that cannot be observed by a single individual shall have additional personnel assigned to fire watches to ensure that all exposed areas are monitored.

4) Post-Work Inspection: The fire watch shall be maintained a minimum of 30 minutes after the conclusion of the work to look out for leftover sparks, slag or smoldering combustibles.

SPECIAL EQUIPMENT

1) Motorized Equipment: Motorized equipment, including internal-combustion-powered construction equipment, shall be used in accordance with the following:
   a. Fuel for equipment shall be stored in an approved area outside of the building.
   b. Equipment shall not be refueled while in operation.
   c. Equipment shall be located so that exhausts do not discharge against combustible materials.
   d. When possible, exhausts should be piped to the outside of the building.

2) Temporary Heating Equipment: Temporary heaters, such as those that are LPG fueled, shall be listed and shall be installed, used, and maintained in accordance with the manufacturer's instructions (See LPG storage and use requirements, above). Heating devices shall be secured properly and kept clear from combustible materials. Refueling operations shall be conducted in an approved manner.

FIRE SAFETY STANDARD

CONSTRUCTION SITE FIRE SAFETY

3) Asphalt and Tar Kettles: Asphalt kettles shall not be located within 20 feet of any combustible material, combustible building surface or building opening. With the exception of thermostatically controlled kettles, an attendant shall be within 100 feet of a kettle when the heat source is operating. Ladders or similar obstacles shall not form a part of the route between the attendance and the kettle. Kettles shall be equipped with tight-fitting covers. A minimum 20-B:C rated portable fire extinguisher shall be located within 30 feet of each asphalt kettle when the heat source is operating. Minimum 20-B:C rated portable fire extinguishers also shall be located on roofs during asphalt coating operations.

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FIRE SPRINKLER SYSTEMS IN COMMERCIAL AND INDUSTRIAL BUILDINGS

AUTHORITY

Sections 102.9, 103, and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 903 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide minimum requirements for the design and installation of fire sprinkler systems in commercial and industrial use buildings, in order to aid in the detection and control of fires and thus provide improved protection against injury, life loss, and property damage.

SCOPE

This standard, in conjunction with the latest edition of NFPA 13, shall apply to the design and installation of, and the modification to, all fire sprinkler systems in commercial and industrial occupancies. This standard and its interpretation is not intended to be applied or enforced where there is any conflict with NFPA 13 or the California Fire Code.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

The following shall be submitted to the Fire Department for approval and permit prior to performing any work on any fire sprinkler system:

1) A completed City of Victorville Fire Department permit application

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2) Detailed plans describing the work to be done. (For information on what must be included on plans, see sections below in this Standard and the City of Victorville Plan Submittal Checklist.)
3) A set of hydraulic calculations for all design areas.
4) Manufacturer's specifications sheets (cut sheets) for all proposed materials and equipment.
5) A water flow test report from the water purveyor dated within one (1) year of submittal
6) A set of approved drawings showing private underground water supply lines, labeled "FOR REFERENCE" *(NOTE: This can also be a concurrent submittal)*
7) Any other important details and information as required by this Standard.
8) Payment of all appropriate fees.

GENERAL

All automatic fire sprinkler systems for commercial/industrial projects shall be designed to the requirements of the latest edition of NFPA 13 and other recognized standards as they apply to the hazard being protected. No deviations from these recognized standards will be made without approval from the Fire Code Official.

UNDERGROUND PIPING SYSTEMS

1) Underground sprinkler piping serving fire sprinkler systems shall be installed in accordance with City of Victorville Standard W-2 and current editions of NFPA 13 and 24.
2) Private underground supply piping that serves five (5) or more sprinkler risers or fire hydrants or buildings exceeding 100,000 square feet shall be required to have a minimum of two (2) points of connection to the public and private water source (See City of Victorville Standard W-2.)
3) Post Indicator Valves (PIVs) and Fire Department Connections (FDCs) serving fire sprinkler systems shall be installed in accordance with City of Victorville Standard F-4 and current editions of NFPA 13 and 24.

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SYSTEM RISERS

1) All system risers shall be installed inside of buildings to be protected, or in an approved weather-resistant exterior enclosure, and in a location acceptable to the Fire Code Official.
2) Risers shall be accessible to fire department personnel and shall have a minimum of eighteen inches (18") clearance from obstructions and around all components and equipment and shall be accessible for operation, inspection, test and maintenance. Risers located in an interior enclosure shall have a door way or opening for access a minimum of thirty inches (30") in width and eighty inches (80") in height for access. **(See DIAGRAM F-1.1)**
3) When fire sprinkler systems are installed in buildings constructed for multiple tenants or residents and these systems protect multiple tenant spaces or dwellings, system risers shall be co-located with the Fire Alarm Control Panel inside a minimum 4' X 4' room, and accessible by means of at least one (1) exterior access door of not less than thirty six inches (36") in width and eighty inches (80") in height. Signage for the room shall be in accordance with 'Signage' section of this standard. Fire Dept Knox Box shall be installed outside of this door. **(See DIAGRAM F-1.2)**

DRAINS AND VALVES

1) All drains and test valves shall be piped to the exterior of the building. Outlets of test valves and drains shall discharge preferably into landscaped areas, such as planters or basins, but in no case shall the installation allow water to flow into the public street or storm drain system.
   a) As an alternate to exterior outlets, test valves and drains may have outlets that discharge into interior floor drains connected to the sewer system, or another suitable location approved by the Fire Code Official. Floor drains are to be adequately sized for the flow and pressure of the water being drained from the system.
   b) Such outlets for systems with anti-freeze solutions shall not be allowed to drain onto the site. All anti-freeze systems shall have drain and test valve connections that allow for the safe collection of anti-freeze solutions.
2) Each sprinkler system shall have a Test Valve installed in an approved location.

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SYSTEM MONITORING AND ALARMS

1) All valves controlling the fire sprinkler system(s), including any above ground detector check valves, Post Indicator Valves, and sectional control valves shall be monitored for tamper by an approved supervising station alarm system meeting the requirements of NFPA 72 and City of Victorville Standard F-5. This system shall be installed and in operation prior to final approval to occupy the building.
2) Each system containing more than twenty (20) sprinkler heads shall be provided a separate local water-flow alarm bell, installed at the exterior of the protected building closest to the sprinkler riser. Water-flow alarm bells shall be a minimum of eight (8) inches in size and bear a sign stating “WHEN BELL RINGS CALL FIRE DEPT” in minimum one inch (1”) letters on a contrasting background.
3) Other local alarm devices may be provided with the approval of the Fire Code Official. See City of Victorville Standard F-5 for fire alarm interior water-flow notification requirements.

SPECULATIVE WAREHOUSE BUILDINGS

1) Newly constructed warehouse buildings without an end user (“speculative”) shall have the sprinkler system designed in accordance with NFPA 13 for a density of 0.6 gallons per minute / per square foot with a minimum operating area of 3,000 square feet.
    a) When approved by the Fire Code Official, speculative warehouse buildings shall be allowed to have an Early Suppression Fast Response (ESFR) sprinkler system(s) designed and installed in accordance with NFPA 13.
    b) When approved by the Fire Code Official, speculative warehouse buildings having interior roof deck maximum heights of twenty five (25) feet or less shall be allowed to have the sprinkler system designed in accordance with NFPA 13 for a density of 0.45 gallons per minute / per square foot with a minimum operating area of 3,000 square feet.
    c) When approved by the Fire Code Official, speculative warehouse buildings having interior roof deck maximum heights of twenty (20) feet or less shall be allowed to have the sprinkler system designed in accordance with NFPA 13 for a density of 0.33 gallons per minute / per square foot with a minimum operating area of 3,000 square feet.

HYDRUALIC CALCULATIONS

1) All hydraulic calculations shall be designed for the system demand not to exceed 90% of the available water supply, or at least ten (10) p.s.i. below the available water supply, whichever is greater. This demand is to include the sprinkler system flow and the

FIRE PREVENTION STANDARD

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combined inside and outside hose allowance requirements, but shall not be required to include fire-flow per Appendix B of the California Fire Code.

2) Hydraulic calculations shall be designed using data either from official flow tests performed by the water purveyor, or performed by a licensed contractor and witnessed by the City of Victorville Fire Department. All water flow tests used in design of sprinkler systems shall be less than one (1) year old.

TESTING AND MAINTENANCE

1) All sprinkler systems shall be tested in accordance with the current CCR Title 19 and NFPA 25 CA edition standards. All testing and maintenance reports and documentation shall be submitted to the appropriate office of Community Safety using an approved automatic extinguishing systems form available on the CA State Fire Marshal website, http://osfm.fire.ca.gov/strucfireengineer/strucfireengineer_aes.

INSPECTIONS

All sprinkler systems are required to be inspected by the Fire Code Official prior to final approval. The C-16 contractor of record shall contact the appropriate City of Victorville office at least forty-eight (48) hours prior to requesting and inspection, and shall notify the City of Victorville office a minimum of twenty four (24) hours for any cancellation of inspections.

The following inspections shall be required for all fire sprinkler systems in commercial and industrial buildings:

1) "OVERHEAD ROUGH INSPECTION":
   a) All piping and components are required to be in place and shall be exposed and visible, including fire department connection, sprinkler heads, valves, gauges, and flow switches. Installation shall be per the approved plans.
   b) All seismic bracing, hangers and other restraints shall be in place and installed per the approved plans.
2) "OVERHEAD HYDRO INSPECTION":
   a) The system piping and all components shall be tested in accordance with current edition of NFPA 13.

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b) Modifications to existing systems that do not add new branch lines or mains shall not be required to have this inspection per NFPA 13. Modifications to existing systems that include new branch lines or mains shall be subject to a hydro test of the new portion only if more than twenty (20) sprinkler heads are affected.

4) "FINAL INSPECTION":

a) A thorough flush of the underground supply piping shall be completed prior to connecting to the riser, witnessed by the Fire Department inspector (See City of Victorville Standard W-2.)

b) Water motor gong bell or electric water-flow alarm bell and flow switch shall be functional, and all identification signs, system hydraulic data plates shall be installed. Spare head box, including additional sprinklers and sprinkler head wrench, shall be installed.

c) All sprinkler heads and escutcheons shall be in place. All sprinkler heads shall be free of protective caps, paint, texturing, or any other obstruction. Protective guards shall be installed on all heads in garage and storage areas. Any other protective coatings and plastic bags shall be in place on sprinkler heads installed in locations susceptible to corrosion or overspray.

d) A flow test shall be performed using the approved Inspectors Test Valve. If electrically operated, the water-flow alarm bell shall be connected an energized source. Flow of water shall result in an audible alarm on the premises within 5 minutes after such flow begins and until such flow stops.

PROTECTION FROM FREEZING

1) All piping for new systems in areas subject to freezing temperatures and not maintained above 40°F shall be approved dry pipe, insulated wet pipe, or antifreeze systems in accordance with the latest edition of NFPA 13.

2) The need for freeze protection shall be as determined by the Fire Code Official and based on the California Energy Commission "Climate Zones" and Part 6 of CCR Title 24, the California Energy Code. Systems located in Climate Zone 16 shall not be protected solely by the use of insulation. Detailed maps of Climate Zones may be found on the Internet at http://www.energy.ca.gov.

3) The use of heat tape or other similar products shall be permitted in Climate Zone 14 when installed in accordance with NFPA 13.

4) All antifreeze solutions shall be factory premixed and approved in accordance with NFPA 13, the California Fire Code, and NFPA. A metal placard shall be placed on all systems using antifreeze solutions at the main riser and at all ITV's. The placard shall contain the necessary information permanently stamped or engraved as shown in **DIAGRAM F-1.3**.

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SIGNAGE

1) All signs for drains and test valves required on sprinkler systems shall be made of metal, no less than 10-gauge thickness, colored red and engraved with permanent white letters.
2) Hydraulic calculation plates required on risers shall be made of metal, unpainted, and the information permanently stamped or engraved, and attached to the riser with a metal "U-bolt" or chain.
3) All doors or other building materials enclosing or concealing sprinkler risers shall have a durable metal sign with a minimum of three inch (3") red block letters on a contrasting background stating "FIRE RISER INSIDE." per **DIAGRAM F-1.4.** Signs shall be installed at five feet (5') above finished floor on the outside of fire sprinkler riser access doors.

SPECIAL SITUATIONS

1) Sprinkler heads shall not be located within smoke vents or skylights.
2) Special uses, high-rise buildings, and other hazards may require special design or installation considerations. The contractor is encouraged to contact the Fire Department regarding these areas not covered in this standard.

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DIAGRAM F-1.1: INTERIOR ACCESS TO SPRINKLER RISE

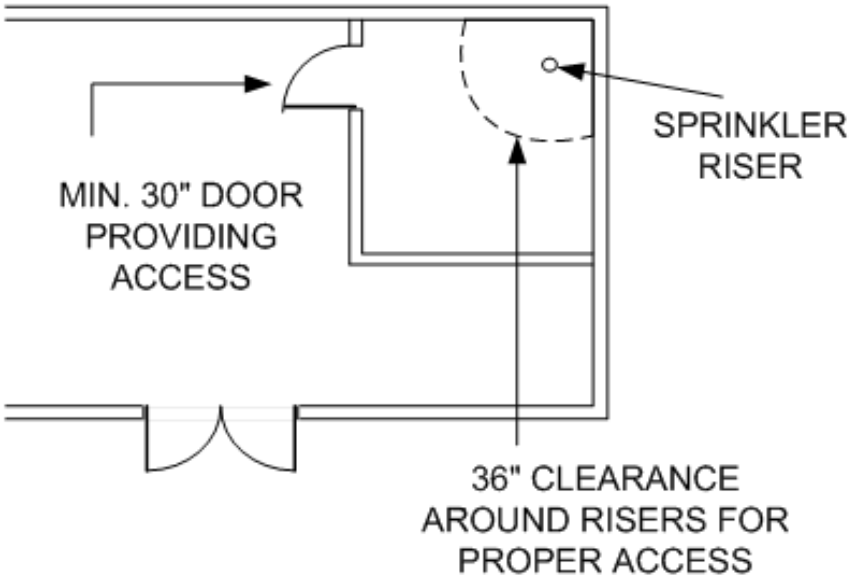

DIAGRAM F-1.2: EXTERIOR ACCESS TO SPRINKLER RISERS

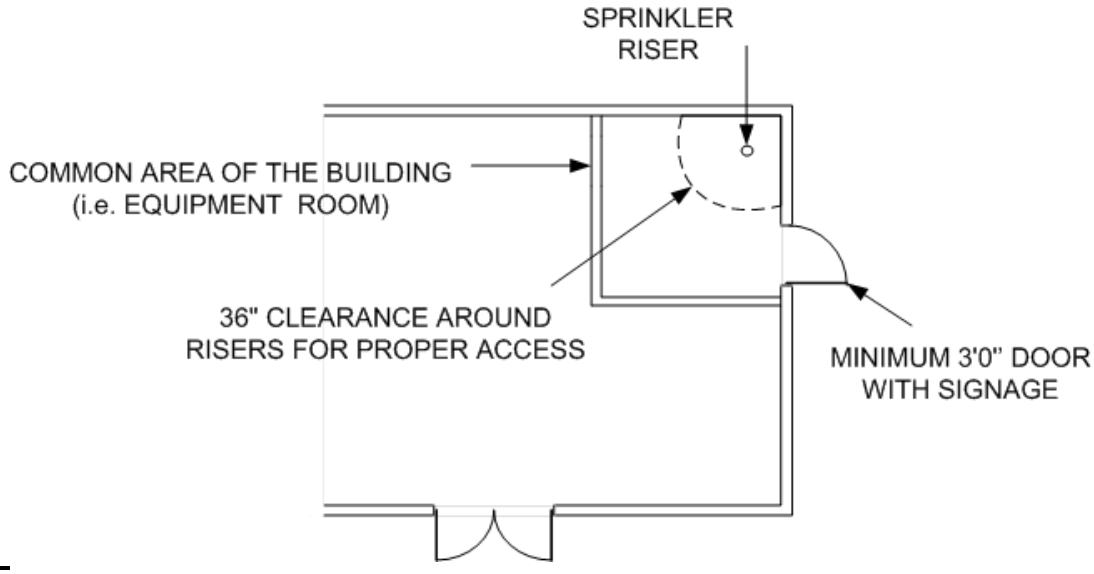

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DIAGRAM F-1.3: SAMPLE PLACARD FOR ANTIFREEZE SYSTEMS

ANTI-FREEZE SYSTEM

The fire sprinkler system in this building contains an anti-freeze solution for protection against freezing.

Type of anti-freeze: _____

Manufacturer: _____

Trade name & brand: _____

Solution concentration: _____ %

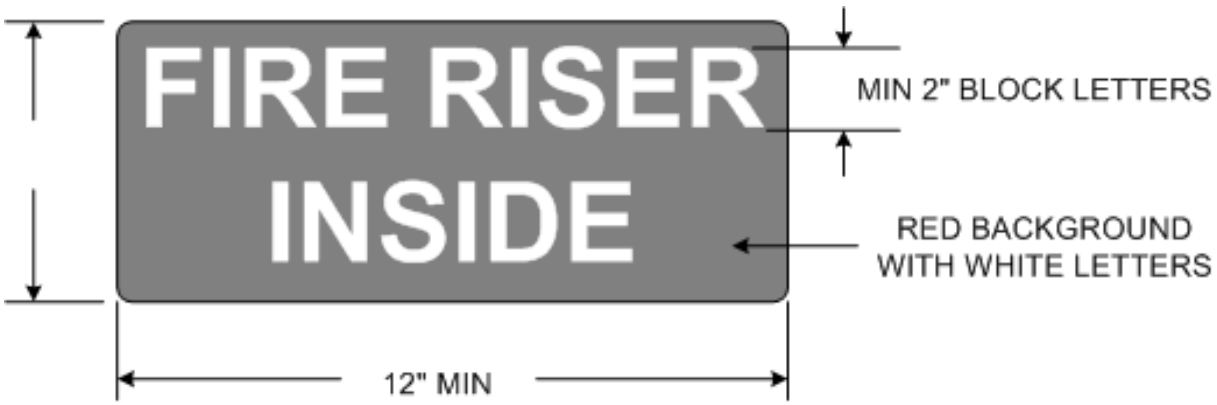
System volume: _____ gallons

Protected to: _____ degrees (°F/°C)

Location: _____

Date tested: _____

DIAGRAM F-1.4: DETAIL OF "FIRE RISER INSIDE" SIGN



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FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN ONE AND TWO FAMILY DWELLINGS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the fire code official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 903 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide minimum requirements for fire sprinkler systems in one and two family residential use buildings, in order to aid in the detection and control of fires and thus provide improved protection against injury, life loss, and property damage.

SCOPE

This standard, in conjunction with the latest edition of NFPA 13D shall apply to the design and installation of, as well as the modification to, all fire sprinkler systems in one and two family dwellings and manufactured homes. This standard shall take NOT precedent where there is any conflict with NFPA 13D.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

The following shall be submitted to the Fire Department for approval and permit prior to performing any work on any fire sprinkler system:

1) A completed City of Victorville Fire Department permit application

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2) A detailed set of plans describing the work to be done. (For information on what must be included on plans, see sections below in this Standard and the City of Victorville Plan Submittal Checklist.)
3) A set of hydraulic calculations for all design areas.
4) Manufacturer's specifications sheets (cut sheets) for all proposed materials and equipment.
5) A water flow test report from the water purveyor dated within one (1) year of submittal
6) Any other important details and information as required by this Standard.
7) Payment of all appropriate fees.

DEFINITIONS

SELF-CONTAINED AUTOMATIC RESIDENTIAL SPRINKLER SYSTEM An approved fire sprinkler system, that conforms to NFPA 13 D, California Residential Code Section R313 and this Fire Prevention Standard, and is supplied by a water source independent from a municipal water distribution system. If the system is mechanically assisted by booster pumps, power to the pump shall be on a dedicated circuit.

GENERAL

1) All automatic fire sprinkler systems for one and two family residential dwelling projects shall be designed to the requirements of the latest edition of NFPA 13D or California Residential Code (CRC) section R313, and other recognized standards as they apply to the hazard being protected. No deviations from these recognized standards will be made without approval from the Fire Code Official.
2) Water supply other than from a public water purveyor utility shall be in accordance with this Standard or the requirements in the City of Victorville Standard W-1 and NFPA 1142.

SYSTEM COMPONENTS

1) In living areas within the dwelling unit, only approved listed residential or quick response sprinkler heads shall be used, per the listing of the manufacturer and NFPA 13D.
2) All CPVC plastic pipes used shall meet the requirements of the manufacturers listing, particularly for applications when pipe is exposed.

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3) All system components shall be rated for the maximum working pressure, but not less than 175 p.s.i.

