

Office of the Fire Marshal Kern County Fire Department

Fire Prevention

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Residential Fire Sprinkler Inspection Information

As part of our Residential Fire Sprinkler Plan Review, an inspector will conduct two inspections during installation. The first inspection is called a “pre-concealment” or “rough” inspection. The second inspection is a final. A “Bucket Test” is performed during one of the aforementioned inspections, preferably during the pre-concealment. Detailed below are inspection points that are covered during the inspections, as well as, a diagram of a Bucket Test set up.

Pre-concealment (rough inspection)

1. Installer has obtained approved plans and permit
2. Underground piping flushed prior to connection at riser by the installer.
Installer to counter sign permit before release.
3. A single water supply control valve arranged to shut off both the fire sprinkler system AND the domestic system. The meter shall be installed prior to the bucket test.
4. Sprinkler system must have a drain located on the system side of the control valve
5. Sprinklers shall be installed in all areas of the dwelling unit, attached garages, carports with living spaces above it and directly above fuel fired equipment in any concealed space (HVAC units in attic). CPVC piping for these attic units must be insulated from the head to the point where the pipe rises out of attic insulation.
6. Exceptions:
 - a. Attic or crawl spaces not normally occupied or used for storage
 - b. Clothes closets, linen closets and pantries not exceeding 24 square feet with the least dimension not exceeding 3 feet
 - c. Bathrooms not exceeding 55 square feet
 - d. Porches without living quarters over it
7. Sprinkler spacing conforms to approved plans
 - a. At no time shall a sprinkler head exceed 10 feet from any wall
 - b. Minimum 8 feet between sprinkler heads
8. Installed sprinkler heads match those shown on approved plans/cut sheets
9. Fire sprinkler pipe and fittings to be UL listed CPVC or UL listed PEX Zurn pipe.

Note: CPVC shall not be used in exposed/outdoor locations

10. Above ground pipe shall be secured against movement per approved plans
11. Confirm pipe size to determine maximum hanger spacing
12. The Bucket Test (See separate notes and Figure 1) will be conducted in the most remote multi-head area (recommended but optional)

Final Inspection

1. Sprinkler heads are 36 inches (center to center) from all ceiling obstructions such as surface or pendent mounted lights, junction boxes, ceiling fans, smoke detectors etc.
Exception: Sprinklers are not required under overhead garage doors
2. Sprinklers are a minimum of 6 inches from recessed light fixtures
3. Sprinklers are a minimum of 24 inches from a warm air diffuser, oven, range etc. (heat source)
4. Sprinklers are 60 inches from the front of a fireplace
5. Sprinkler escutcheon plates are in place and heads or plates are not painted (including over spray) or damaged
6. A sign shall be installed at the main shut of valve that states “Warning, the water system for this home supplies fire sprinklers that require certain flows and pressures to fight a fire. Devices that restrict the flow or decrease the pressure or automatically shut off the water to the fire sprinkler system, such as water softeners, filtration systems and automatic shutoff valves, shall not be added to this system without review of the fire sprinkler system by a fire protection specialist. Do not remove this sign.”
7. Smoke detectors to be installed and operative
8. Carbon Monoxide detectors to be installed and operative
9. Bucket test performed if not completed during pre-concealment
10. Provide “owner/occupant instructions on inspecting, testing, and maintaining the system” packet.

Bucket Test (All equipment supplied by installer)

1. Set up test (according to Figure 1) in the area denoted on your approved set of plans (the two most hydraulically demanding heads [usually farthest from the riser])
2. Have the heads that belong in the test connection sites available for inspection
3. It is important that a pretest is completed prior to inspector arrival so as to confirm system will pass the test or to begin troubleshooting problems with flow. If any unresolved problems are encountered during the pretest notify inspector upon arrival.
4. The test will proceed for one minute then shut ball valves. The inspector will then check the water level in each bucket.
 - a. Buckets:
 - i. Should be large enough to hold half the required GPM (a 32 gallon trash can is recommended)
 - ii. Markings should be made to signify different volumes of water (usually a five gallon bucket can be used as a measuring device). The highest marking being $\frac{1}{2}$ the required GPM
 - iii. Should be clean of debris and dirt, as well as, free of any paint, caulking, plaster, etc. build up on inside.

5. Understand that water will splash out of buckets during test so you may want to protect area from unwanted water contact (This is mostly applicable for
6. tests during final inspection)

Figure 1

