GUIDELINES FOR INSTALLATION OR MODIFICATION OF FIRE SPRINKLER SYSTEMS

Authority Cited: California Fire Code; Title 19, Div. 3, Ch. 16 CCR; Palo Alto Municipal Code

A. General Information

These guidelines are applicable to installation of fire sprinkler systems regulated by the City of Palo Alto. The guidelines serve as supplements to other requirements and/or guidelines (e.g. California Fire Code, Palo Alto Municipal Code, NFPA Standard No. 13 – 2002 Edition, manufacturers' guidelines, etc.). Where such regulations or guidelines conflict, the more stringent requirement shall apply.

1. A permit application and payment of appropriate fees shall be required for any installation or modification of any fire sprinkler system and related accessories, fittings and appurtenances.

2. Plans shall be designed by the installing C-16 licensed contractor or by a qualified Registered Professional Engineer (Civil, Mechanical or Fire Protection), licensed by the Stated of California (Board of Professional Engineers). All copies of the plans shall be stamped and signed by the licensed individuals.

3. Contractors shall submit, or have on file with the local agency, information verifying that they possess a current State Contractor's License (C-16) and Worker's Compensation Insurance (Palo Alto does not currently require sprinkler installers to obtain a business license.) Contractor information may be obtained by calling the Contractors State License Board at (800) 321-2752.

4. Underground Service Alert should be contacted at (800) 642-2444 prior to the start of any excavation. Any excavation in the Public Right-of-Way requires prior approval of the City of Palo Alto Public Works Dept.

5. The City of Palo Alto Utilities Dept. (Water/Gas/Wastewater Section) shall approve any installations or modifications of underground fire supply piping up to and including the backflow prevention device. Existing systems where building modifications exceed 50% of the valuation of the structure or where additional piping is installed may require upgrade of the backflow prevention system to meet current City of Palo Alto standards.

6. The contractor shall be responsible for ensuring that conditions at the site provide for workplace safety, protection of the environment, and maintenance and integrity of nearby structures.

7. Under no circumstances shall any portion of the sprinkler system or underground fire supply be concealed without prior approval of the fire inspector overseeing installation. Work concealed prior to inspection shall be exposed at the owner's expense. (2007CFC106.3)

8. All piping, sprinklers and equipment shall be installed and tested in accordance with 2007 California Fire Code Section 903.3.1.1, Title 15 of the Palo Alto Municipal Code, NFPA Standard No. 13 – 2002 Edition, NFPA Standard No. 24 – 2002 Edition, and the manufacturer's recommendations/guidelines.

9. A Use & Occupancy permit is required for all tenant improvement projects. Application shall be filed by the tenant with Palo Alto Building Inspection Services at the City Development Center prior to submitting for any fire protection permits.

B. Required Documentation

The following submittals shall be signed and stamped by a representative of the Palo Alto Fire Department, Fire Prevention Bureau. A copy of each is to be kept at the job site for review by the Fire Inspector.

1. ***Prior to starting work:***

☐ All drawings for the installation of fire extinguishing system piping with pipe size 2-½ inches in diameter or greater shall bear the signature of a California-licensed civil or structural engineer certifying that the design for the supporting members is in full compliance with loading requirements as specified in Chapter 16 of the 2007 California Building Code. In lieu of this requirement, a letter will be acceptable that is signed and stamped by the Engineer of Record for the building that states that they have reviewed the sprinkler drawings for loads imposed on the structure and have found them to be in conformance with the building's structural design limits.

☐ The Job Copy of the approved Fire Permit.

☐ The Job Copy of the approved blueprints

☐ A copy of the approved calculations, including both hydraulic and bracing calculations, as applicable.

☐ Manufacturers' cut sheets for piping, and equipment (e.g. sprinklers, valves, couplings, etc.).

☐ A receipt for payment of appropriate permit fees.

2. ***Prior to final inspection:***

☐ A copy of the completed Contractor's Material and Test Certificate for Underground Piping (Ref. NFPA Standard No. 13 – 2002 Ed., Sec. 10.10)

☐ A copy of the completed Contractor's Material and Test Certificate for Aboveground Piping (Ref. NFPA Standard No. 13 – 2002 Ed., Sec. 16.1)

☐ A signed statement from the Occupant and/or Building Owner that the system will be maintained and tested in accordance with NFPA Standard No. 25 and Title 19 of the California Code of Regulations. The statement shall also be signed by Building Owner or authorized representative.

☐ An electronic copy of the As-Built Drawings for any new sprinkler systems or any modified systems where producing an As-Built drawing would not be a hardship. The drawing shall be in .pdf format and shall be e-mailed to the inspector or provided on cd-rom.