4) Piping shall be supported from structural members using methods approved by the pipe manufacturer and NFPA 13D. Devices such as "J-hooks" or plumbers tape are prohibited. Hangers shall not be attached to the structure by nails or any fastener which requires impact to fasten it to the structure. All hangers used on CPVC pipe shall be approved by the Fire Code Official.

5) All sprinkler riser assemblies shall be located in a wall, cabinet, or other enclosure (with a minimum twelve inch (12") wide by thirty six inch (36") high access door), unless otherwise approved by the fire code official (See **DIAGRAM F-2.1**). When required by the fire code official, the location of the riser shall be identified with a sign permanently affixed with minimum ¼" letters on a contrasting background.

6) The installation of a reduced pressure (RP) device or backflow device on sprinkler system risers shall be allowed when required by the water purveyor or by the Plumbing Code for well or tank fed private systems. When such RP or backflow devices are required, they shall be secured in an open position with valve handles removed, and an appropriate allowance shall be made for all such devices in the hydraulic calculations.

7) Local waterflow alarms shall be provided on all sprinkler systems in homes not equipped with smoke alarms or smoke detectors in accordance with *NFPA 72*, *National Fire Alarm and Signaling Code*. When installed, water-flow alarm bells shall be a minimum of six (6) inches in size and bear a sign stating "WHEN BELL RINGS CALL FIRE DEPT" in minimum three quarters inch (¾") letters on a contrasting background.

8) Where waterflow detection devices are installed, these devices, including the associated alarm circuits, shall be flow tested through the inspector's test connection and shall result in an audible alarm on the premises. The orifice of the ITV shall be equal to the hydraulically calculated most remote sprinkler head.

WATER SUPPLY

1) The City of Victorville Fire Department requires only one (1) domestic water supply service (or water meter) with separate connections to domestic and sprinkler systems. Local water companies may have other requirements. It is the contractor's or owner's responsibility to contact the local water purveyor prior to design of the system to find out these and any other specific requirements.

2) In areas not served by a water purveyor, or where water supply is insufficient, an approved self-contained automatic fire sprinkler system is recommended and may be used to provide adequate protection. (See "SELF CONTAINED AUTOMATIC RESIDENTIAL SPRINKLER SYSTEMS"

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3) Water meters shall be of sufficient size to supply the demand as determined by the approved hydraulic calculations.

4) Water supplies shall meet the requirements of NFPA 13D or CA Residential Code section R313.

SYSTEM DESIGN

1) Residential sprinkler heads shall be designed for a coverage area in accordance with the manufacturers listing. Sprinklers other than residential sprinklers shall provide coverage as specified in NFPA 13.

2) Systems shall be supplied using a water meter of sufficient size to meet the hydraulically calculated demand and the manufacturer's listing for sprinkler heads used. In no case shall the meter be less than three quarters inch (3/4") unless approved by the fire code official. Hydraulic calculations shall demonstration the appropriate pressure loss through water meters, using the manufacturer's specification or NFPA 13D.

3) Sprinkler systems shall be designed to provide the demand of the two (2) most hydraulically remote sprinkler heads, per the manufacturer's listings and specifications.

4) Systems fed by water supplies with very low inlet pressure (less than 40 p.s.i.) may utilize an approved automatic residential domestic shut-off valve, in order to eliminate the 5 GPM domestic allowances in the demand, as required by this Standard or by other connected systems, such as water softeners. Such automatic valves shall be listed for such use with fire sprinklers and be installed per the manufacture's specifications. (See **DIAGRAM F-2.2**)

HYDRAULIC CALCULATIONS

1) Hydraulic calculations shall be provided to the fire code official demonstrating an adequate supply, from the water meter (source) to the most remote hydraulically calculated remote sprinkler(s).

2) All hydraulic calculations shall be designed for the system demand not to exceed 90% of the available water supply, or at least ten (10) p.s.i. below the available water supply, whichever is greater.

3) All hydraulic calculations for new systems shall have included in the demand a minimum of five (5) gallons per minute (GPM) allowance for domestic use.

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OWNER BUILDER INSTALLED SYSTEMS

1) Any system that is to be installed by an owner builder must conform to the requirements of the California Business and Professions Code section 7026 et. seq., and all applicable adopted codes as well as this Standard. Such owner builders shall submit plans designed by a registered Professional Engineer (PE) or CA licensed sprinkler contractor for approval prior to starting sprinkler system installation.
2) Owner builders shall submit a declaration or affidavit in writing, to the satisfaction of the Fire Code Official, certifying ownership of the property and structure where the system is to be installed, and assuming all responsibility and legal liability. Owner builder shall also provide proof of sprinkler installation training given by the systems manufacturer. This documentation shall be submitted along with the application for a permit to install the system.
3) Owner builder installed systems shall not exceed two (2) sprinkler systems per applicant per year.

INSPECTIONS

All sprinkler systems are required to be inspected by the fire code official prior to final approval. The sprinkler contractor of record shall contact the appropriate City of Victorville office at least twenty-four (24) hours prior to requesting and inspection, and shall notify the City of Victorville office a minimum of twenty four (24) hours for any cancellation of inspections.

The following inspections shall be required for all fire sprinkler systems in one and two family residential dwellings:

1) "OVERHEAD ROUGH INSPECTION":
   a) a) All piping and components, including sprinkler heads, hangers, valves, gauges, and flow switches are required to be in place and shall be exposed for visible inspection. If insulation is to be used for freeze protection, this shall be in place and fastened, and with the approval of the inspector, is permitted to cover the necessary exposed pipe.

      NOTE: Sprinkler heads may be omitted at overhead rough inspection with Code Official approval.

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2) "OVERHEAD HYDRO INSPECTION":

   a) The system shall be pressurized with water at a pressure comparable to working pressure, during the duration of the inspection. All areas shall be exposed to check for leaks. Testing shall comply with the requirements of NFPA 13D.

3) "FINAL INSPECTION":

   a) The underground supply system shall be flushed before it can be connected to the overhead piping.

   b) All sprinkler heads shall be uncovered, with escutcheons or trim rings in place. For concealed heads, the cover plates shall be off. Protective guards shall be installed on all heads in the garage and storage areas, if required.

   c) A flow test shall be performed using the Inspectors Test Valve (ITV), if installed. Where waterflow detection devices are installed, these devices, including the associated alarm circuits, shall be flow tested through the inspector's test connection and shall result in an audible alarm on the premises.

PROTECTION FROM FREEZING

1) Sprinkler systems installed in areas subject to freezing temperatures and not maintained above 40°F shall be protected from freezing in accordance with the requirements NFPA 13D and the local water purveyor. The need for freeze protection shall be as determined by the Fire Code Official and based on the California Energy Commission "Climate Zones" and Part 6 of CCR Title 24, the California Energy Code. Systems located in Climate Zone 14 as defined by the California Energy Commission may be protected solely by the use of insulation. Systems located in Climate Zone 16 shall not be protected solely by the use of insulation. Detailed maps of Climate Zones may be found on the Internet at http://www.energy.ca.gov.

2) The use of 'Passive Purge' or combination systems (fire sprinkler and domestic use) is the encouraged method of freeze protection.

3) Insulation may be used as freeze protection for piping if the building or spaces containing piping can be maintained at a minimum of 40 degrees F at all times. The use of batt or blown-in insulation for freeze protection may be approved by the Fire Code Official and installed per current edition of NFPA 13D.

4) All antifreeze solutions shall be a listed factory premixed solution and approved in accordance with NFPA 13D and the California Fire Code which allows only propylene glycol solutions of no more than 40% or glycerin solutions of no more than 50% by volume. If a

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backflow or Reduced Pressure (RP) device is installed, the system shall have an approved expansion tank. The RP device shall be approved by the local water purveyor.

5) A sign or sticker shall be placed on all systems using antifreeze solutions at or near the main riser. The sign shall contain the necessary information permanently and clearly written as shown in **Diagram F-2.3**.

SELF CONTAINED AUTOMATIC RESIDENTIAL SPRINKLER SYSTEMS

1) In areas where an inadequate water supply exists, an approved automatic self-contained water system, meeting all other requirements in this standard and NFPA 13D may be installed. Such systems shall be listed for fire protection and be installed per the manufacturer's specifications.
2) Self-Contained systems may use a pump with an approved primary power supply or compressed gas pressurization. An approved water supply tank shall be sized sufficiently to provide a minimum of ten (10) minutes of sprinkler demand, and contain an automatic refill. Self-Contained systems shall be flow tested at final inspection using a method approved by the fire code official, using the manufacturer's recommendations.
3) If a pump is used, it must be freeze protected in accordance with this standard.

SPECIAL SITUATIONS

1) For systems where it may be difficult to verify the design by means of hydraulic calculations, such as those that are fed by a water pump systems from a well or a tank, or those systems where visual inspection and verification of the overhead or underground piping is otherwise not possible, the fire code official may require a water flow ("bucket test") inspection. The test shall include the two most remote sprinkler heads flowing water into an approved container(s), using an approved method to measure the observed flow and compare to the listed flow and pressure of the sprinkler head. Bucket tests may be performed in combination with the Overhead Rough inspection or the Final inspection.
2) Spray applied or wrapped polyurethane foam insulation that comes into contact with non-metallic fire sprinkler piping, whether such is required for freeze protection or not, shall be listed for such use with pipe and applied according to the manufacturer's recommendations. Information about any polyurethane foam insulation shall be made available to the fire code official upon request.

CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
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(760) 955-5227

Standard Number

F-2

Revision Date:
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FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN ONE AND TWO FAMILY DWELLINGS

DIAGRAM F-2.1: RISER ACCESS PANEL DETAILS

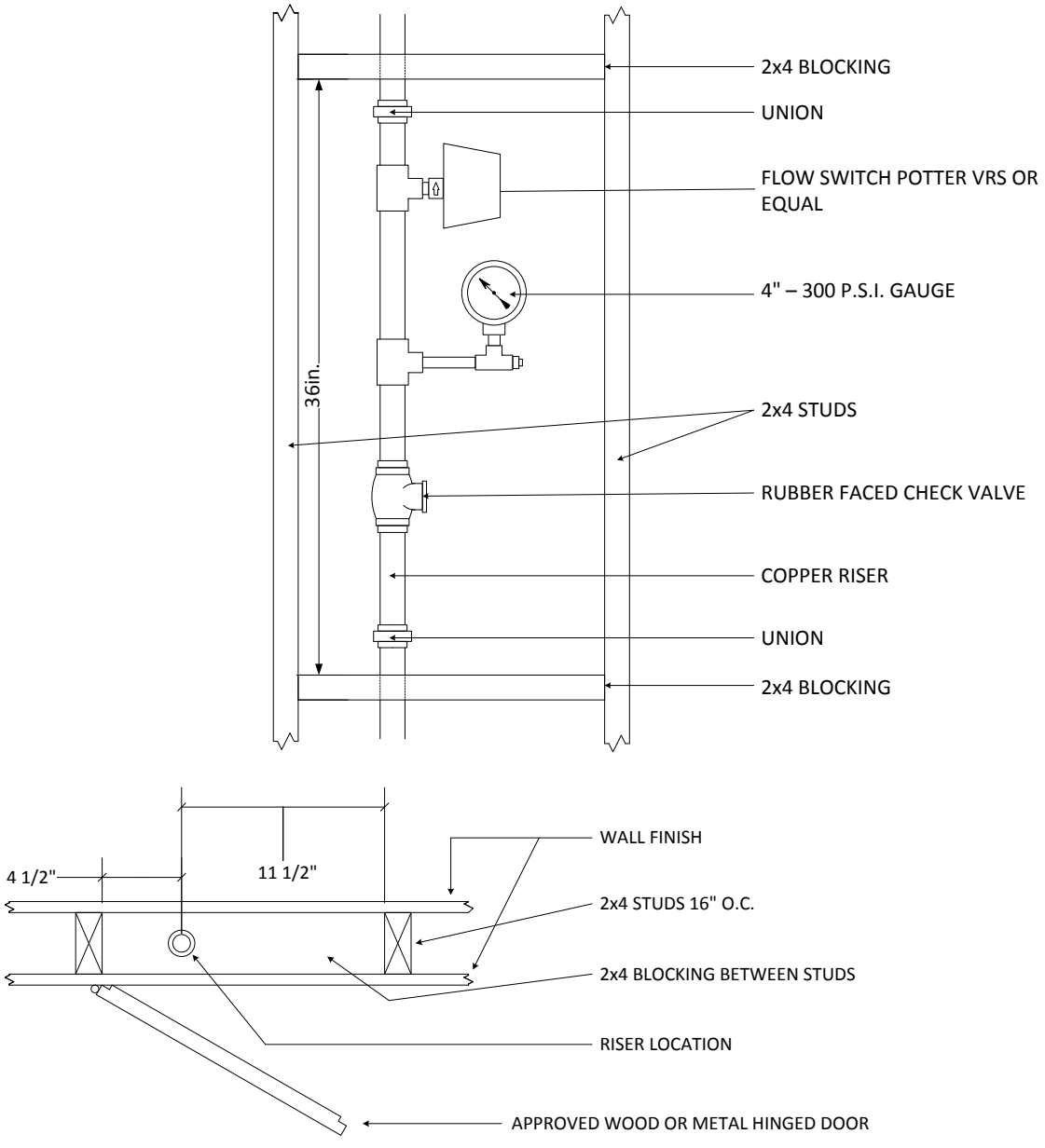

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DIAGRAM F-2.2: RESIDENTIAL AUTOMATIC DOMESTIC SHUTOFF VALVE

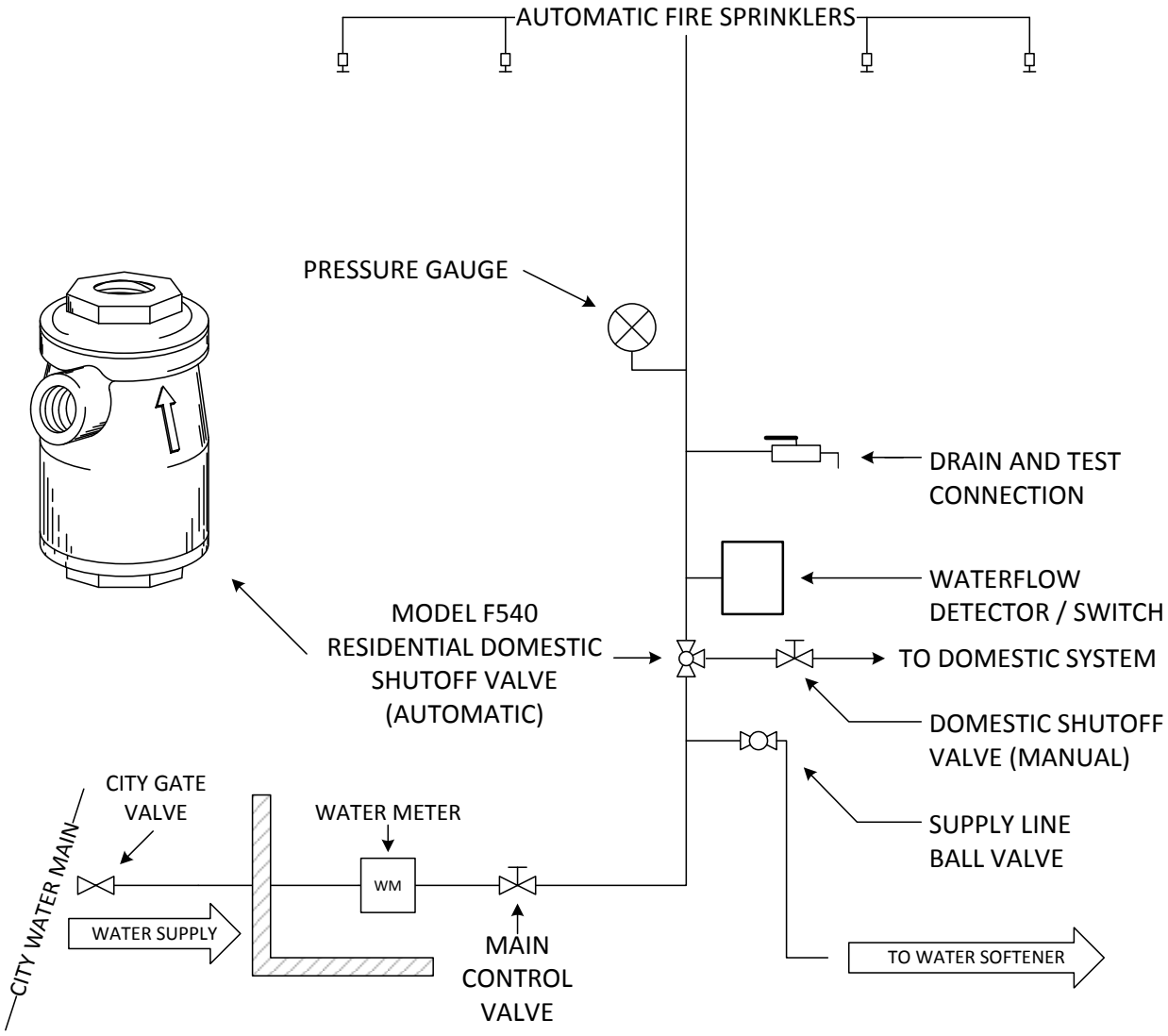

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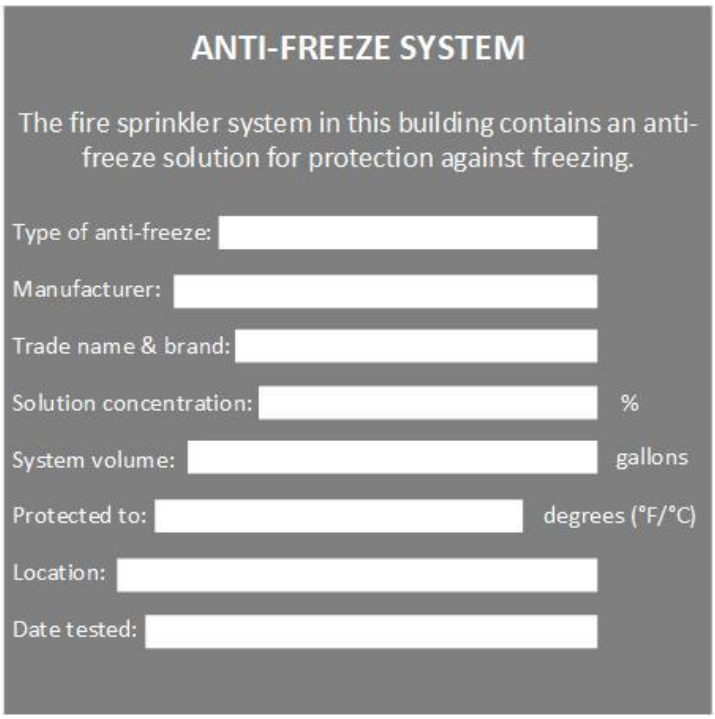
DIAGRAM F-2.3: SAMPLE PLACARD FOR ANTIFREEZE SYSTEMS



CITY OF VICTORVILLE
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14345 Civic Center Drive
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FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the fire code official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 903 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide minimum requirements for the design and installation of fire sprinkler systems in multifamily dwellings, in order to aid in the detection and control of fires and thus provide improved protection against injury, life loss, and property damage.

SCOPE

This standard, in conjunction with the latest edition of NFPA 13R, shall apply to the design and installation of, and the modification to, all fire sprinkler systems in multi-family dwellings within buildings up to and including four (4) stories, or sixty (60) feet, in height. This standard and its interpretation is not intended to be applied or enforced where there is any conflict with NFPA 13 or the California Fire Code.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

The following shall be submitted to the Fire Department for approval and permit prior to performing any work on any fire sprinkler system:

1) A completed City of Victorville Fire Department permit application
2) A set of detailed plans describing the work to be done. (For information on what must be included on plans, see sections below in this Standard and the City of Victorville Plan Submittal Checklist.)

FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

3) A set of hydraulic calculations for all design areas
4) Manufacturer's specification sheets (cut sheets) for all proposed materials and equipment.
5) A water flow test report from the water purveyor dated within one (1) year of submittal.
6) When required, at least one (1) set of approved drawings showing private underground water supply lines, labeled "FOR REFERENCE" *(NOTE: This can also be a concurrent submittal)*
7) Any other important details and information as required by this Standard.
8) Payment of all appropriate fees

GENERAL

All automatic fire sprinkler systems for multifamily residential projects shall be designed to the requirements of the latest edition of NFPA 13R and other recognized standards as they apply to the hazard being protected. No deviations from these recognized standards will be made without approval from the fire code official.