C. Required Inspections:

1. **All activities described below must be witnessed by a representative from the Palo Alto Fire Dept. prior to concealing piping with construction:** *[Note: Other agencies and departments (e.g. those regulating utilities modifications, plumbing installation, electrical installation, etc.) should be contacted for their inspection requirements.]*

☐ Verification that only new fire sprinklers are being installed. Fire sprinklers from disassembled drops shall not be reused (2002NFPA13, Sec. 6.2.1). New sprinklers in light hazard occupancies shall be quick response unless a mismatch is created within a room or compartment. (2002NFPA13, Sec. 8.3.3.1)

☐ Weld inspection (coupons/discs removed, slag and other welding residue removed, internal diameters of piping not penetrated) PRIOR TO hanging pipe. Welder's qualifications and quality assurance procedures shall be presented to the fire inspector upon request. (2002NFPA13, Sec. 6.5.2)

☐ All coupons/discs retrieved and attached to each installed mechanical tee retrofit or retained in other acceptable fashion. (2002NFPA13, Sec. 16.1)

☐ Hydrostatic testing of new work or entire system at 200 psig pressure for 2/hrs. Testing at normal static pressure is acceptable for modifications affecting 20 or fewer sprinklers or work that cannot be isolated, such as relocated drops. (2002NFPA13, Sec. 16.2.1)

☐ Verification of proper support of all piping and risers. Beam clamps shall be provided with retaining straps, including all existing beam clamps accessible in the area of work. (2002NFPA13, Sec. 9.1)

☐ Verification of proper seismic bracing of all mains, all piping 2-½ in. diameter or greater, and at the top of each riser. For tenant improvement projects, seismic bracing retrofit is required for all accessible mains and risers serving the area of work. (2002NFPA13, Sec. 9.3)

☐ Verification of proper seismic restraint of each branch line at the end sprinkler to prevent vertical AND lateral movement. Additional restraints shall be provided at intervals not exceeding 30 feet for branch lines where upward or lateral movement would result in an impact against the building structure, equipemnt, or finish materials. Braces shall NOT be attached to the building structure with lag screws (ref. 2002NFPA13, Sec. 9.3.5.9.3). For tenant improvement projects, seismic restraint retrofit is required for all accessible mains and risers serving the area of work. (2002NFPA13, Sec. 1.4)

☐ Verification of proper seismic isolation at all locations where mains cross a building seismic joint. For tenant improvement projects, seismic separation retrofit is required for all accessible mains in the area of work. (2002NFPA13, Sec. 9.3.3)

☐ Verification that adequate clearance is provided around all piping extending through walls, platforms, and foundations, including drains, fire department connections and other auxiliary piping. (2002NFPA13, Sec. 9.3.4)

☐ Sprinkler control valves shall be provided for each floor, including basements. (PAMC15.04.270) For tenant improvement projects, floor control valve retrofit is required for all major remodels (>50% of the system) unless impractical due to the system configuration.

☐ Sprinkler control valves shall be provided for exterior sprinklers. (2002NFPA13, Sec.7.7.3)

☐ Drain valves shall be provided for each sectional or floor control valve. (2002NFPA13, Sec. 8.14.2.4.3). For tenant improvement projects, drain valve retrofit is required.

☐ All sprinkler drains, including those for floor control valves and inspector's test valves, as well as the main drain, shall not discharge within the building. Water discharged from these points shall be directed to an approved landscape location or to the sanitary sewer system.

(2002NFPA13, Sec. 8.14.2.4.4). For tenant improvement projects, drainage to an approved location is required unless cost prohibitive in comparison to the valuation of the project.

☐ Provide an inspector's test valve to test each flow switch (2002NFPA13, Sec. 8.16.4.2.1). Test valve shall be properly sized, or discharge properly reduced, to simulate the flow of a single sprinkler.

☐ The Utilities Department shall be consulted for maximum flow capacity of sanitary sewer in the area. Main Drain test discharge flow rate shall be impounded and attenuated to below sanitary sewer capacity before discharge. For tenant improvement projects, drainage to an approved location is required unless cost prohibitive in comparison to the valuation of the project.

☐ The Fire Department Connection shall be located where not likely to expose firefighters to hazards in an emergency. Caps and bollards shall be provided as necessary to prevent tampering or vehicle impact damage.

☐ 2-½ in. hose valves shall be provided for parking garages in each stairwell and in additional locations as needed to provide a maximum of 150 ft. of travel distance from a hose outlet to any point in the parking area.

2. **The following shall be in place and inspected by a Fire Inspector prior to Final Inspection.**

☐ An exterior bell shall be provided in the vicinity of the Fire Department Connection.

☐ An approved audible sprinkler flow alarm to alert the occupant shall be provided in the interior of the building in an approved location. (2007CBC903.4.2) For systems with 20 or more sprinklers, the Alarm shall be monitored by an approved, UL Listed Central Station. All notifying devices and wiring shall be monitored for trouble (2007CBC903.4) Fire Alarm system installations require separate submittal to the Fire Prevention Bureau. (PAMC15.04.010)

☐ A full test is required for all fire flow and tamper switches.

☐ A flow test is required for each drain.

☐ The inspector's test valve for each flow switch shall be operated.

☐ All sprinkler trim and escutcheon installation shall be complete.

☐ All valves shall be locked in the OPEN position.

☐ Durable signs shall be permanently affixed to the system for each valve.

☐ Durable signs shall be posted on or over the door to the fire sprinkler riser closet.

☐ Durable signs shall be posted on or adjacent to the Fire Department Connection describing the type of system and building served.

☐ The hydraulic data plate shall be permanently affixed. (2002NFPA13, Sec. 16.5)

☐ A spare sprinkler box shall be provided, including proper number of each type of sprinkler and appropriate wrench(es). (2002NFPA13, Sec. 6.2.9)

☐ A five-year sprinkler certification tag shall be attached to the system riser.