UNDERGROUND PIPING SYSTEMS

1) Underground sprinkler piping serving fire protection systems ONLY shall be installed in accordance with City of Victorville Standard W-2 and current editions of NFPA 13 and 24. Underground piping that serves both fire sprinkler systems and domestic water demand shall meet the requirements of applicable codes for domestic water plumbing.
2) Underground domestic water supply services that also serve sprinkler systems, either from the public water system or from a private supply source, shall meet the requirements of NFPA 13R and this Standard, as well as all applicable requirements of the local water company. It is the contractor's or owner's responsibility to contact the local water purveyor prior to design of the system to find out any specific requirements.
3) Post Indicator Valves (PIVs) and Fire Department Connections (FDCs) serving fire sprinkler systems shall be installed in accordance with City of Victorville Standard F-4 and current editions of NFPA 13 and 24.

SYSTEM RISERS

1) System risers shall be located exposed inside the building, or protected inside walls, or in an approved cabinet or enclosure, and in a location acceptable to the fire code official. All risers shall be located in a common area, and accessible without entering a dwelling unit.

FIRE PREVENTION STANDARD

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2) Risers enclosed (protected) in a wall, cabinet, or other enclosure shall have a minimum twelve inch (12") wide by thirty six inch (36") high access door, unless otherwise approved by the Fire Code Official. (See **DIAGRAM F-3.1**) When required by the fire code official, the location of the riser shall be identified with a sign permanently affixed with minimum ¼" letters on a contrasting background.

3) Risers inside a common room (exposed) shall be co-located with the Fire Alarm Control Panel inside a minimum 4' X 4' room accessible by means of an exterior door way or opening for access a minimum of thirty six inches (36") in width and eighty inches (80") in height for access Signage for the room shall be in accordance with 'Signage' section of this standard. Fire Dept Knox Box shall be installed outside of this door (See **DIAGRAM F-3.2**).

DRAINS AND VALVES

1) All drains and test valves shall be piped to the exterior of the building. Outlets of test valves and drains shall discharge preferably into landscaped areas, such as planters or basins, but in no case shall the installation allow water to flow into the public street or storm drain system.

    a) As an alternate to exterior outlets, test valves and drains may have outlets that discharge into interior floor drains connected to the sewer system, or another suitable location approved by the fire code official. Floor drains are to be adequately sized for the flow and pressure of the water being drained from the system.

    b) Such outlets for systems with anti-freeze solutions shall not be allowed to drain onto the site. All anti-freeze systems shall have drain and test valve connections that allow for the safe collection of anti-freeze solutions.

2) Each sprinkler system shall have a Test Valve installed in an approved location.

SYSTEM MONITORING AND ALARMS

1) All valves controlling the fire sprinkler system(s), including any above ground detector check valves, Post Indicator Valves, and sectional control valves shall be monitored for tamper by an approved supervising station alarm system meeting the requirements of NFPA 72 and City of Victorville Standard F-5. This system shall be installed and in operation prior to any approval to occupy the building.

2) Each system shall be provided a separate local water-flow notification device, installed at the exterior of the protected building closest to the sprinkler riser. Water-flow notifcation devices shall be a minimum of six (6) inches in size and bear a weather resistant sign stating "WHEN BELL RINGS CALL FIRE DEPT" in minimum three quarters inch (¾") letters on a contrasting background.

FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

3) Other local alarm devices may be provided with the approval of the fire code official. See City of Victorville Standard F-5 for fire alarm interior water-flow notification requirements.

OTHER SYSTEM COMPONENTS

1) In living areas within dwelling units, only approved listed residential or quick response sprinkler heads shall be used, per the listing of the manufacturer.
2) In storage areas, attics, and attached or detached garages, approved residential or quick response sprinkler heads may be used, with a minimum intermediate temperature rating.
3) All CPVC plastic pipe used shall meet the requirements of the manufacturers listing, particularly for applications when pipe is exposed.
4) An approved rubber-faced check valve shall be installed on systems that have a common fire protection and domestic supply, on the system side of the tee that feeds the sprinkler riser. For systems on which a separate backflow device is required on the riser, an additional check valve is not required.
5) A pressure relief valve (PRV), minimum of a one quarter inch (¼"), and set at 175 p.s.i shall be provided on the system side of the main riser check valve, when check valves are installed and the maximum system pressure exceeds 125 psi.
6) All system components shall be rated for the maximum working pressure, but not less than 175 p.s.i.
7) Piping shall be supported from structural members using methods approved by the pipe manufacturer and NFPA 13R. Devices such as "J-hooks" or plumbers tape are prohibited. Hangers shall not be attached to the structure by nails or any fastener which requires impact to fasten it to the structure. All hangers used on CPVC pipe shall be approved by the Fire Code Official.
8) The installation of a reduced pressure (RP) device or backflow device on sprinkler system risers shall be allowed when required by the water purveyor or by the Plumbing Code for well or tank fed private systems. When such RP or backflow devices are required, they shall be secured in an open position and an appropriate allowance shall be made for all such devices in the hydraulic calculations.
9) A Test Valve shall be installed on all new systems in a location approved by the fire code official. The orifice shall be equal to the hydraulically calculated most remote sprinkler head.

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FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

SYSTEM DESIGN

1) The design density of the sprinkler system shall be as permitted in NFPA 13R, based on the area being protected.
2) Sprinklers shall be installed in all areas required by NFPA 13R.
3) Systems shall be supplied using a water meter of sufficient size to meet the hydraulically calculated demand and the manufacturer's listing for sprinkler heads used. In no case shall the meter be less than three quarters inch (3/4") unless approved by the fire code official. Hydraulic calculations shall demonstrate the appropriate pressure loss through water meters, using the manufacturer's specification or NFPA 13R.
4) Sprinkler systems shall be designed to provide the demand of the four (4) most hydraulically remote sprinkler heads, or as required per NFPA13R or the manufacturer's listing.
5) Systems fed by water supplies with very low inlet pressure (less than 40 p.s.i.) may utilize an approved automatic residential domestic shut-off valve, in order to eliminate the 10 GPM or greater domestic allowances in the demand, as required by NFPA 13R and this Standard. Such automatic valves shall be listed for such use with fire sprinklers and be installed per the manufacture's specifications (See **DIAGRAM F-3.3**).

HYDRAULIC CALCULATIONS

1) All hydraulic calculations shall be designed for the system demand not to exceed 90% of the available water supply, or at least ten (10) p.s.i. below the available water supply, whichever is greater.
2) Hydraulic calculations shall be designed using data either from official flow tests performed by the water purveyor, or performed by a licensed contractor and witnessed by the City of Victorville Fire Department fire code official. All water flow tests used in design of sprinkler systems shall be less than one (1) year old.
3) All hydraulic calculations for new systems that are served by a combination fire protection and domestic connection shall have included in the demand a minimum of ten (10) gallons per minute (GPM) allowance for domestic use.

TESTING AND MAINTENANCE

1) All sprinkler systems shall be tested in accordance with the proper CCR Title 19 and NFPA 25 standards. All tests reports for "Five-year certifications" shall be submitted to the appropriate office of Community Safety at the Fire Department and in an approved format.

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FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

INSPECTIONS

All sprinkler systems are required to be inspected visibly by the fire code official prior to final approval. The C-16 contractor of record shall contact the appropriate City of Victorville office at least twenty-four (24) hours prior to requesting an inspection, and shall notify the City of Victorville office a minimum of twenty four (24) hours for any cancellation of inspections.

The following inspections shall be required for all fire sprinkler systems in multi-family dwellings:

1) "OVERHEAD ROUGH INSPECTION":

   a) All piping and components are required to be in place and shall be exposed and visible, including fire department connection, sprinkler heads, valves, gauges, and flow switches. If insulation is to be used for freeze protection, this shall be in place and fastened, and with the approval of the inspector, is permitted to cover the necessary exposed pipe.

   b) All seismic bracing, hangers and other restraints shall be in place and installed per the approved plans.

2) "OVERHEAD HYDRO INSPECTION":

   a) The system piping and all components shall be pressurized with water for a minimum of two (2) hours at two hundred (200) PSI, or at fifty (50) PSI above the static pressure, whichever is greater. There shall be no visible pressure drop on the gauge during the hydrostatic test. All areas shall be exposed to check for leaks.

3) "FINAL INSPECTION":

   a) A thorough flush of the underground supply piping shall be completed prior connecting to the riser, witnessed by the Fire Department inspector (See City of Victorville Standard W-2.)

   b) Water motor gong bell or electric water-flow alarm bell and flow switch shall be functional, and all identification signs, system hydraulic data plates shall be installed. Spare head box, including additional sprinklers and sprinkler head wrench, shall be installed.

   c) All sprinkler heads and escutcheons shall be in place. All sprinkler heads shall be free of protective caps, paint, texturing, or any other obstruction. Protective guards shall be installed on all heads in garages and storage areas, if required.

   d) A flow test shall be performed using the Test Valve. If electrically operated, the water-flow alarm bell shall be connected an energized source, and must ring in no more than sixty (60) seconds after opening the test valve.

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FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

e) When required by the Fire Code Official, the installing contractor shall complete a 'Contractors Material and Test Certificate for Aboveground Piping', in accordance with NFPA 13R, and submit it to the Fire Code Official at the time of sprinkler final inspection.

PROTECTION AGAINST FREEZING

1) All piping for new systems in areas subject to freezing temperatures and not maintained above 40°F shall be protected against freezing in accordance with the current edition of NFPA 13R.

2) The need for freeze protection shall be as determined by the fire code official and based on the California Energy Commission "Climate Zones" and Part 6 of CCR Title 24, the California Energy Code. Systems located in Climate Zone 14 as defined by the California Energy Commission may be protected solely by the use of insulation. Systems located in Climate Zone 16 shall not be protected solely by the use of insulation. Detailed maps of Climate Zones may be found on the Internet at http://www.energy.ca.gov.

3) Insulation may be used as freeze protection for piping if the building or spaces containing piping can be maintained at a minimum of 40 degrees F at all times. The use of batt or blown-in insulation for freeze protection may be approved by the fire code official and installed per current edition of NFPA 13R.

4) Foam pipe wrap, by itself, is not an approved method of freeze protection.

5) All antifreeze solutions shall be a listed factory premixed solution and approved in accordance with NFPA 13R and the California Fire Code, which allows only propylene glycol solutions of no more than 40% or glycerin solutions of no more than 50% by volume.

6) A metal placard shall be placed on all systems using antifreeze solutions at the main riser as well as the test valve. The placard shall contain the necessary information permanently stamped or engraved as shown in **DIAGRAM F-3.4**.

SIGNAGE

1) All signs for drains and test valves required on sprinkler systems shall be made of metal, no less than 10-gauge thickness, colored red and engraved with permanent white letters.

2) Hydraulic calculation plates required on risers shall be made of metal, unpainted, and the information permanently stamped or engraved, and attached to the riser with a metal "U-bolt" or chain.

3) All doors or other building materials enclosing or concealing sprinkler risers shall have a durable metal sign with a minimum of three inch (3") red block letters on a contrasting

FIRE PREVENTION STANDARD

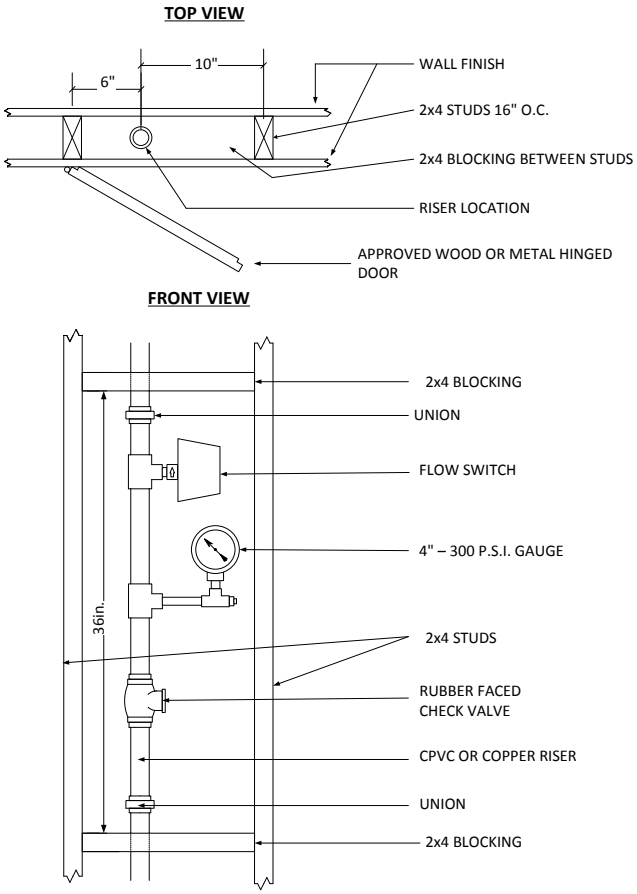
FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

background stating “FIRE RISER INSIDE.” per **DIAGRAM F-3.5.** Signs shall be installed at five feet (5’) above finished floor on the outside of fire sprinkler riser access doors.

SPECIAL SITUATIONS

Spray applied or wrapped polyurethane foam insulation that comes into contact with non-metallic fire sprinkler piping, whether such is required for freeze protection or not, shall be listed for such use with pipe and applied according to the manufacturer’s recommendations. Information about any polyurethane foam insulation shall be made available to the fire code official upon request.

DIAGRAM F-3.1: RISER ACCESS PANEL DETAIL



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FIRE PREVENTION STANDARD

FIRE SPRINKLER SYSTEMS IN MULTI-FAMILY DWELLINGS

DIAGRAM F-3.2: ACCESS TO SPRINKLER RISERS

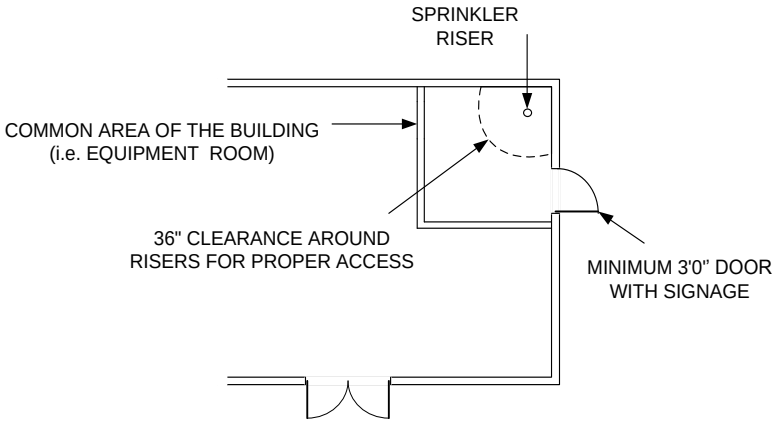

DIAGRAM F-3.3: DOMESTIC WATER SHUTOFF

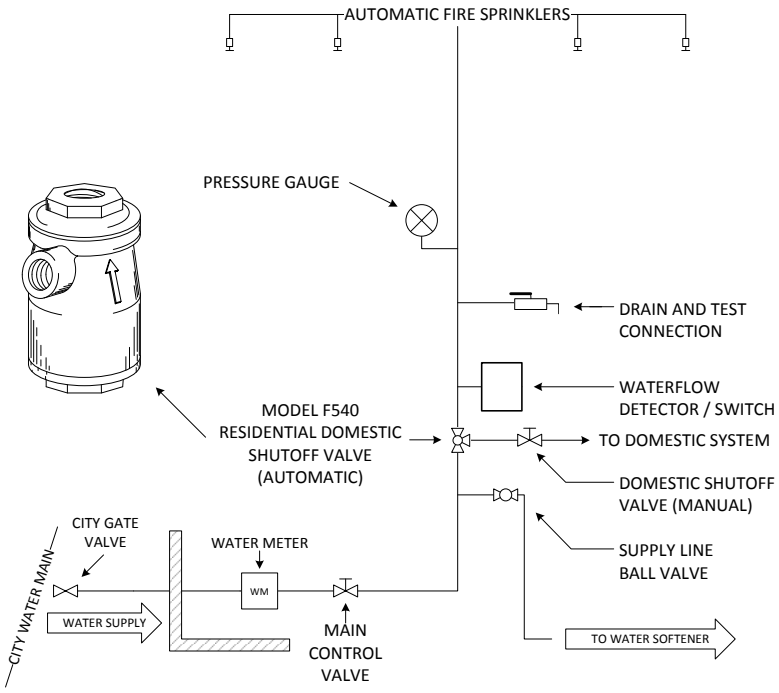

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DIAGRAM F-3.4: SAMPLE PLACARD FOR ANTIFREEZE SYSTEMS

ANTI-FREEZE SYSTEM

The fire sprinkler system in this building contains an anti-freeze solution for protection against freezing.

Type of anti-freeze: _____

Manufacturer: _____

Trade name & brand: _____

Solution concentration: _____ %

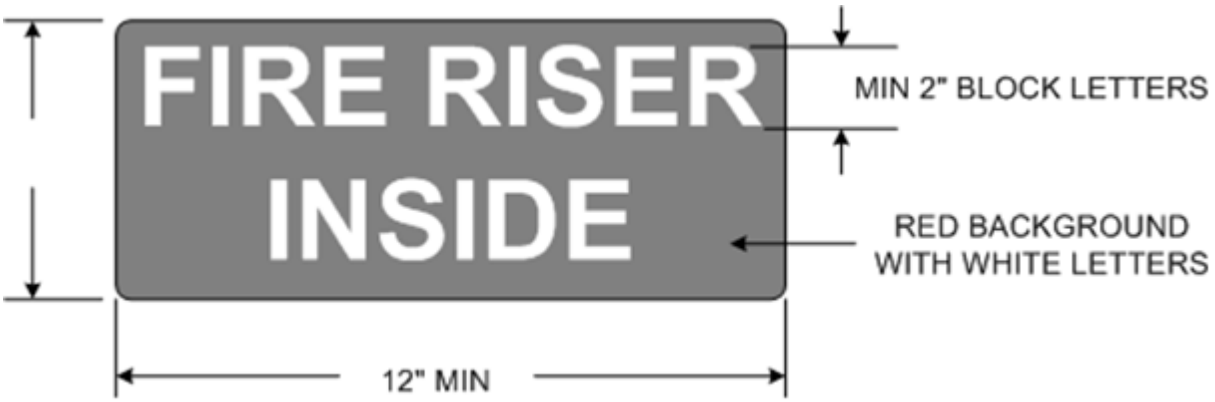
System volume: _____ gallons

Protected to: _____ degrees (°F/°C)

Location: _____

Date tested: _____

DIAGRAM F-3.5: FIRE RISER SIGN



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FIRE PREVENTION STANDARD

POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the fire code official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 903 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide minimum requirements and guidelines for the installation of Post Indicator Valves (PIV's) and Fire Department Connections (FDC's) for fire sprinkler systems.

SCOPE

This standard, in conjunction with the latest edition of NFPA 13, NFPA 13R and NFPA 24, shall apply to the design and installation of, and the modification to, all new and existing fire sprinkler systems in commercial and industrial buildings and multi-family dwellings. This standard and its interpretation shall take NOT precedent where there is any conflict with NFPA standards.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

1) Plans shall be submitted to the Fire Department for approval and permit prior to performing any work on any fire sprinkler or underground fire protection water system. For detailed submittal requirements, see City of Victorville Standards F-1 and W-2.

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FIRE PREVENTION STANDARD

POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS

GENERAL

1) Each fire sprinkler system shall have at least one Post Indicator Valve and one Fire Department Connection serving it.
2) The number and locations of all PIVs and FDCs shall be approved by the Fire Code Official, and shall be based on this Standard as well as on the type of construction of the building, the uses and occupancy classifications within the building, and any special hazards being protected.
3) A minimum of three (3) feet of clearance of obstructions is required around all PIVs and FDCs. Limited ground cover type vegetation may be allowed with the approval of the fire code official.
4) Post Indicator Valves and Fire Department Connections shall be painted OSHA Safety Red or equivalent, and maintained painted and in an operable condition by the property owner.

INSTALLATION

1) All PIVs and FDCs shall be located in an accessible area, as approved by the Fire Code Official. Additional signage per this Standard may be required by the fire code official for PIVs and FDCs that are located on the sides or rear yard of buildings or in areas that may be less visible to emergency responders.
2) PIVs and FDCs shall be located a minimum of twenty feet (20') from the structure protected, or a minimum of ten feet (10') farther from the building than the height of the wall adjacent to the connection and valve, whichever is greater. Unless approved by the Fire Code Official, PIVs and FDCs shall not be located more than 50' from the structure protected. In areas where this is not practical or possible due to site constraints, PIVs or FDCs may be installed closer (a minimum of three (3) feet) to the building, or a wall mounted FDC or PIV may be used, installed in a location approved by the fire code official. In such cases, such close-proximity or wall mounted PIVs or FDCs shall be installed in walls with non-combustible construction, away from building openings, and in an area accessible to emergency responders.
3) Post Indicator Valves and Fire Department Connections shall be set back a minimum of two (2) feet from the face of all concrete curbs in a raised planter or similar protected area **(See DIAGRAM F-4.1)** or be shall protected from vehicular damage with bollards or guard posts that comply with the 2019 California Fire Code section 312, as excerpted below, or the equivalent of all of the following specifications:

FIRE PREVENTION STANDARD

POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS

a) Constructed of Schedule 40 steel pipe steel not less than four (4) inches in diameter and concrete filled.

b) Spaced not more than four (4) feet between posts on center.

c) Set not less than three (3) feet deep in a concrete footing of not less than a fifteen (15) inch diameter.

d) Set with the top of the posts not less than three (3) feet above ground.

e) Located not less than three (3) feet from the protected PIV or FDC.

f) Guard posts shall be painted with high-visibility OSHA safety yellow paint.

SPECIFIC REQUIREMENTS FOR FIRE DEPARTMENT CONNECTIONS

1) Buildings up to 100,000 square feet in floor area shall install all FDCs with a four inch (4") riser and two, two-and-a-half inch (2 ½") female inlet connections on a "Siamese" style fitting (4" x 2 ½" x 2 ½"). **(See DIAGRAM F-4.2)** Buildings 100,000 sq. or larger in floor area, and any size buildings with a fire protection supply that is boosted by a fire pump, shall install all FDCs with a six inch (6") riser and with one four inch (4") and two, two-and-a-half inch (2 ½") female inlet connections on a "Siamese" style fitting (6" X 4" X 2 ½" X 2 ½"). **(See DIAGRAM F-4.3)**

2) All hose connections on FDCs shall be of National Standard Hose Thread (NH or NST) and shall be provided with threaded plugs (plastic or brass) to protect the FDC connection. Break-away metal caps in may be used when the FDC is located in secured areas that are not subject to vandalism. If required by the fire code official because of concerns of vandalism, threaded locking plugs (Knox Plugs) shall be provided on all inlets, secured with a chain.

3) All exposed brass components on FDC's shall be secured by with a ¼" x # 20, grade 6, case- hardened steel bolt through the fitting and into the threads of the riser or steel inlet pipe. The head of the bolt shall be filed flush with the FDC fitting. Other equivalent methods of theft protection shall be accepted on a case by case basis, as approved by the fire code official.

4) All FDCs shall be provided with a welded flange and either a wafer check or swing check valve. In areas subject to freezing, the check valve shall be located one foot (1') below frost line and shall have a ball drip valve. A bed of gravel shall be provided to allow for proper drainage of the above grade piping.**(See DIAGRAM F-4.4)**

FIRE PREVENTION STANDARD

POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS

5) All FDCs shall be installed within fifty feet (50') of a fire hydrant that takes supply from a public circulating water main. When it is determined that this is not possible or practical, and with approval from the fire code official, FDC's may be located within fifty feet (50') of a private fire hydrant. Check valves shall be installed in order to prevent circular water flow during fire ground pumping operations (See City of Victorville Standard W-2)

6) Each building and each point of connection to the public water system shall have a separate FDC, installed onsite or when approved by the Fire Code Official, at the entrance to the property, as part of a Reduced Pressure Detector Assembly (RPDA.) (**See DIAGRAM F-4.5** and City of Victorville Standard W-2.) A single FDC assembly may serve multiple buildings on a project, provided all of the following conditions are met:

   a) The aggregate floor area of all buildings served by the entire system does not exceed 50,000 square feet.

   b) The buildings are not on separate parcels or have individual addresses.

   c) In special cases or when special hazards exist, the fire code official shall determine whether or not each building shall have a separate FDC.

7) FDCs shall serve only automatic fire sprinkler systems and standpipe systems, and shall not be connected to onsite fire hydrants systems.

IDENTIFICATION AND SIGNAGE

1) Signage shall be provided on all PIVs and FDCs in accordance with this standard and the current editions of NFPA 13 and NFPA 24. **(See Diagram F-4.6)**

2) Identification signs on PIVs and FDCs shall be red in color with engraved one (1) inch block type white letters. Signs shall measure a minimum of ten (10) inches wide by five (5) inches high, and be made of metal not less than 10 gauge (3 mm) in thickness. The sign shall be fastened by means of a "U" bolt, or other similar secure method.

3) Identification signs shall indicate the following information:

   a) The street address of the building(s), and the area or zone served if applicable

   b) The type of system it serves, i.e. sprinklers, standpipe, hydrants, sectional valves etc.

   c) Where the system demand pressure exceeds 150 p.s.i., the sign shall indicate the required design pressure of the system served.

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EXISTING SYSTEMS

1) When additions or upgrades are made to existing buildings with automatic sprinkler systems, the PIVs and FDCs shall conform to this standard when required by the fire code official.
2) Existing breakaway caps on Fire Department Connections shall be replaced with threaded plugs and chains when deemed necessary by the fire code official.
3) Existing Fire Department Connections that are vandalized or removed shall comply with this standard when replaced.

DIAGRAM F-4.1: PIV AND FDC PROTECTION

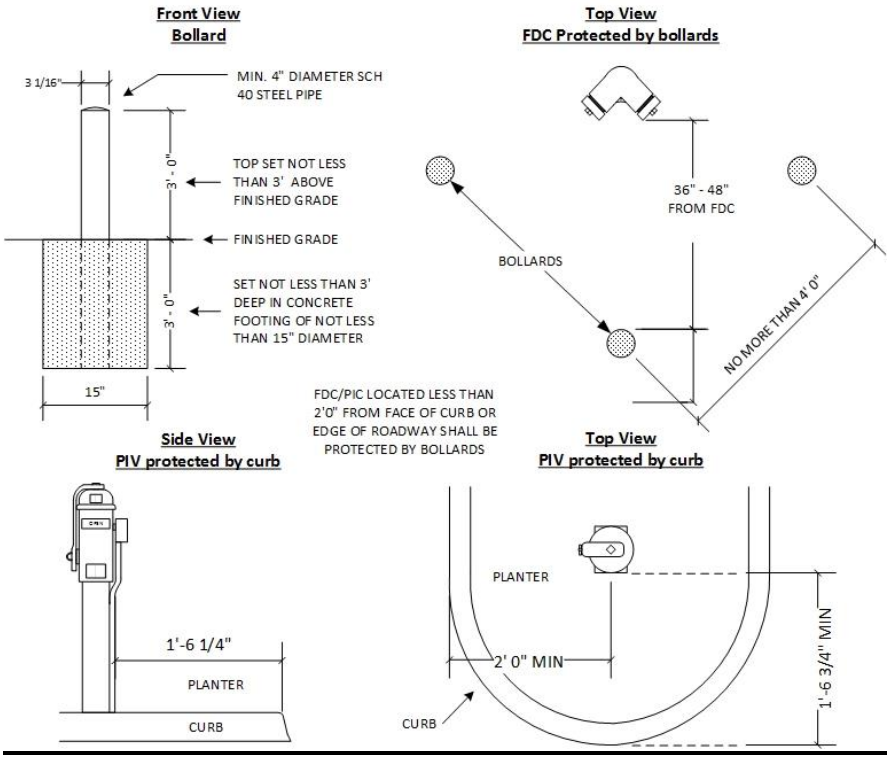

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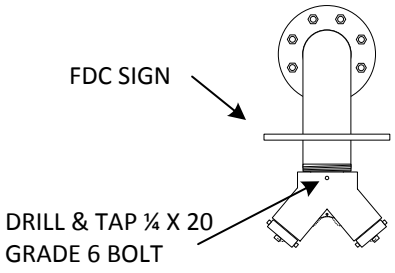
DIAGRAM F-4.2: SINGLE 4" X 2 ½" X 2 ½" FDC DETAIL

TOP VIEW



FRONT VIEW

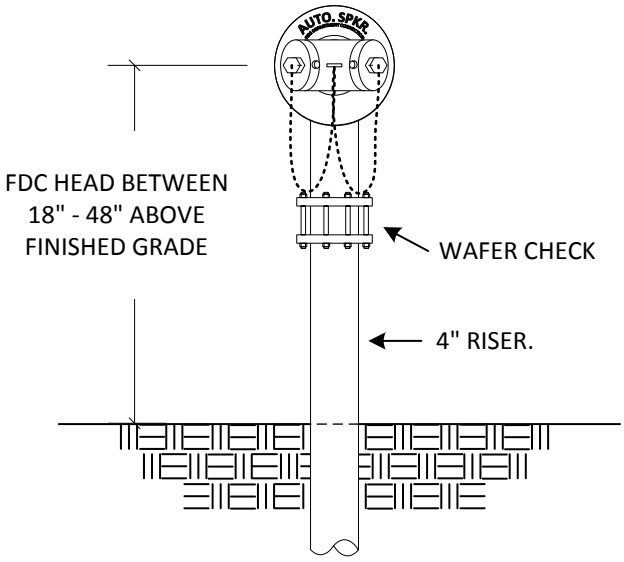


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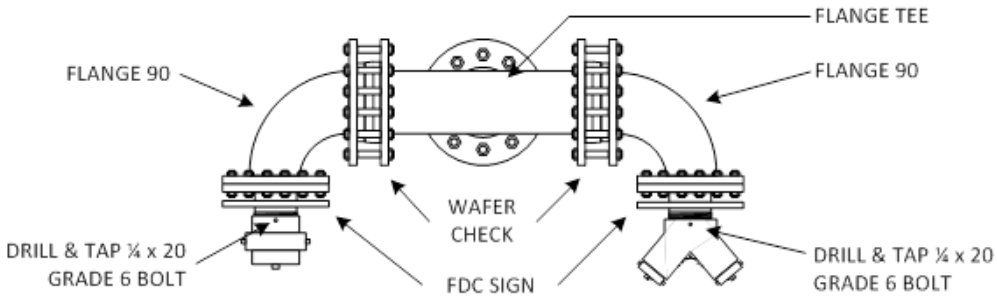
DIAGRAM F-4.3: COMBINED 6" X 4" X 2 ½" X 2 ½" FDC DETAIL

FDC TOP VIEW



FDC FRONT VIEW

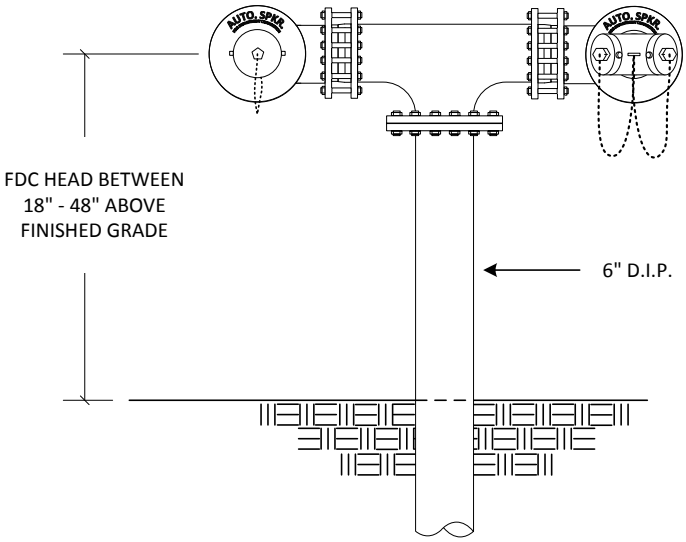


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DIAGRAM F-4.4: FDC CHECK VALVE DETAIL

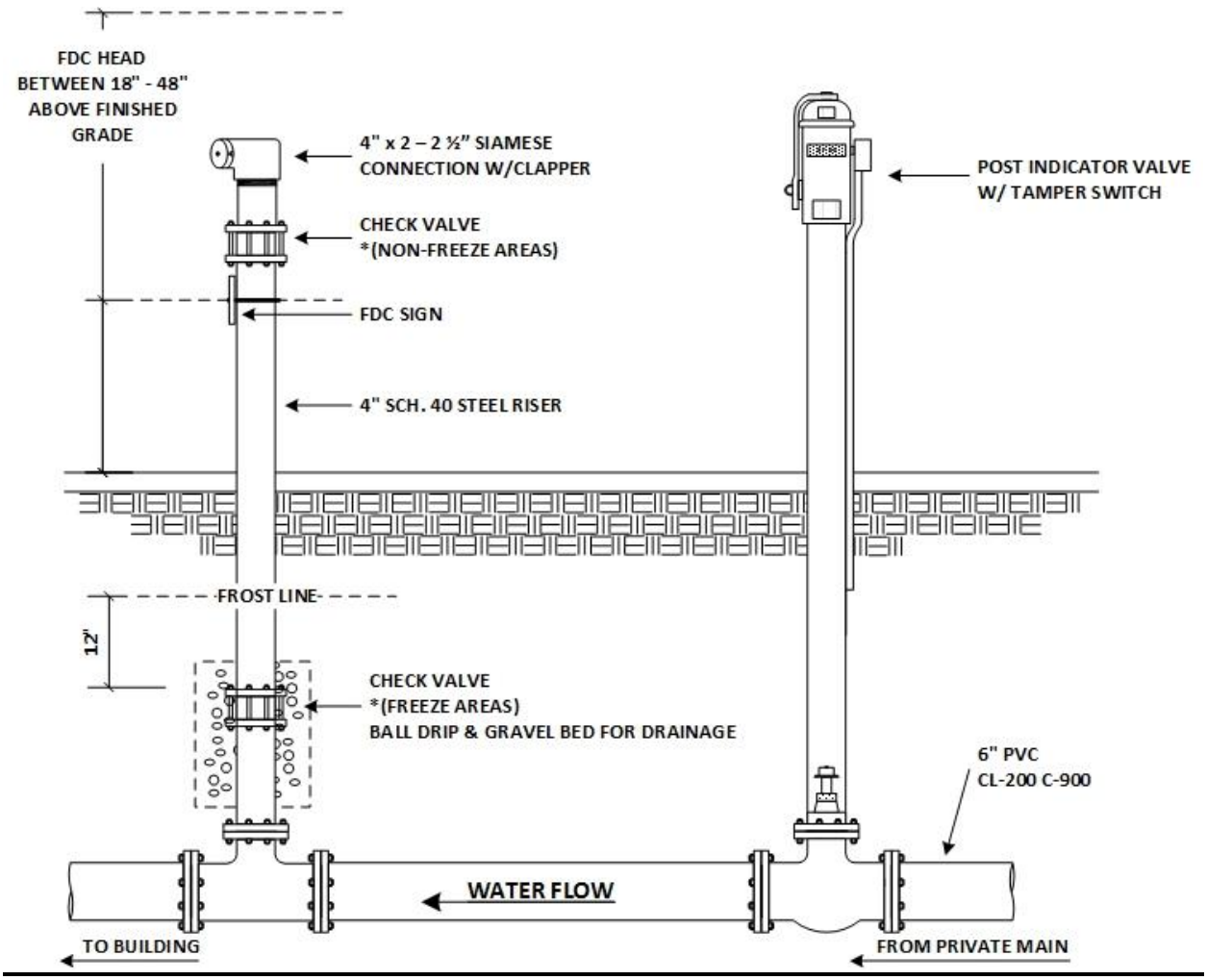

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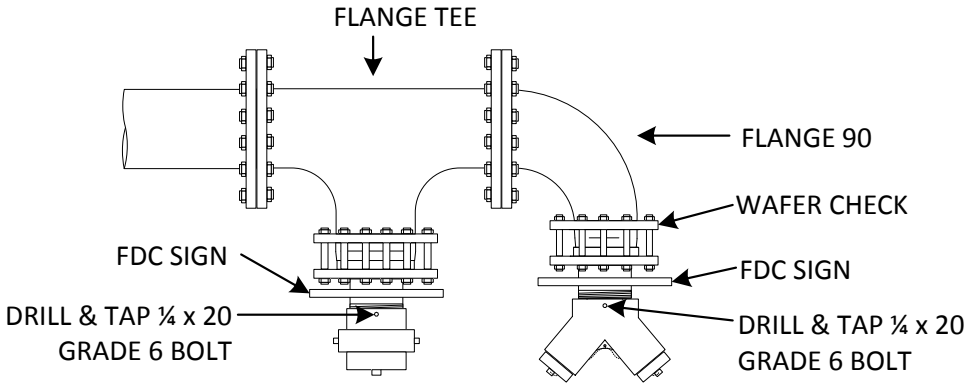
DIAGRAM F-4.5: FDC ON DOUBLE DETECTOR CHECK VALVE ASSEMBLY

FDC TOP VIEW



FDC FRONT VIEW

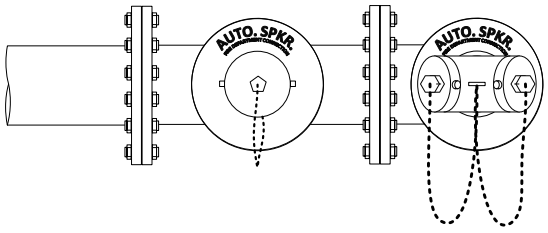


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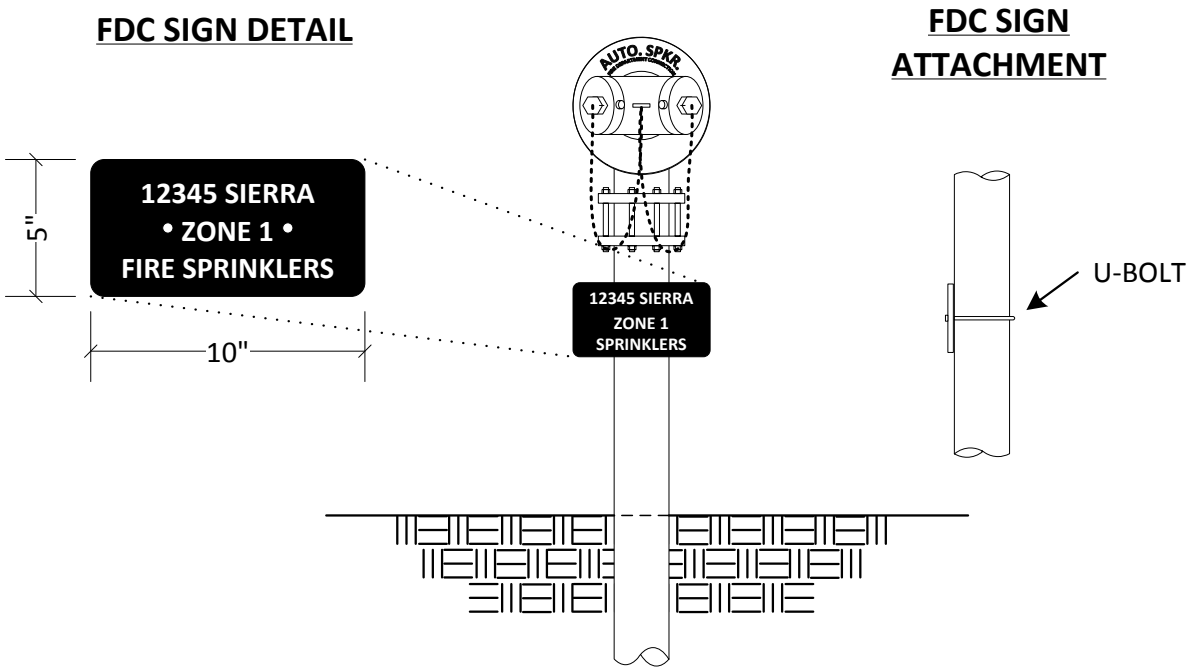
DIAGRAM F-4.6: FDC IDENTIFICATION SIGNAGE DETAIL



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FIRE PREVENTION STANDARD

DESIGN, INSTALLATION AND MAINTENANCE OF FIRE ALARM SYSTEMS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 907 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide the minimum requirements for the design, installation and maintenance of fire alarm systems, including those that are solely for the purpose of monitoring and supervision of a fire sprinkler system.

SCOPE

This standard applies to all new installations and modifications of existing fire alarm systems, within new construction as well as building additions and tenant improvements within existing buildings. This standard and its interpretation is not intended to be applied or enforced where there is any conflict with NFPA 72 or the California Fire Code.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

The following shall be submitted to the Fire Code Official for approval and permit prior to performing any work on any fire alarm system:

1) Completed City of Victorville Fire Department permit application.
2) A set of plans describing the work to be done. (For information on what must be included on plans, see sections below in this Standard and the City of Victorville Plan Submittal Checklist.) NOTE: All fire alarm system plans shall use the symbols identified in NFPA 170, Standard for Fire Safety Emergency Symbols, current edition.

FIRE PREVENTION STANDARD

DESIGN, INSTALLATION AND MAINTENANCE OF FIRE ALARM SYSTEMS

3) NFPA 72 Record of Completion and supplemental forms, with required fields filled out (completed forms are required at time of final inspection)
4) Manufacturer's specifications sheets (cut sheets) and CA State Fire Marshal listings for all proposed materials and equipment.
5) Copy of U.L. Certificate for Central Station monitoring service, if required.
6) Any other important details and information as required by this Standard.
7) Payment of all appropriate fees.

DEFINITIONS

FIRE SPRINKLER MONITORING SYSTEM **–** A fire alarm system that is required by the California Fire Code section 903 and generally installed for the primary purpose of monitoring waterflow and supervising control valves of a fire sprinkler system. The presence of required or non-required manual pull stations, fire detectors, or notification devices on a Fire Sprinkler Monitoring System does not constitute an "Evacuation" type fire alarm system.

FIRE ALARM SYSTEM, EVACUATION TYPE OR "EVAC" TYPE **–** A fire alarm system that is required by California Fire code section 907 and is installed generally for the primary purposes of early notification and evacuation or relocation of building occupants or other responsible party. Systems of this type can also perform the functions of fire sprinkler water flow monitoring, elevator recall, activation or deactivation of fire doors or delayed egress, shutdown of HVAC units, and a variety of protected premises fire safety functions per NFPA 72. Manual fire alarm systems, automatic fire alarm systems, and combined manual and automatic fire alarm systems as defined by the California Fire Code fall under this definition.

GENERAL

1) Fire alarm systems shall be designed to the requirements of NFPA 72 and the currently adopted editions of the California Building Code (CBC), California Fire Code (CFC) with local amendments, National Electrical Code (NEC), and other applicable codes.
2) All fire protection or detection systems listed below that are installed within buildings containing an evacuation type fire alarm system, and that perform one or more of the following functions, shall be interconnected to the building fire alarm system. Such

FIRE PREVENTION STANDARD

DESIGN, INSTALLATION AND MAINTENANCE OF FIRE ALARM SYSTEMS

interconnection and functionality shall be shown on the fire alarm system plans and demonstrated at field inspection:

a) Gas detection systems

b) Kitchen hood and duct extinguishing systems

c) Other fixed fire suppression systems, such as dry powder or clean agent

d) Emergency warning systems, such as those for hazardous materials release

e) Other systems as required by applicable codes or by the Fire Code Official

3) Fire alarm systems shall not be integrated or combined with security systems or burglar alarm systems. Remote annunciators used in fire alarm systems shall not be used to annunciate security alarm or any other building system signals unless listed for this use and approved by the Fire Code Official.

4) All installers of fire alarm systems shall be qualified as listed below. Failure to show proper credentials may result in a failed inspection. All installers shall possess:

- A State of California C-10 contractor's license (or be employed by the C-10 contractor) and be factory trained and certified for a specific manufacturer and brand of equipment, AND
- An Electrician Certification-Fire/Life Safety Technician, issued by the State of California Department of Industrial Relations, Division of Labor Standards Enforcement ("blue card") when required by the Fire Code Official OR
- A minimum of a Level II NICET certification in Fire Alarm Systems, when required by the Fire Code Official.

FIRE ALARM CONTROL PANELS

1. Fire Alarm Control Panels (FACPs,) remote annunciators, and auxiliary power supply panels shall be installed in areas that are easily accessible to Fire Department personnel, with thirty six (36) inches of clear space in front of the equipment. The top of the FACP or other equipment panels shall be mounted at a maximum of sixty (60) inches above finished floor unless specifically approved by the Fire Code Official **(See Diagram F-5.1)**.

2. When a fire alarm system is installed in conjunction with a fire sprinkler system, the Fire Alarm Control Panel may be co-located with the fire sprinkler system risers inside a minimum 4' X 4' room, and accessible by means of an access door as specified in SBCFD Standard F-1. A sign indicating "FIRE ALARM CONTROL PANEL INSIDE" shall be installed on the access door. **(See Figure F-5.2.)** The sign shall be of a durable material, have minimum one (1) inch block letters on a contrasting background, and shall be securely

mounted. Instructions for silencing and resetting the fire alarm system to restoring to a "normal" condition shall be placed inside each FACP.

3. All FACP's shall be locked or otherwise secured to prevent unauthorized access. A key to each FACP shall be placed in the key (Knox ®) box on the exterior of the building or other easily identified secured location (See City of Victorville Standard A-4.)
4. When fire alarm systems are designed and installed in buildings constructed to protect multiple tenants or residents, the Fire Alarm Control Panel shall be located in an attached or included room or an approved weather resistant enclosure with at least one exterior access door with dimensions of not less than thirty six inches (36") in width and eighty inches (80"). A sign indicating "FIRE ALARM CONTROL PANEL INSIDE" shall be installed on the exterior access door. **(See Figure F-5.2.)** The sign shall be of a durable material, have minimum one (1) inch block letters on a contrasting background, and shall be securely mounted.
5. When FACPs are installed in an area other than in a room directly adjacent to the main exit of the building, a remote annunciator shall be installed located within ten (10) feet of such main exit, such as in an entry way or lobby, or in another easily accessible location as approved by the Fire Code Official. This shall not apply to multiple tenant strip center buildings.

SMOKE AND HEAT DETECTORS

1) Smoke detectors and heat detectors shall be listed by the California State Fire Marshal (CSFM) for their use and specific application.
2) Duct smoke detectors used for the purposes of HVAC unit(s) shutdown as required by the California Mechanical Code (CMC) section 608, shall be the air-sampling type only. Such detectors shall be monitored for integrity by the fire alarm system and shall be permitted to initiate a supervisory signal only. A manual remote test switch for each detector shall be provided when required by the Fire Code Official for testing.
3) Individual duct smoke detectors used for shutdown of HVAC units shall be interconnected so that electrical power to all other individual air handling units within the same smoke compartment is interrupted upon the activation of any individual detector within that compartment (i.e. "global" shutdown.)

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DESIGN, INSTALLATION AND MAINTENANCE OF FIRE ALARM SYSTEMS

MANUAL PULL STATIONS

1) When required, manual pull stations shall be placed near exits per the requirements of the CFC section 907 and NFPA 72. At no time shall a pull station be placed in a utility room or other location not accessible to the public unless specifically approved by the Fire Code Official.
2) Manual pull stations which are subject to false alarms may require the installation of a tamper resistant device acceptable to the Fire Code Official, or shall be removed when required.

INSPECTIONS

All fire alarm systems are required to be inspected and tested by the Fire Code Official prior to final approval. The contractor and installer of record shall contact the appropriate City of Victorville office at least twenty-four (24) hours prior to requesting an inspection, and shall notify the City of Victorville office a minimum of twenty-four (24) hours for any cancellation of inspections.

The following inspections shall be required for any work done on fire alarm systems:

1) “PRE-WIRE INSPECTION”:

   a. The number, types, and locations of all control equipment, initiating and notification devices shall be per the approved plans.
   b. All electrical boxes shall be marked, dedicated power supply and all conduit in place where required.

2) “FINAL INSPECTION”:

   a. All system components shall be tested by the installer prior to scheduling an inspection. The Fire Code Official shall have the authority to document the inspection as “FAILED” when such “pre-testing” has not been done.
   b. The correct number and type of batteries shall be present. A full 24-hour battery test will be performed when required by the Fire Code Official.
   c. A full function test of all devices shall be conducted in the presence of the Fire Code Official. All tools and equipment (i.e. ladders, canned smoke, decibel meter, etc.) shall be provided by the contractor. System shall be tested both with monitoring company in test mode as well as Fire Department dispatch in test mode.
   d. All fire safety functions and other interfaced equipment, such as waterflow, HVAC shutdown, elevator recall, fire door activation etc. shall be tested. Zoning and

programming of all devices and functions shall be in accordance with the sequence of operations and the approved plans.

e. Digital Alarm Communicating Transmitters (DACTs), Radio Frequency (RF) and other communications equipment shall be tested for reliability and transmission of appropriate signals.

f. All power supply circuits shall be labeled per NFPA 72 and tested.

g. All FACPs, power supplies, annunciators, and other control equipment shall be in place, secured, and properly labeled with signage this Standard and NFPA 72.

h. Records of Completion, UL Central Station certificates, and contracts for the maintenance and monitoring shall be provided when required.

i. Any design changes or other field changes to the system as represented on the approved plans will require revised or "as-built" drawings to be submitted and approved by the Fire Code Official prior to further inspections occurring.

FIRE SPRINKLER MONITORING SYSTEMS

1) Fire sprinkler monitoring systems that are required only for the purpose of monitoring fire sprinkler water flow and for supervision of control valves shall comply with the requirements of this section as well as other applicable codes and standards.

2) Fire sprinkler monitoring systems shall not be required to be interconnected to fixed hood and duct extinguishing systems installed per NFPA 17A, per SFM Code Interpretation 06-006.

3) Fire sprinkler monitoring systems shall be required to monitor fixed fire suppression systems, such as clean agent and dry powder systems, if such systems are installed in lieu of fire sprinkler systems.

4) Fire sprinkler monitoring systems shall not be required to include a manual pull station per SFM Code Interpretation 08-079.

5) Fire sprinkler monitoring systems shall include interior audible or visual notification devices in accordance with City of Victorville Fire Code.

6) Fire sprinkler monitoring systems shall not be required to supervise duct detectors in HVAC units, unless automatic shutdown is required per the CMC section 608, per SFM Code Interpretation 06-053.

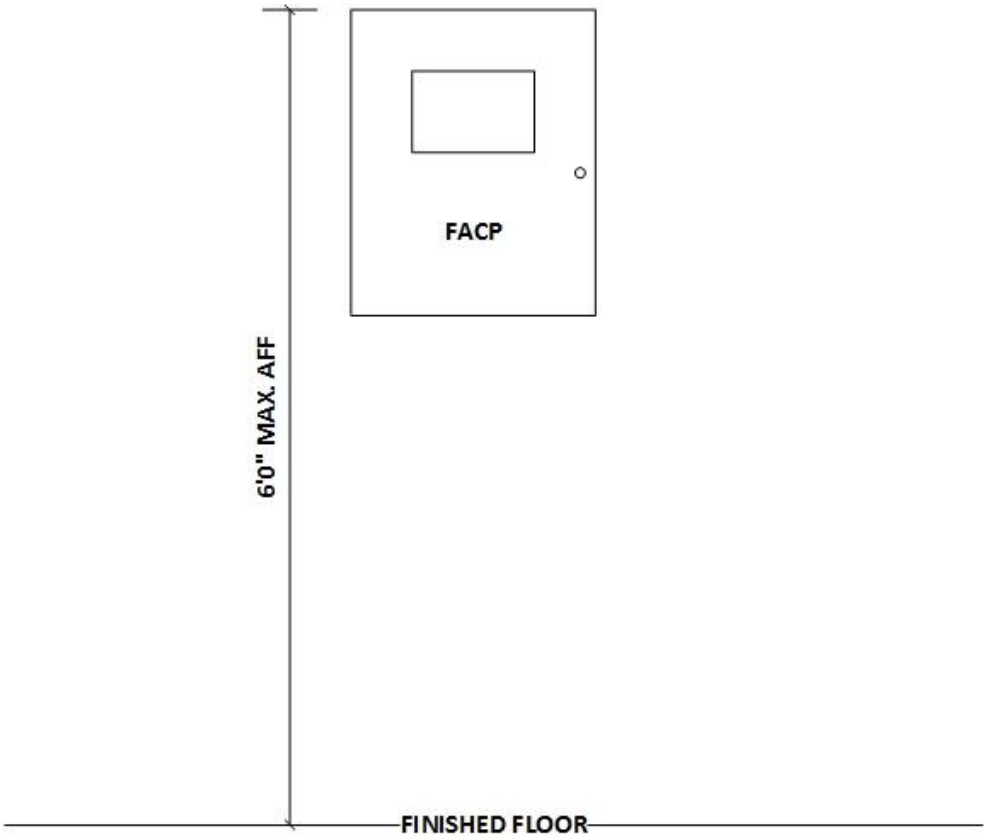
FIRE PREVENTION STANDARD

DESIGN, INSTALLATION AND MAINTENANCE OF FIRE ALARM SYSTEMS

7) Fire sprinkler monitoring systems shall include a remote annunciator when the FACP is located in normally unoccupied location or not within 10 feet of a main exit of the building (See FIRE ALARM CONTROL PANELS section above.)

8) Other equipment, such as notification devices, initiating devices, auxiliary system inputs or relays to other fire protection systems or actuation devices may be connected on a voluntary basis to fire sprinkler monitoring systems with the approval of the Fire Code Official. When such other equipment is connected, it shall not be considered a full evacuation fire alarm system. When in doubt, the Fire Code Official may require a formal letter of intent to be submitted by the building owner in order to verify the type of fire alarm system proposed.

FIGURE F-5.1: FIRE ALARM CONTROL PANEL DETAILS



FIRE PREVENTION STANDARD

DESIGN, INSTALLATION AND MAINTENANCE OF FIRE ALARM SYSTEMS

FIGURE F-5.2: FIRE ALARM CONTROL PANEL SIGNAGE

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FIRE SAFETY STANDARD
ORGANIC PRODUCT STORAGE

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code.

PURPOSE

The purpose of this standard is to provide the minimum requirements for the storage of any organic products that may create a fire hazard in their natural or processed state when stored in bulk piles.

SCOPE

This standard applies to the indoor or outdoor bulk storage of miscellaneous organic products, such as yard or tree trimmings, manure, organic compost, wood chips, peat moss, sawdust, or any other piled finely divided materials that can accumulate heat and present a spontaneous combustion hazard.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

The owner shall provide a plot plan containing the following information:

1) Fire apparatus access roads
2) The locations of permanent structures, raw material piles and all storage of finished products
3) Location of all water sources.
4) Location of all other hazards (i.e., flammable, combustible, or LPG tanks).

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FIRE SAFETY STANDARD

ORGANIC PRODUCT STORAGE

GENERAL

1) Fire apparatus access roads, designed and constructed in accordance with 2019 California Fire Code section 503 and City of Victorville Fire Safety Standard A-1, shall be maintained around the perimeter of the storage area.
2) Individual piles shall not be closer than twenty feet (20') from property lines.
3) Bulk storage of manure or organic products shall require an operational permit from the Fire Department and shall be renewed annually.
4) Individual piles shall not exceed 42,000 cubic feet of volume nor shall they exceed twenty-five (25') feet height.
5) Minimum distance between piles and structures shall not be less than twenty feet (20'.)
6) A water supply shall be provided and maintained in accordance with City of Victorville Fire Safety Standard W-1. Minimum fire flow shall be 1500 GPM @ 20 psi for 2 hours. Fire hydrants shall be spaced along fire access roads in approved locations in accordance with 2019 California Fire Code Appendix C and City of Victorville standard W-2.
7) An adequate number of oscillating sprinklers with a sufficient length of hose shall be provided for wetting down burning/smoldering areas. These sprinklers shall be mounted on a base of substantial size to support the sprinklers on the manure pile.
8) No smoking shall be permitted except in designated areas. These areas shall be designated by an approved: **"SMOKING AREA"** sign. **"NO SMOKING"** and **"NO OPEN FLAME"** signs shall be posted in conspicuous sight.
9) Flammable and combustible fuels for use in vehicles shall be stored in approved underground or approved aboveground vaulted tanks. These tanks shall be inspected and approved under a separate permit from the Fire Department.
10) Approved sizes and types of fire extinguishers shall be provided in the locations required by the Fire Code Official.
11) Equipment capable of moving the bulk products and disturbing or displacing the piles must be maintained on site.
12) If fire suppression activities are required, the business owner will be responsible for any and all costs that may occur for fire suppression efforts.

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FIRE PREVENTION STANDARD

OUTSIDE FIREWOOD STORAGE AND LOGGING YARDS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code.

PURPOSE

The purpose of this standard is to provide the minimum requirements for the storage of any organic products that may create a fire hazard in their natural or processed state when stored in bulk piles.

SCOPE

This standard applies to the indoor or outdoor bulk storage of miscellaneous organic products, such as yard or tree trimmings, manure, organic compost, wood chips, peat moss, sawdust, or any other piled finely divided materials that can accumulate heat and present a spontaneous combustion hazard.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

For new facilities, the owner shall provide a plot plan containing the following information:

1) Fire apparatus access roads
2) The locations of permanent structures, log decks or firewood stacks, and any other combustibles
3) Location of all water sources.
4) Location of all other hazards (i.e., flammable, combustible, or LPG tanks).

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FIRE PREVENTION STANDARD

OUTSIDE FIREWOOD STORAGE AND LOGGING YARDS

GENERAL

1) Wood shall be stacked tightly and neatly in cords, not to exceed eight (8) feet in height and not to exceed ten (10) cords per stack. (1 cord = 128 cubic feet)
2) The outdoor storage of firewood shall not exceed sixty (60) cords of wood unless approved by the fire code official.
3) Stacks shall be separated from property lines and other stacks by a distance of no less than one-half the height of the stack and in no case less than ten (10) feet. In the FS (Fire Safety) overlay, all areas used for the storage of firewood shall either be at least thirty (30) feet away from all structures or shall be wholly enclosed within a structure.
4) Wood in rounds and logs shall not be stored for longer than ninety (90) days.
5) Wood stacks shall be covered with tarps to prevent accumulation of leaves, needles, debris and sparks.
6) Storage yards shall be kept clean and free of excessive bark, wood chips, sawdust, and wood scraps.
7) Pressurized water type extinguishers, with a minimum 2 ½ gallon capacity, or dry chemical type fire extinguishers with a minimum 2A-10BC rating shall be maintained on site in locations as determined by the fire code official.

FIRE ACCESS ROADS

If any portion of the operation is greater than one hundred fifty feet (150) feet from a public street, onsite fire access roads approved by the fire code official that comply with City of Victorville Standard A-1 shall be required and shall provide reasonable access to all parts of the property, storage stacks, and structures.

WATER SUPPLY

1) An approved water supply for fire protection shall be provided in accordance with City of Victorville standard W-2, from hydrant(s) served by a water purveyor with a minimum fire flow of 1,500 gallons per minute (GPM) at a minimum residual operating pressure of twenty pounds per square inch (20 P.S.I.) for a minimum duration of two (2) hours, unless an alternate water storage and distribution is approved by the fire code official.

FIRE PREVENTION STANDARD

OUTSIDE FIREWOOD STORAGE AND LOGGING YARDS

2) When yards are not served by a water purveyor, an approved water supply shall be provided in accordance with City of Victorville standard W-1 and NFPA 1142.

3) Fire hydrants shall be provided along fire access roads in locations acceptable to the Fire Code Official.

LOGGING AND HARVESTING OPERATIONS

All logging and timber harvesting shall be reviewed and approved by the City of Victorville Fire Department prior to beginning operations. If required, a plan recommending measures for fire apparatus access, fire protection, and fuel management shall be submitted the Fire Department for approval by a registered forester.

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FIRE PREVENTION STANDARD

PALLET REFURBISHING AND STORAGE YARDS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the fire code official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code.

PURPOSE

The purpose of this standard is to provide minimum requirements for fire access, water supply and other general safety requirements for the outside storage of combustible pallets.

SCOPE

This standard applies to the outdoor storage of combustible idle pallets at pallet manufacturing, refurbishing, or storage facilities, and to the incidental storage of combustible pallets at commercial and industrial facilities.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

DEFINITIONS

Pallet - a portable platform for handling, storing, or moving materials and packages (as in warehouses, factories, or vehicles)

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FIRE PREVENTION STANDARD

PALLET REFURBISHING AND STORAGE YARDS

Stack - single pallets placed horizontally on top of one another in an orderly and stable manner.

Pile - A group of single pallet stacks clustered closely together within 6 inches of each other.

Fire Department Access Road - A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, private street, parking lot lane and access roadway. Access roads shall be a minimum of 26' in width with an unobstructed clear height of 14'6".

Fire Flow - The flow rate of a water supply, measured at 20 psi residual pressure that is available for firefighting.

Permit - An official document or certificate issued by the authority having jurisdiction which authorizes performance of a specific activity.

SUBMITTALS

For new facilities, the owner shall provide a plot plan, to scale, containing the following information:

1) Fire apparatus access roads
2) The locations of permanent structures, pallet stacks, and any other combustibles
3) Location of all fire hydrants
4) Location(s) of all other hazards (i.e., flammable liquids, welding, or LPG tanks)

Any other information pertinent to the use or the nature of the site

GENERAL

1. Pallets stored outside shall be in accordance with the requirements of this Standard. Pallets stored inside of a building shall be in accordance with the provisions of NFPA 13 and the City of Victorville Fire Code.
2. Pallets shall be stored in stacks in an orderly, stable manner and shall not exceed sixteen (16) feet in height. In areas of the county or in cities where zoning regulations require lower storage heights or screening, these shall be complied with.

FIRE PREVENTION STANDARD

PALLET REFURBISHING AND STORAGE YARDS

3. Individual stacks of pallets may be clustered into piles not to exceed twenty (20) feet in width and twenty five (25) feet in length. **(See DIAGRAM G-3.1)** Piles shall not exceed 8,000 cubic feet in volume.
4. Pallet piles shall be separated a minimum of twenty (20) feet from other piles, property lines, structures, or other exposures. In areas of the County or in Cities where zoning regulations require greater setbacks or screen walls, these shall be complied with.
5. Pallet manufacturing, refurbishing or other processing areas shall meet the fire protection requirements in the Fire Code and adopted standards. A minimum of one (1) fire extinguisher shall be mounted in such processing areas, in locations acceptable to the fire code official.
6. Welding or cutting operations shall not be conducted without first obtaining a "hot works" permit from the City of Victorville Fire Department. Clearance to ignition sources shall be maintained from all combustibles at a minimum of twenty five (25) feet, and an approved fire watch shall be in place during hot work activity and for thirty (30) minutes after the conclusion of such work; or as specified by the Fire Code.
7. A minimum of one "No Smoking" sign shall be posted at the facility, and additional signs in processing areas and other areas may be required where deemed appropriate by the fire code official. "Designated Smoking Area" signs shall be posted if necessary, in an area a minimum of twenty five (25) feet away from combustibles.
8. Any exceptions to stack and /or pile configuration or pile volume shall be approved by the authority having jurisdiction after findings have been made to support any changes.

FIRE ACCESS

1) Fire Department vehicle access roads that comply with the City of Victorville Fire Code and City Standard A-2 shall be provided. Additional fire access lanes shall be provided as required by the Fire District.

2) Fire access lanes of a minimum twenty-six feet (26') in width shall be required along the interior perimeter of the yard adjacent to the property line.

WATER SUPPLY

~~1)~~ In areas served by a water purveyor, an approved water supply with a minimum fire flow as indicated in the City of Victorville Fire Code Appendix B for type VB construction based on the gross square footage of all proposed pallet stacks for a two (2) hour duration

FIRE PREVENTION STANDARD

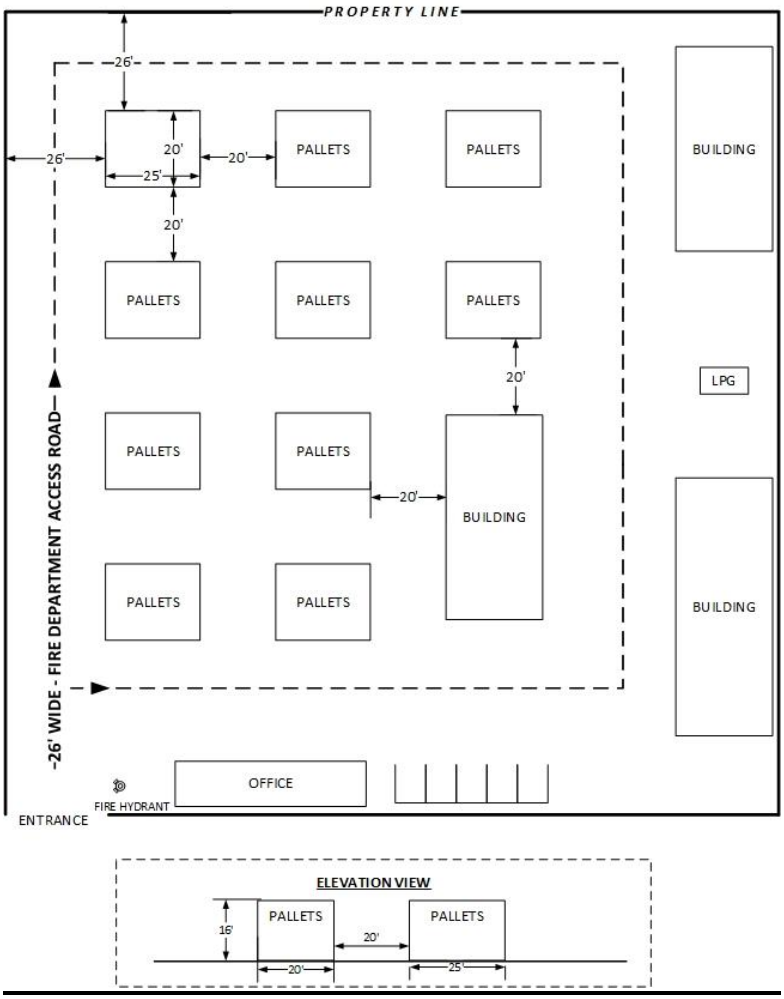
PALLET REFURBISHING AND STORAGE YARDS

shall be provided from fire hydrant(s), and shall be installed in accordance with City of Victorville Standard W-2.

2) In areas without a water purveyor capable of supplying the required fire flow, an approved fire protection water system providing the required fire flow shall be installed in accordance with the fire code, City of Victorville Standard W-1 and other applicable standards.

3) Fire hydrants shall be spaced in accordance with the City of Victorville Fire Code and City Standard W-2, at the entrance to property, and where required along fire access roads, and in locations acceptable to the Fire Department.

DIAGRAM G-3.1: STORAGE ARRANGEMENT WITHIN PALLET YARDS



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FIRE SAFETY STANDARD

HIGH PILE STORAGE/WAREHOUSE BUILDINGS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code.

PURPOSE

The purpose of this standard is to provide the requirements for the protection of high-piled combustible storage (HPS) for a variety of commodities. HPS increases the potential fire hazard within a structure by increasing the vertical height of storage and by providing stability of storage (e.g., rack and automated storage) in a fire situation. The following requirements will ensure that appropriate measures have been taken to provide safety to the public and that the required protection of these commodities has been designed for the appropriate level of hazard as required by the 2019 California Fire Code (CFC), Chapter 32. The California Building Code, NFPA 13, City of Victorville Fire Department Standards and any other nationally applicable standards, shall still apply.

SCOPE

This standard shall apply to all storage occupancies designated as High Pile Storage as defined by 2019 California Fire Code (CFC), Chapter 32, the City of Victorville Fire Code and Standards, and any other nationally applicable standards.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

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SUBMITTALS

At the time of permit application for a high piled storage permit, plans and specifications, including but not limited to the information listed below, shall be submitted for review and approval. For certain HPS reviews, the services of a design professional familiar with the requirements contained in CFC Chapter 32 may be of great assistance. Once approved, a copy of the approved plan shall be maintained on the premises in an approved location. To determine whether a High-Piled Storage plan is required to be submitted, please refer to **Attachment S-1.1**. If a submittal is required, a sets of plans shall be submitted for review and approval, and shall include the requirements of 2019 CFC, section 3201.3, items 1-14, plus the following:

1. A letter of intent containing a detailed description of the products to be stored and the description of all containers, pallets, and packaging materials. This letter must also include a detailed description of the storage methods (racks, shelves, pallets), the total storage area in square feet, maximum storage height, aisle widths, and flue spaces. Within this letter, state that approved high piled storage plans will be maintained on site for the life of the HPS system(s). An authorized officer of the company or business must sign this letter. The letter shall be copied onto the plans.

2. A scaled site plan that shows the entire building, including all fire access lanes, fire hydrants, fire department connection, and fire sprinkler risers.

3. The designation of a high piled storage area, or portion thereof intended for storage of a different commodity class, shall be based on the highest hazard commodity class stored, unless an engineering analysis has been submitted for review and approval.

   Note: In buildings with multi-tenant spaces, the plan shall show if the tenant spaces within the building are separated by a one-hour fire barrier, or that the adjacent tenant(s) does not have HPS. In the event that the adjacent tenant(s) has HPS and are not separated by a one-hour fire barrier per CBC Section 707, the aggregate of all areas of HPS within the building shall be used for the application of Table 3206.2. Additionally the provisions of CFC 3206.3.2 for multiclass high-piled storage areas shall apply.

4. The sprinkler design requirements based on commodity type, aisle width, and sprinkler temperature rating as outlined in NFPA 13, Chapter 12-18 (e.g., .45/3000 with 286-degree heads). A complete sprinkler design shall be submitted under a separate permit by a C16 licensed sprinkler contractor.

5. The location, make, model, type, and automatic link temperature of any automatic/manual release smoke/heat vents.

6. Mechanical Smoke Exhaust. If the building is equipped, the plans shall show location, size, operation, supply air, interlocks, wiring and control.

7. Fire control room location.
8. Pallet/commodity stop details for maintaining the required flue space **(See Diagram S-1.1)**.

DEFINITIONS

COMMODITY ANALYSIS: A questionnaire, which is required to be answered pertaining to the identity and description of stored materials. This standardized format will provide vital information to help determine the required fire protection needed for warehouse business. This information shall be filed, as a record of the business, and as part of the application permit. (**See Attachment S-1.1)**

FIRE CONTROL ROOM: A central control station room for fire department operations housing the fire alarm control panel, fire protection systems site map, mechanical exhaust controls, etc.

EXPANDED PLASTIC: A foam or cellular plastic material having a reduced density based on the presence of numerous small cavities or cells dispersed throughout the material.

EXTRA-HIGH-RACK COMBUSTIBLE STORAGE: Storage on racks of Class I, II, III or IV commodities which exceed 40 feet in height and storage on racks of high-hazard commodities which exceed 30 feet in height.

ENCAPSULATED STORAGE: Encapsulated commodities are products wrapped on six sides with plastic. Sprinkler water is not able to penetrate into the commodity if it is encapsulated. Typically, encapsulated products require a higher level of fire sprinkler protection.

HIGH-PILED COMBUSTIBLE STORAGE: The storage of combustible materials in closely packed piles, on pallets, in racks, or on shelves where the top of storage is greater than 12 feet in height. High-piled combustible storage also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable and combustible liquids, idle pallets, and similar commodities where the top of storage is greater than 6 feet in height.

HIGH-PILED STORAGE AREA: An area within a building which is designated, intended, proposed or actually used for high-piled combustible storage, including any required aisle widths.

NON-ENCAPSULATED STORAGE: Non-encapsulated commodities are products which may be wrapped on four or five sides, with the top remaining open to permit fire sprinkler water to penetrate within the pile.

OPEN RACK
Racks without shelving or with shelving in racks that are fixed in place with shelves having a solid surface and shelf area equal or less than 20 sq ft or with shelves having a wire mesh,

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HIGH PILE STORAGE/WAREHOUSE BUILDINGS

slatted surface, or other material with openings representing at least 50 percent of the shelf area including the horizontal area of the rack members and where the flue spaces are maintained.

PALLET/COMMODITY STOPS: A method of restricting the positioning of pallets on a rack so as to not obstruct the required longitudinal flue space. **(See Diagram S-1.1)**.

RACK STORAGE
A combination of vertical, horizontal, and diagonal members that support stored materials. Racks can be fixed or portable.

SHELF STORAGE
Storage on shelves less than 30 inches deep with the distance between shelves not exceeding three feet vertically. For larger shelves and other storage arrangements see Rack Storage.

SOLID SHELVING

Shelving that is solid, slatted, mesh, or grated, or of other construction and less than 50% open located within racks that obstruct sprinkler water penetration through the racks. Within the codes that regulate HPS there are two different thresholds when the size of shelf is considered solid; the Fire Code specifies 32 sq ft while NFPA 13 specifies 20 sq ft. In sprinklered buildings two factors are used to determine if the shelf is considered solid; the construction type of the shelf and the size of the product that will be stored on the shelf. If the item stored has a horizontal area that exceeds 20 sq ft in size the shelf is considered solid regardless of the construction of the shelf. As an example the HPS uses wire mesh shelves with an opening greater than 50%. The commodity being stored is on a non-standard pallet of 4’ deep by 6’ wide, total horizontal size = 24 sq ft. The shelving would be considered solid since the commodity exceeds 20 sq ft irrespective that the shelf is wire mesh.

GENERAL

1. Fire-protection and life safety features for high-piled storage areas shall be in accordance with the currently adopted CFC Chapter 32, NFPA 13 and other nationally recognized standards approved.
2. Plans and specifications shall be submitted to City of Victorville Fire Department, Fire Prevention section. A CFC permit is required when a building or portion thereof is used for high-piled storage that exceeds 500 square feet in area. All permits will be issued following plan approval and completion of corresponding inspections of the HPS installation. CFC permits for high-piled storage shall be renewed annually, or upon a change in commodity or configuration. A previously approved HPS plan may be used for renewing permits, unless changes in the storage configuration and/or commodity result in the need for a new plan review, update and/or approval.

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TECHNICAL ASSISTANCE

Due to the complex building design requirements specified within the CFC and adopted standards, the Fire Code Official is authorized to require a technical report and plans with the stamp and signature of a professional engineer, and it is often necessary to obtain the service of a fire protection design professional to assist with developing a protection scheme that meets the requirements of both the California Building and Fire Codes. This requirement will be determined by the plans reviewer and/or if, the commodities being stored are High Hazard or Group "A" plastics or similar commodities.

FIRE CONTROL ROOM

A central control station room for fire department operations shall be provided. The location and accessibility of the central control station room shall be approved by the Fire Code Official. The central control station room shall be separated from the remainder of the building by not less than a one-hour fire-resistive occupancy separation. When the building is required to have a fire pump to maintain the required fire flow, the fire control room shall be located adjacent to the fire pump house. The room shall be a minimum of 96 square feet (9 m2) with a minimum dimension of 8 feet (2438 mm). It shall contain the following as a minimum:

1. The fire alarm control panel and system site map. The site map is to be a plexiglass floor plan with LED lights to indicate the locations and status (alarm, trouble, operating, etc) of all sprinkler risers, fire suppression water valves, mechanical smoke removal systems, roll down fire doors, etc.
2. Status indicators and controls for mechanical smoke removal system.
3. Sprinkler valve and water-flow detector display panels.
4. Schematic building plans indicating the typical floor plan, means of egress, fire-protection systems, firefighting equipment and access.
5. Other fire-protection equipment and system controls as required by the Fire Code Official.
6. Lighting for the central control station shall have emergency lighting powered by the standby electrical system.
7. Provide signage on the door stating "FIRE CONTROL ROOM". Letters are to be minimum 4" high with 1: stroke, red on a white background.
8. The Knox lockbox for the building shall be located at the fire control room.

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SPRINKLER SYSTEMS

1) Fire sprinkler systems shall be designed in accordance with NFPA 13 and Fire Dept Standard F-1 to protect the commodity class of the materials being stored.
2) Where more than two sprinkler systems protect the high pile storage area, the components of the systems shall be individually identified to allow easy recognition of the system in question. Any method of identification approved by the Fire Code Official may be used (colored tapes, paint, numbers, letters, etc). At a minimum, the following components shall be identified: risers, cross mains, branch line tails, fire hose connections.

BUILDING ACCESS

1) Where building access is required by the fire code, fire apparatus access roads shall be provided to within 150 feet of all portions of the exterior walls of the building used for high-piled storage.

   Exception: Where fire apparatus access roads cannot be installed because of topography, railways, waterways, non-negotiable grades or other similar conditions, the Fire Code Official is authorized to require additional fire protection.
2) Where access doors are required, fire department access doors shall be provided in each 100 linear feet, or fraction thereof, of the exterior walls which face the required fire apparatus access roads. Access doors shall not be less than 3 feet in width and 6 feet 8 inches in height. Roll-up doors shall not be used unless approved by the Fire Code Official.
3) Access doors shall be numbered. Numbers shall be minimum three (3) inch, contrasting color, located in the top half of the door, inside and outside of the door.
4) Where fire department hose connections are required in the building, the doors that provides access to these connections shall have a blue reflector (hydrant marker) attached to the wall to identify the access to the hose connection (see Standard W-2 for specifications of the hydrant markers).

FLUE SPACES

1. Flue spaces shall be provided in accordance with Table 3208.3. Required flue spaces shall be maintained. Single and double row racks shall be equipped with a transverse flue space. A mechanical means shall be provided to maintain the transverse flue space

at the uprights. Transverse flue spaces between uprights shall be marked with a 3 or 6 inch yellow strip on the load beam with words in red that read, “Keep Clear,” as indicated below. Durable vinyl tape, paint, or other methods as approved by the Fire Code Official may be used.

2. Double-row racks shall be equipped with a pallet/commodity stop along the longitudinal flue space at each level. The stop along the longitudinal flue space shall be steel or other ferrous material ¼” thick and, in the mounted position, shall extend a minimum of 4 inches above the shelf or cross member, or other method (i.e., 12 gauge chain link) approved by the fire code official **(See Diagram S-1.1)**.

3. In double row racks, where products are hand-stacked, chain link shall be securely attached to the rear of both racks. The chain link shall be a minimum of 12 gauge. Attachment method shall be as approved by the fire code official**.**

NOTE: Regardless of the design of the pallet stop, the longitudinal flue space shall be measured from the back of the pallet stop to the back of the opposing pallet stop. Transverse flue space is measured as the distance between the loads, not the distance between the racks. A flue space's net width is a measure of its gross width minus any horizontal obstructions, such as rack uprights, located within the flue space. In other words, a rack upright (typically 3 in. wide) is not considered a flue space, due to the cross bracing used.

MECHANICAL SMOKE REMOVAL

Mechanical smoke removal systems shall be provided for buildings protected by ESFR sprinkler systems as required by the Fire Code Official. The mechanical smoke removal systems shall meet the requirements of the Fire Code and the following:

1. Override controls for the smoke exhaust system shall be located in the fire control room. Controls shall allow the fire personnel to turn each fan on or off individually, with operational status indicators.
2. Maximum spacing for fans: within 150’ of perimeter walls, no greater than 250’ between fans.
3. Fans are to be evenly spaced throughout the roof area.

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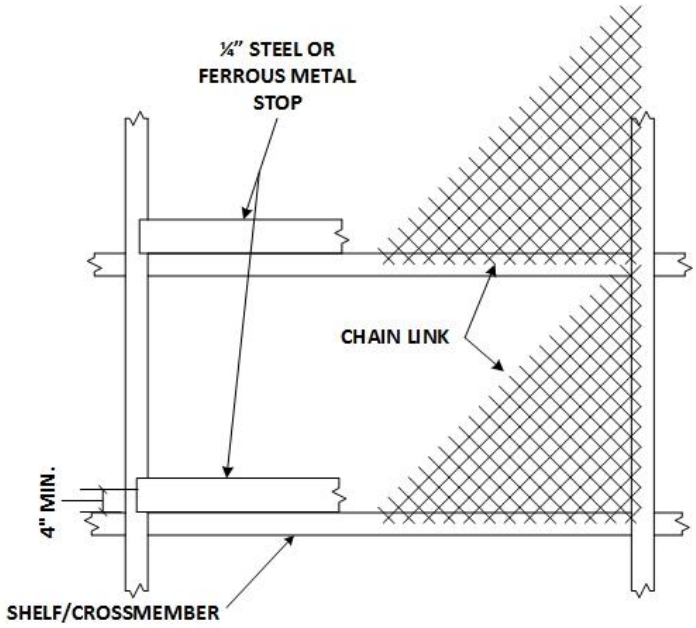
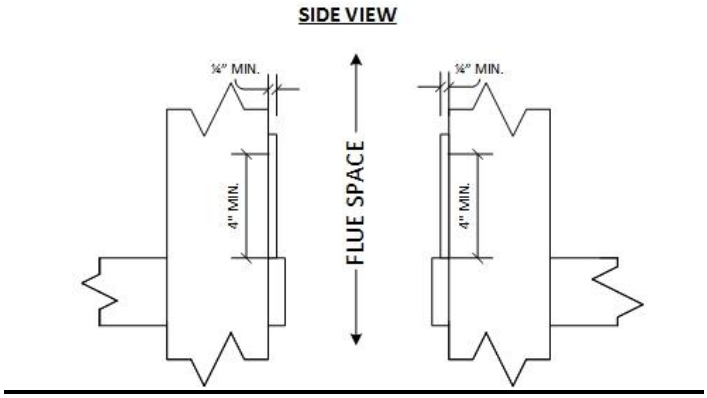
HIGH PILE STORAGE/WAREHOUSE BUILDINGS

DIAGRAM S-1.1 PALLET STOP DETAILS





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ATTACHMENT S-1.1

High Pile Storage (HPS) Required Information

The following information shall be completed and copied onto the HPS plans for all projects within City of Victorville jurisdiction:

Commodity Classification:___I ___II ___III ___IV ___High Hazard ___Group A plastic
Commodity
description:_____
_____
_____
_____
_____
Cartoned____ Free flowing___ Non-expanding___ Encapsulated____ Non-encapsulated___
Other_____
The area designated in the building and used for high piled storage is _____ square feet.
CLASS _____commodity, _____ sq ft.
CLASS _____commodity, _____ sq ft.
CLASS _____commodity, _____ sq ft.
The maximum permitted storage height (solid pile _____rack _____)
The following storage methods are employed at this facility:
Solid pile storage___ Palletized___ Single row rack___ Double row rack___ Multi-row rack___
Other_____
Rack storage shelf: N/A___ Load beam only___ Wire mesh___ Wood slates___ Plywood___
Other (Describe):_____
Minimum distance between top of storage and sprinkler _____
Smoke vents required: Yes___ No___
Operation of smoke vents (if applicable)
Manual___ Automatic___ via fusible link which releases at _____ degree F.
(Note: New installations require manual & automatic release)
Inspection Report shall indicate which vents were tested
Draft Curtains Required? Yes___ No___
The overhead fire sprinkler system utilizes the following heads:
ESFR: K_____ at _____ PSI with _____degrees F heads.

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Standard Coverage Heads: K_____ Pendant ___ Upright _____ degrees F with a density of_____gpm over _____square feet spaced at a maximum of _____ square feet per fire sprinkler

The fire sprinkler system density and area of application for the storage area is _____gpm over _____square feet

In-rack sprinklers required? Yes___ No___

There is/are _____level(s) of in-rack fire sprinkler protection.

The aisles between the racks shall be maintained at _____ feet.

Fire Doors required? Yes___ No___

Flue Spaces required? Yes___ No___

Flue space between racks shall be maintained a minimum of:

Transverse _____" clear. Must be vertically aligned (for storage >25')

Longitudinal _____" clear

Column protection required? Yes___ No___

Pallet Stops Required? Yes___ No___

Longitudinal pallet stop configuration:

Chain Link Roll Form "C" Channel

Transverse Flue Pallet Stop configuration:

Mechanical means (flue keepers, etc.) Load beam markings "Keep Clear"

Hand Stack? Yes___ No___ # of tiers: _____ Chain link required? Yes___ No___

Wooden palletized storage shall not exceed 5 feet? Yes___ No___

Storage configuration and height delineated by indication on floor or walls. Yes___ No___

Additional conditions:

_____

_____

_____

_____

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FIRE SAFETY STANDARD

AUTO WRECKING AND STORAGE YARDS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code.

PURPOSE

The purpose of this standard is to provide guidance for the safe operation of auto wrecking and storage yards, and to minimize the risk of fires and thus provide improved protection against injury, life loss, and property damage.

SCOPE

This standard shall apply to the use and operation of automotive wrecking and storage yards.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

GENERAL

1) Automobile wrecking yards shall be in accordance with this standard.

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FIRE SAFETY STANDARD

AUTO WRECKING AND STORAGE YARDS

FIRE APPARATUS ACCESS ROADS

1) Fire apparatus access roads shall be provided in accordance with the current CA Fire Code and City of Victorville Fire Safety Standards A1, A2, A3.

2) Fire apparatus access roads shall not be obstructed by any vehicles or storage at any time.

FIRE HYDRANTS

1) Required fire flow for auto wrecking and storage yards is 1500 GPM at 20 PSI.

2) Fire hydrants shall be spaced at three hundred (300) feet apart, with no part of the building more than one hundred fifty (150) feet from any hydrant. Additional on-site hydrants may be required by the Fire Code Official.

HAZARDOUS MATERIALS

1) Contact the Hazardous Material Division and submit a Business Emergency/Contingency Plan.
2) Obtain a valid EPA ID number.
3) Motor vehicle fluids shall be drained from salvage vehicles when such fluids are leaking. Flammable and combustible liquids shall be stored in accordance current CA Fire Code and all applicable Hazardous Materials and Hazardous Waste Generator laws and regulations.
4) Lead-acid Batteries shall be stored in a covered storage area on an impervious surface with secondary containment, or in a non-leaking container with a lid, and properly managed.
5) All storage containers shall be properly labeled.
6) Safety Data Sheets shall be current and available for viewing.
7) Compressed gas cylinders shall be secured to prevent falling due to contact, vibration or seismic activity per current CA Fire Code.
8) Stored vehicles shall have a barrier between the fluid leaks and the ground.
9) Provide secondary containment for all hazardous liquids.
10) A minimum of one 4A40BC fire extinguisher shall be readily available and the individual employees shall be trained in the proper use of the fire extinguisher.

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FIRE SAFETY STANDARD

AUTO WRECKING AND STORAGE YARDS

HOT WORK

1) Welding and cutting shall not be conducted in areas where flammable liquids or combustibles are in close proximity. A welding permit is required.
2) Appropriate shielding shall be provided, along with a fire watch during hot work operations.
3) A least one portable fire extinguisher with a minimum rating of 4A40BC shall be readily accessible within 30 feet of the location where hot work is performed.
4) All containers, cylinders and tanks shall be secured and stored per current CA Fire Code.

HOUSEKEEPING

1) Combustible debris and vegetation shall be removed from the location and placed in approved containers.
2) Oily rags shall be kept in an approved metal container with a self-closing metal lid.

TIRE STORAGE

1) Tire storage shall be in accordance with 2019 CA Fire Code, Chapter 34. Note, when deemed a hazard, the Fire Code Official may require smaller pile dimensions.
2) Individual tire pile storage shall not exceed 5,000 square feet of continuous area. Pile width shall not exceed 50 feet. Piles shall not exceed 50,000 cubic feet in volume or 10 feet in height.
3) Separation between tire piles and between other stored products shall be a minimum of 40 feet.
4) Tire pile distance from property lines and buildings shall be 50 feet.
5) Tire storage piles with less than 500 tires shall be permitted to be located 10 feet from property lines and buildings. Piles shall not be higher than 6 feet within 20 feet from building(s) and property line(s).
6) Interior rack storage of tires shall comply with current CA Fire Code.

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Standard Number

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FIRE SAFETY STANDARD

WATER SUPPLY FOR RESIDENTIAL FIRE PROTECTION

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 507 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to serve as an alternate guideline to NFPA 1142 for establishing a fire protection water supply for single family residential occupancies in areas not served by a water purveyor.

SCOPE

This standard applies to new single family dwellings, two family dwellings, and non-dwelling accessory structures within areas that have no water purveyor capable of providing an adequate water supply for firefighting purposes, as determined by the requirements in the City of Victorville Fire Code.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

CITY OF VICTORVILLE
FIRE PREVENTION DIVISION

14345 Civic Center Drive
Victorville, CA 92392
(760) 955-5227

Standard Number

W-1

Revision Date:
2-10-20

FIRE SAFETY STANDARD

WATER SUPPLY FOR RESIDENTIAL FIRE PROTECTION

SUBMITTALS

Plans for water tanks and appurtenances shall be submitted to the Fire Code Official for review, approval and permit prior to installation.

The submittal shall contain, at a minimum, the following:

1) Locations and elevations of all structures, including dwellings and any accessory structures
2) Locations and elevations of all fire department access roads, including any obstructions to fire access (See City of Victorville Standards A-2 and A-3 for more information)
3) Location, size and elevation of water tank(s)
4) Location, size, and type of Fire Department Hose Connection (FDHC)
5) Location, size and type of any underground fire protection water piping
6) Details of any methods for freeze protection used
7) Any other significant information required in this Standard

DEFINITIONS

FIRE DEPARTMENT HOSE CONNECTION (FDHC): A connection provided in conjunction with a water storage tank that allows fire fighters to connect and obtain needed water for fire-fighting purposes.

FIRE PROTECTION WATER SUPPLY: A water supply provided for firefighting purposes only. Water required for domestic, industrial, landscaping, agricultural or any other use are in addition to a fire protection water supply.

SELF-CONTAINED AUTOMATIC FIRE SPRINKLER SYSTEM: A fire sprinkler system that is supplied from a water source that is not dependent on a municipal (public) system and that consists of a water storage tank and a reliable method of pressurizing water, such as gravity, booster pump with emergency power, or pressurized cylinder.

WHARF HYDRANT: A fire hydrant with minimum four inch (4”) underground supply piping and with a single two and one-half inch (2-1/2”) outlet.

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GENERAL

Effective Jan 1, 2011 all new residential construction is required to be protected by an automatic fire sprinkler system. In areas without a water purveyor, an approved self-contained automatic fire sprinkler system may be installed. This standard will provide the guidance when an onsite water storage tank for fire protection water supply is required.

FIRE DEPARTMENT HOSE CONNECTIONS

1) FDHC's shall be installed within ten feet (10') of the driveway or access road, no closer than twenty five feet (25') and no farther than one hundred fifty feet (150') from structures to be protected. **See Diagram W-1.1.**
2) Fire Department Hose Connections shall be installed so that there is an elevation difference of thirty six inches (36") minimum between the FDHC and the bottom of the water tank, for effective gravity flow, unless an approved fire pump is provided. **See Diagram W-1.2.**
3) If special conditions preclude the installation of a remote FDHC, an approved two and one-half inch (2-½") National Standard Hose Thread FHDC may be installed on the bottom of a water storage tank when approved by the fire code official. This FHDC must be between twelve (12") and twenty four inches (24") from the adjacent ground level, and on the same side of the tank as a fire access roadway. **See Diagram W-1.2.**
4) FDHC's shall be National Standard Hose Thread, two and one-half inch (2 ½") in size, and listed for fire service use. A wharf hydrant or equivalent assembly shall be acceptable within the scope of this standard. The FDHC outlet shall be installed between twelve (12") and twenty four inches (24") above adjacent grade level.
5) When subject to the possibility of vehicle impact, FHDCs shall be protected by approved bollards. Bollards shall be installed in accordance with the current edition of NFPA Standard 24. **See Diagram W-1.3.**
6) Fire Department Hose Connections shall be painted red. An approved blue reflective marker shall be installed on the roadway nearest the FHDC. In areas prone to snowfall, an approved snow marker shall be installed (an approved visual pole with a reflective top above snow level shall be installed for location of FDHC).
7) FDHC's shall be installed so that a clear space having a radius of three feet (3') from connections is maintained free of obstructions, such as landscaping or parking, at all times.

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SUPPLY PIPING

1) All piping supplying FDHC's shall be a minimum of four inches (4") in size, and shall be of approved schedule 40 CPVC plastic. Pipe shall be buried at a minimum of twenty four inches (24") below grade level, or below frost level as specified in the current edition of NFPA standard 24, whichever is greater. Where piping passes under areas subject to vehicular traffic, the minimum depth of bury shall be thirty six inches (36") below grade, or below frost level, whichever is greater.
2) The system shall be designed and installed so that the integrity of the piping and the connection of all appurtenances allow for a proper draft to be initiated and maintained at all times.

WATER TANKS

1) Fire protection water supply tanks shall be constructed of approved plastic, metal, cement, or other material and listed for fire department use.
2) Water tanks shall be installed securely and on flat grade and shall be located a minimum of twenty five feet (25') from a structure, and shall be visible from the street on the address side of the structure.
3) Tanks shall be sized to provide the water supply needed to flow the sprinkler system for a minimum of ten (10) minutes (based on the calculated flow rate of the sprinkler system), or as sized per NFPA 1142.
4) Domestic water supplies (including that for irrigation of landscaping) shall not be stored in fire protection water supply tanks unless it can be shown that adequate water can be provided to satisfy all current and future domestic needs in addition to that required for fire protection, but in all cases the water capacity of the tank shall be increased to a minimum two thousand five hundred (2,500) gallons above what is needed for fire protection supply only.
5) When the fire protection supply and domestic water supply are in the same tank, an approved low level water alarm device shall be installed and set so as to activate when the supply in the tank is at the level required for fire protection supply. Such alarm shall be sounded locally within the primary dwelling on the property or shall have an automatic refill system from the domestic line from the water supply on site. Tanks supplying water for fire protection purposes shall be maintained at full.

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FIRE PUMPS

1) Any proposed fire pumps that take suction from water tanks in order to maintain proper head pressure must be listed and approved for fire protection use. Fire pumps shall be tested prior to final acceptance.
2) Fire pumps shall serve a combination of both domestic and fire protection needs, or shall have an approved emergency power source if serving fire protection demand only.

TANK VALVES

1) Control valves shall be provided for all installations. Valves shall be of the indicating type and locked in an open position. The following control valves shall be provided:
    a) FDHC control valve. This valve located between the tanks and the FDHC outlet shall be placed at location(s) approved by the Fire Code Official.
    b) Water Source Control Valves. One valve shall be provided to isolate tanks from water fill sources.
    c) Fire Pump Bypass Control Valves. This valve shall be installed when pumps are installed that take suction from water tanks, and shall be located on the supply side of pump intake lines and bypass water lines. No other control valve shall be on the system unless approved by Fire Code Official. **See Diagram W-1.4**

SIGNAGE

1) Water storage tanks shall be labeled with signage stating “FIRE PROTECTION WATER SUPPLY” per **Diagram W-1.5**. Letters shall be white with red background and shall be reflective.
2) FDHC valves shall be labeled with signage indicating the address of the property that is served, stating “FIRE DEPARTMENT HOSE CONNECTION” per **Diagram W-1.5**. Numbers and letters shall be white with red background and shall be reflective.

PROTECTION FROM FREEZING

1) Water tanks and all valves and piping shall be protected from freezing when installed at or above an altitude of three thousand five hundred feet (3,500’) above sea level. Freeze protection shall be accomplished using one or more of the following methods, subject to the approval of the fire code official:

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a) Insulation installed around water tanks and piping

b) Piping installed without water (dry), but capable of completely filling with water when valves are opened

c) Heat tape installed as per the fire code.

INSPECTION AND MAINTENANCE

1) All fire protection water supplies within the scope of this standard shall be subject to inspection by the Fire Department. The final location of Fire Department Hose Connections (FHDC's) shall be subject to Fire Department approval.

2) All materials used in tank installations shall be new. Storage tanks shall be full of water at time of Fire Department inspection, and if used with domestic supply, a low-level alarm test shall be conducted at final. If FDHC is not attached to the tank, the installer shall leave trench open for inspection of underground piping.

3) Foundations for tanks shall be subject to permits from the Building and Safety Department.

4) Water storage tanks, connections and valves shall be maintained in an operable, full and ready condition at all times.

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WATER SUPPLY FOR RESIDENTIAL FIRE PROTECTION

DIAGRAM W-1.1: FIRE DEPARTMENT HOSE CONNECTION INSTALLATION

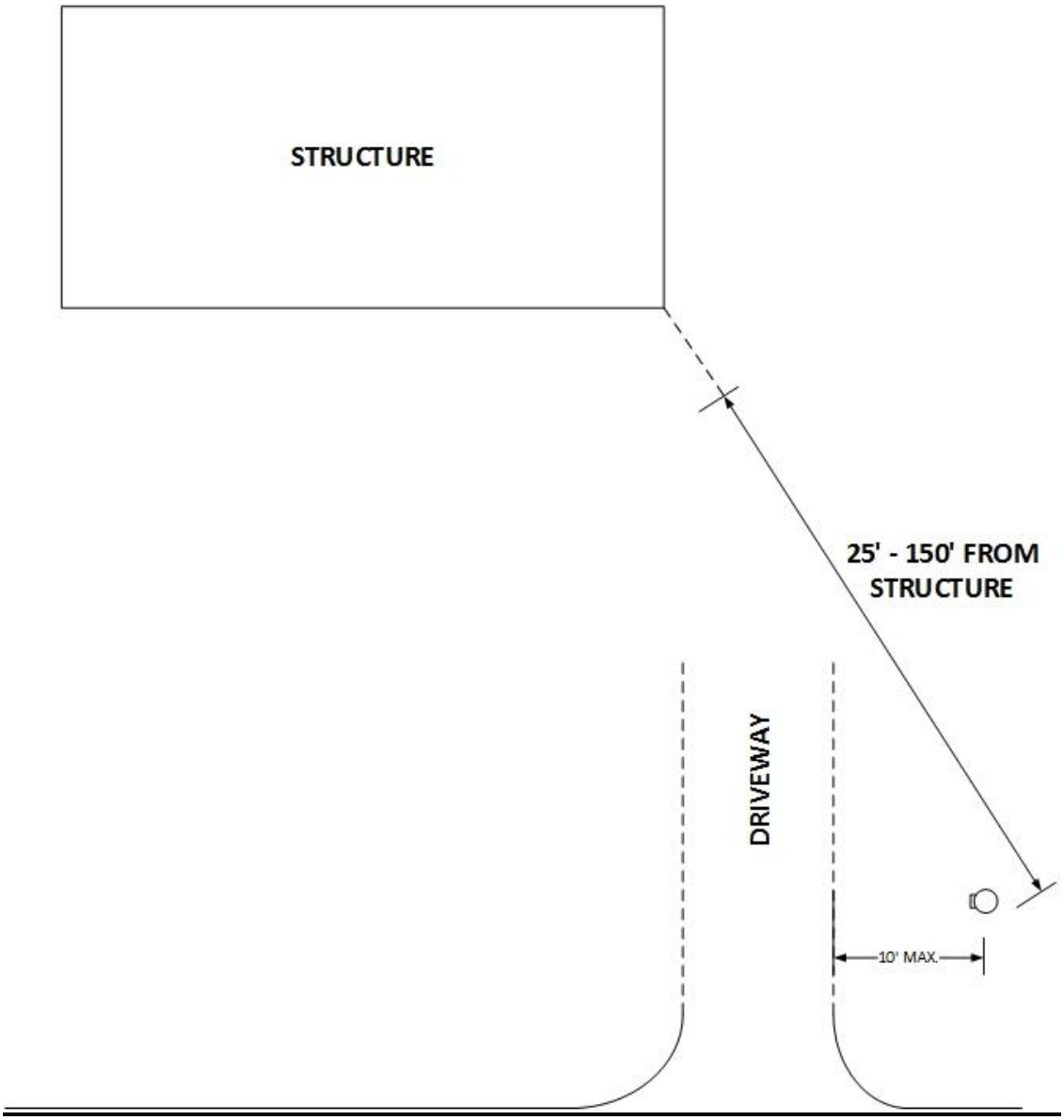

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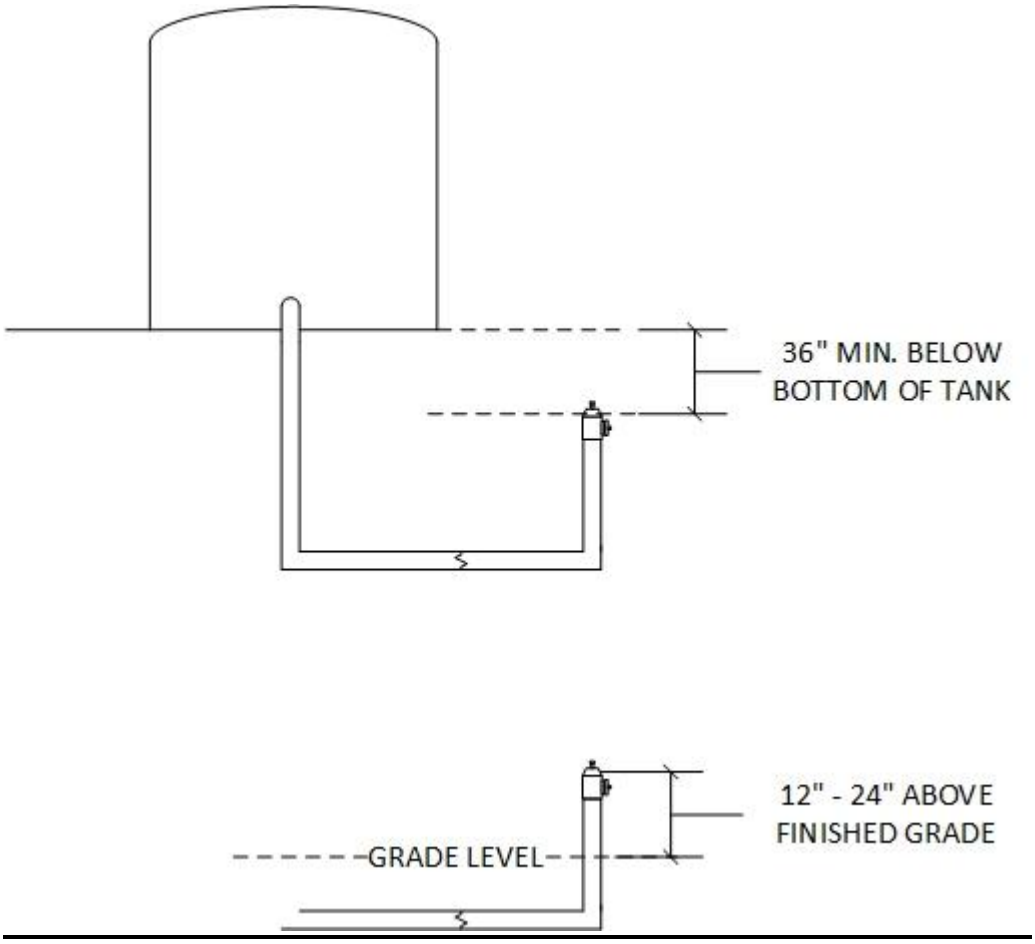
DIAGRAM W-1.2: GRAVITY FLOW INSTALLATION METHOD



FIRE SAFETY STANDARD

WATER SUPPLY FOR RESIDENTIAL FIRE PROTECTION

DIAGRAM W-1.3: PROTECTIVE BOLLARD DETAILS

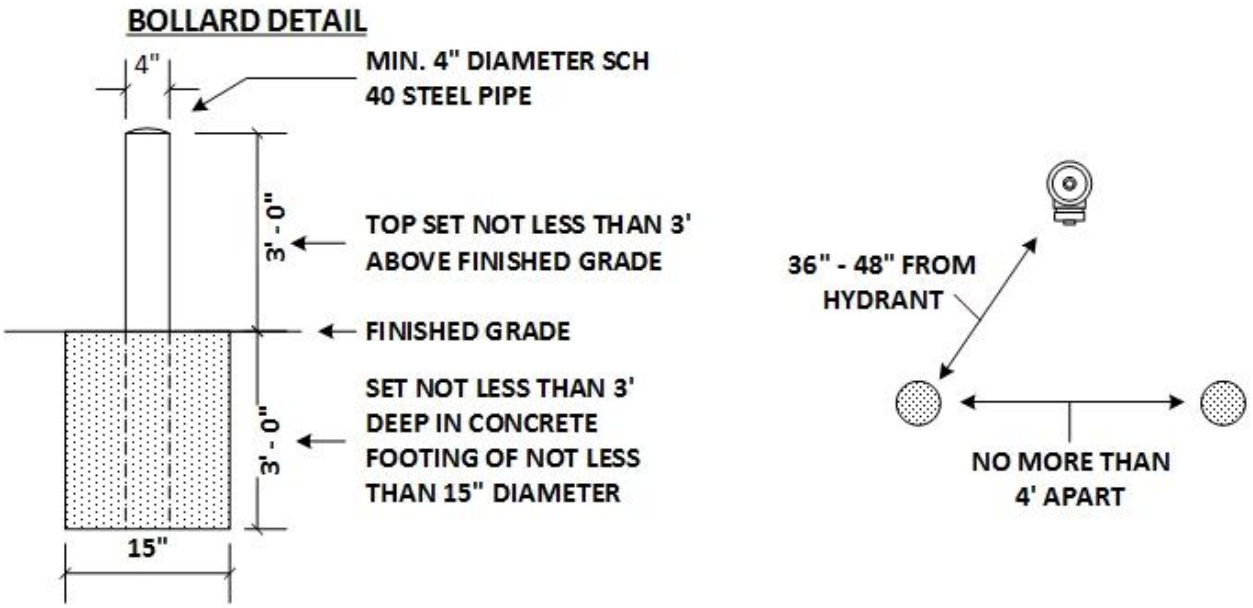


DIAGRAM W-1.4: FIRE PUMP BYPASS CONTROL VALVES

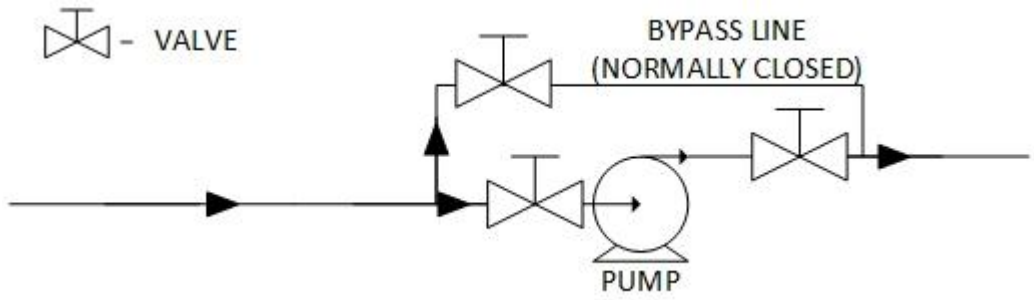


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DIAGRAM W-1.5: SIGNAGE DETAILS

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FIRE SAFETY STANDARD

ONSITE FIRE PROTECTION WATER SYSTEMS

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 507 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to serve as a guideline to NFPA 24 AND 25 for establishing an onsite private water supply capable of providing an adequate water supply for firefighting purposes, as determined by the requirements in the Fire Code.

SCOPE

This standard establishes minimum requirements for installation and maintenance of all private fire hydrants and appliances related to an onsite fire protection system.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

The following shall be submitted to the Fire Department for approval and permit prior to performing any work on any fire sprinkler system:

1) A completed City of Victorville Fire Department permit application

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2) A set of detailed plans describing the work to be done. (For information on what must be included on plans, see sections below in this Standard and the City of Victorville Plan Submittal Checklist.) The designer of the system shall provide a certification statement with the following text verbatim: "*I certify that the design of the water system is in accordance with the requirements of the City of Victorville Fire Department".*
3) Manufacturer's specifications sheets (cut sheets) for all proposed materials and equipment.
4) A water flow test report from the water purveyor dated within one (1) year of submittal
5) Any other important details and information as required by this Standard.
6) Payment of all appropriate fees.
7) No work shall commence until plans are approved by the Fire Department and/or the water company having jurisdiction.

UNDERGROUND PIPING SYSTEMS

1) Commercial/industrial projects with a building(s) exceeding 100,000 square feet or a private underground supply that serves five (5) or more sprinkler risers or fire hydrants shall be required to have a looped fire line system with a minimum of two (2) points of connection to the public and private water source.
2) Underground pipe shall be laid with the identification data facing up to permit inspection and verification of pipe nomenclature.
3) Thrust blocks or restrained joints shall be provided as per the current edition of NFPA 24.
4) When plastic mains are installed, they shall be marked with 12 gauge tracer wire, taped to the top of the pipe, or with approved tracer tape installed in the trench according to the manufacturer's instructions.

FIRE HYDRANT DISTANCES

1) All fire hydrants, public and private, shall be located within one hundred fifty (150) feet from all portions of the building(s) to be protected, as measured along approved fire apparatus access routes.
2) In no case shall fire hydrants be closer than twenty-five (25) feet to any building, unless approved by the Fire Code Official.

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3) Public fire hydrants installed to support a fire sprinkler system shall not exceed fifty (50) feet from the fire department connection nor be closer than three (3) feet. **See Diagram W-2.1**

FIRE HYDRANT SPACING

1) RESIDENTIAL AREAS (SINGLE-FAMILY):
   a) Single-family residential developments may have spacing between hydrants no more than six hundred (600) feet and the hydrant shall not be more than three hundred (300) feet (as measured along vehicular travel-ways) to main driveway on the address side of the proposed single-family structure.
   b) Shorter hydrant spacing may be required by local ordinances and regulations.
2) MULTIPLE FAMILY RESIDENTIAL, INDUSTRIAL AND COMMERCIAL AREAS:
   a) Public fire hydrants shall be installed on public streets at distances no greater than three hundred (300) feet between each appliance.
   b) Public fire hydrants shall be required on both sides of a public street, if the public right-of-way exceeds eighty (80) feet.
   c) Private on-site fire hydrants may be required if any portion of the building(s) to be protected exceeds three hundred fifty (300) from the public fire hydrant as measured along vehicular travel-ways.

HYDRANT SIZE, INSTALLATION, LOCATION AND TYPE

1) The centerline of the riser shall be normally two (2) feet behind the curb face, unless otherwise approved by the Fire Code Official. **See Diagram W-2.2**
2) Where curbs and/or sidewalks exist, the centerline of the bottom outlet must be no lower than eighteen (18) inches and no higher than twenty four (24) inches above the finished grade. In the absence of a curb, set center of bottom outlet no lower than eighteen (18) inches and no higher than twenty four (24) inches above the crown of the road (the crown of the road is the highest point in the middle of the roadway) and provide steel pipe barricades, four (4) inches in diameter filled with concrete, three (3) feet from the hydrant so as not to obstruct the outlets and valve nuts. **See Diagram W-2.2**
3) Fire hydrant shut off valves (street valves) shall be located in the drive aisle, directly in front of the 4" port, 3' to 10' from the hydrant, covered with a metal valve box cover painted blue. **See Diagram W-2.3**

FIRE SAFETY STANDARD

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4) No fire hydrant shall be installed closer than five (5) feet from the edge of driveway aprons.

5) Fire hydrants on cul-de-sac's shall be located between the short portions of 2 driveways and shall not be located at the end of the cul-de-sac. On main line extensions fire hydrants shall not be located at end of line. There shall be a blow off at the end of line, if required by the local water purveyor. **See Diagram W-2.4**

6) Wet barrel fire hydrants shall be manufactured to ANSI and AWWA standards. The six (6) inch riser and outlets (two - 2 1/2 inch and one - 4 inch) shall be cast as an integral part of the head. They shall be fastened / locked to the head in such a manner to prevent the unintentional removal of the outlets out of the head.

7) Manufacturer's specifications of fire hydrants shall be submitted to the Fire Code Official upon request.

~~8)~~ All hydrants on private property shall be an approved hydrant with breakaway bolts.

9) Private dry barrel fire hydrants in areas subject to freezing shall meet the same specifications as local public dry barrel fire hydrants maintained by the local water purveyor. In no case shall a dry barrel hydrant be less than 6" x 4" x 2 ½" x 2 ½".

10) The exterior of the hydrant head including the riser, excluding the threads, shall be painted with two coats of primer and two coats of exterior oil based safety yellow paint.

WATER MAIN SIZES

1) Multi-Residential and Commercial-Industrial water main size - shall be determined by the required fire flow.

2) Final flow tests shall be made by flowing fire hydrants of all new water distribution systems constructed in accordance with approved water plans. The tests shall be observed by the Fire code official and calculated to establish adequate water is provided prior to final inspection.

HYDRANT MARKERS

1) The developer/contractor shall install blue reflective markers in accordance with the following specifications:

   a) Markers shall be Ray-O-Lite 2SRPM-DB or equivalent.

   b) Adhesive shall be Ray-O-Lite 2SRMESS1 or equivalent.

2) Location of pavement markers:

a) Markers shall be placed eighteen (18) inches from the painted center line (CL) or if no painted CL exists, eighteen (18) inches from the center of the roadway on the side nearest the hydrant.

b) On a four- (4) lane street with turn lane at the intersection, the marker shall be eighteen (18) inches from the edge of the turn lane on the side nearest the hydrant**.**

c) Streets with a median having a hydrant on the roadside, shall have markers placed eighteen (18) inches from the edge of the painted line closest to, and on the side nearest the hydrant.

d) Hydrants at an intersection shall have markers placed on both streets.

e) Hydrants on a median shall have a marker eighteen (18) inches from the median edge on both sides of the median.

f) For multi-lane streets with a center turn lane not at an intersection, the marker shall be eighteen (18) inches from the edge of the turn lane on the side nearest the hydrant.

3) In areas subject to regular snow coverage, alternative marking devices may be used with the approval of the Fire Code Official.

SYSTEM TESTING

1) All underground piping shall be hydrostatically tested in accordance with NFPA 24 and flushed prior to connection to any overhead sprinkler piping.

2) It is the underground contractor's responsibility to give proper notification of these tests prior to any piping being concealed.

SPECIAL CONCERNS

1) Special hazard areas, high-rise buildings and other areas of fire protection not covered in this standard may require special consideration. The contractor is encouraged to contact the Fire Code Official regarding these areas not covered in this standard.

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FIRE SAFETY STANDARD

ONSITE FIRE PROTECTION WATER SYSTEMS

DIAGRAM W-2.1: FIRE HYDRANT AND PIV DETAILS

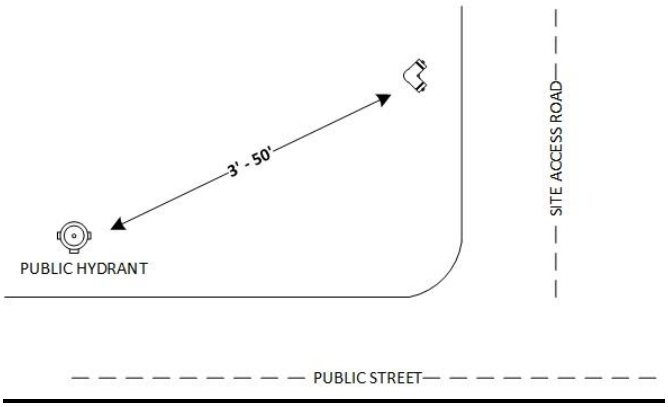

DIAGRAM W-2.2: FIRE HYDRANT INSTALLATION DETAILS

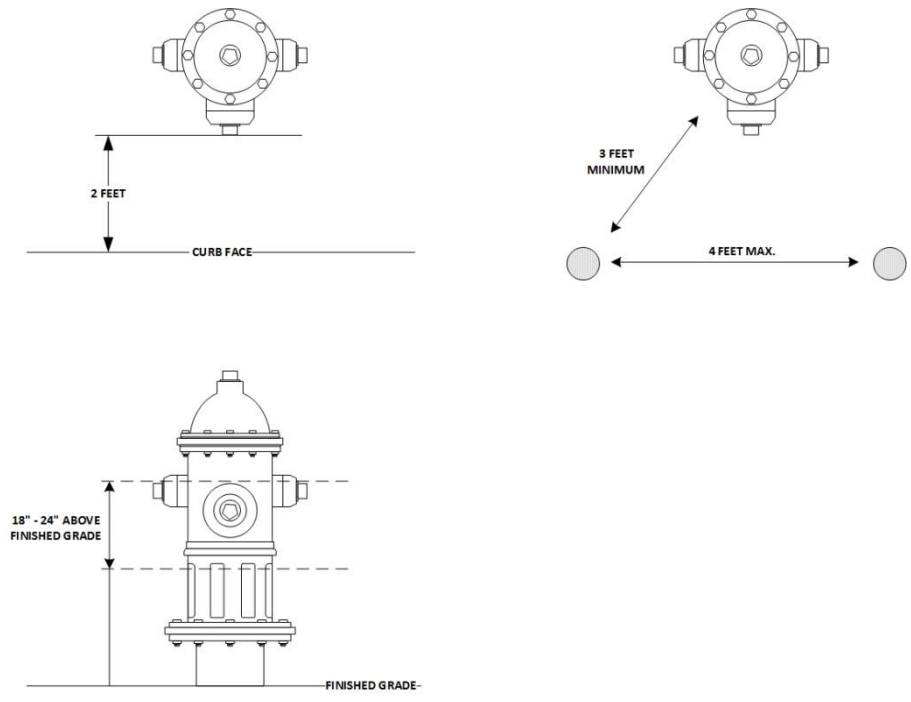

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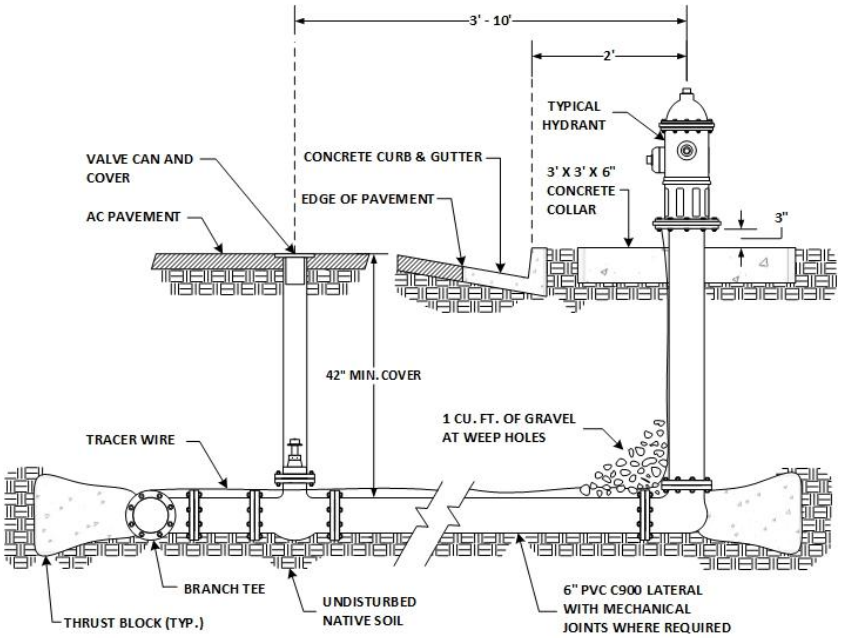
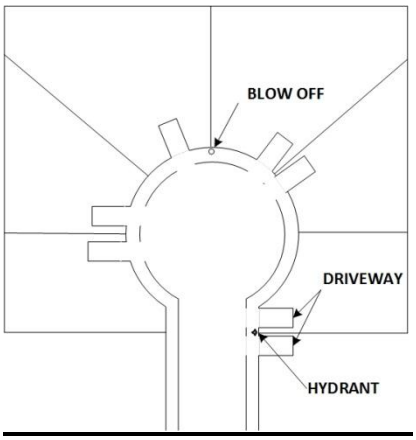
DIAGRAM W-2.3: FIRE HYDRANT INSTALLATION DETAILS



TYPICAL FIRE HYDRANT DETAIL

DIAGRAM W-2.4: FIRE HYDRANT DETAILS



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14345 Civic Center Drive
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(760) 955-5227

Standard Number

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2-10-20

FIRE SAFETY STANDARD

TEMPORARY WATER SUPPLY SYSTEMS FOR FIRE PROTECTION

AUTHORITY

Sections 102.9, 103 and 104.1 of the 2019 California Fire Code provides that the Fire Code Official of the City of Victorville Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 507 of the 2019 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

PURPOSE

The purpose of this standard is to provide guidance for the use of temporary fire protection water supply systems during construction.

SCOPE

This standard will allow a developer to begin construction of residential or commercial projects prior to a construction of a permanent water supply. In no way shall this standard be misconstrued to allow occupancy of any project without completion of an approved permanent water supply for fire protection.

DISCLAIMER

These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Victorville Fire Department at (760) 955-5227 to determine if these standards have changed.

These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.

SUBMITTALS

1) A set of plans shall be submitted to the Fire Department for approval. These plans shall show all temporary water tanks, lines and their appurtenances and shall establish the minimum fire flow needed for the proposed project(s).

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TEMPORARY WATER SUPPLY SYSTEMS FOR FIRE PROTECTION

2) These plans may be designed by a plumbing contractor, civil engineer or grading contractor.
3) No work on the project shall commence until plans are approved by the Fire Code Official.

GENERAL

1) Prior to the delivery of any combustible materials to any site that does not have a permanent water supply system, a temporary water supply may be installed with the approval of the Fire Code Official, after submittal of a permit application and site plan indicating the tank, hydrants, water lines, etc.
2) This water supply may consist of a temporary water line with temporary hydrants when approved by the Fire Code Official.
3) Hydrants shall be anchored in a manner to withstand the surge of water flowing out of the outlets at high pressure. If required, a 3' x 3' x 3' concrete footing for each hydrant shall be provided, maintained to withstand construction traffic.
4) A temporary water supply will consist of an approved elevated water tank containing a minimum of 10,000 gallons storage capacity. Fire Flow shall be as required by Appendix B of the 2019 CA Fire Code.
5) Temporary hydrants for new developments shall not be more than three hundred (300) feet (as measured along an approved vehicular path of travel) to main driveway on the address side of the proposed structure.
6) Each applicant shall check with the affected water district prior to Fire Code Official approval of connection to any public water system. The required fire flow for the project shall be met during construction.

ABOVEGROUND TANK INSTALLATION

1) The tank location and access must be approved by the Fire Code Official prior to delivery of combustible materials to the job site. The temporary water supply system shall be maintained operational at all times.
2) The tank shall be elevated a minimum of six (6) feet above grade.
3) The tank shall be located within three hundred (300) feet of the most distant building being protected.
4) A roadway to the tank capable of supporting fire apparatus shall be provided and maintained during the time that the tank is being used for fire protection.

FIRE SAFETY STANDARD

TEMPORARY WATER SUPPLY SYSTEMS FOR FIRE PROTECTION

5) The tank shall be kept filled at all times and shall be posted "FOR FIRE DEPATMENT USE ONLY" The letters shall be six (6) inches high, on a contrasting background, as approved by the Fire Code Official.
6) All valves to be locked with an approved fire department Knox Lock or breakaway lock.
7) Four (4) inch suction hose end to be locked to the tank with an approved fire department Knox Lock or breakaway lock.
8) Signs stating "NO PARKING WITHIN 100 FEET" shall be posted on all sides of the tank.

ABOVEGROUND WATER LINES

1) Aboveground water lines (minimum 6") may be acceptable at the discretion of the Fire Code Official. This shall be reviewed on a case by case basis.
2) Aboveground water lines shall be located to provide protection from construction traffic.