California State Fire Marshal

CODE INTERPRETATION

Date Issued	**06-17-02**	Interpretation #	**02-017**
Topic	**Smoke Detectors Controlling HVAC Shut-Down and Smoke Damper Activation**		
Code Section(s)	**§608, California Mechanical Code (1998)**		
Requested by	**Bill Hopple** **SimplexGrinnell LP** **242 E Airport Dr #102** **San Bernardino, CA 92408**		

1. ***Section 608 of the California Mechanical Code (1998) requires shut down of air handling systems by detection of smoke. Are the smoke detectors required to be connected to a fire alarm system if the building is not required to have a fire alarm system installed?***

   No. The California Mechanical Code (1998) does not require duct smoke detectors to be connected to a fire alarm system when a fire alarm system is not provided in the building.

2. ***Is this smoke detector required to be connected to the building fire alarm system if a fire alarm system is required and installed?***

   Yes. Section 608 of the California Mechanical Code (1998) requires that smoke detectors that are designed to shut down HVAC systems must be supervised (monitored for integrity) by the building fire alarm system.

3. ***Section 3-9.3.2 of NFPA 72 (1996) also requires that detection devices used for fan control must be monitored for integrity. Is this smoke detector required to be connected to the building fire alarm system if a fire alarm system is not required but has been voluntarily installed?***

Yes. Section 608 of the California Mechanical Code (1998) specifically states that these are required " Where fire detection or alarm systems are provided for the building…". The California Mechanical Code does not differentiate between required and voluntarily installed fire alarm systems.

4. ***Please explain what "...and shall activate the fire alarm system" is intended to require. Presuming this means that detectors required by Section 608 of the California Mechanical Code (1998) must be connected to an installed fire alarm system, then there are three standard signals provided in most fire alarm systems (i.e., fire alarm, supervisory and trouble). Which signal type is required?***

The phrase " …shall activate the fire alarm system" as found in Section 608 of the California Mechanical Code (1998) was originally intended to require the activation of the building fire alarm system ---including the notification appliances. However, NFPA 90A-*Standard for the Installation of Air Conditioning and Ventilating Systems (1996*) as referenced by NFPA 72 (1996), allows duct-smoke detectors to activate a supervisory signal in lieu of a fire alarm signal when duct detector actuation is indicated at a constantly attended location.

A supervisory signal from duct detector actuation may constitute an acceptable alternative to a general fire alarm, particularly when annunciated at a constantly attended location in the facility. The local fire authority must be consulted to determine the appropriate signal and procedures following actuation of a duct-detector.

5. ***If a fire alarm system is required, are notification appliances required to operate?***

Yes. Duct-smoke detectors, which are required to be installed by Section 608 of the California Mechanical Code (1998) for HVAC shutdown must cause the fire alarm notification appliances to operate just as would the actuation of other fire alarm initiating devices, (i.e. manual boxes, area smoke detectors, etc.).

6. ***Section 713.10 of the California Building Code (1998) requires the operation of smoke dampers from one of five different methods. Does the operation of smoke dampers require a fire alarm system?***

   No. Smoke dampers may be controlled by duct smoke detectors and spot-type releasing smoke detectors listed for releasing service with integral contacts when a fire alarm system is not installed in the building.

7. ***If a fire alarm system is installed in the building, are the smoke detectors used by any of the five methods for damper control required to be connected to the fire alarm system? If so, which ones and why?***

   Yes. All smoke detectors for smoke damper control are required to be connected to the building fire alarm system when a fire alarm is installed. The 1996 edition of NFPA 72's commentary to Section 3-9.3.3 prohibits the use "stand-alone" initiating devices when a fire alarm system is installed.

8. ***Section(s) 713.2, 713.6.1 and 1004.3.4.3.2.1 of the California Building Code (1998) require smoke detection at automatic closing fire assemblies (in this case doors) that will cause the release of the fire assembly. If smoke detectors listed for releasing service are used, must they be connected to a fire alarm system?***

   Yes, but only when a fire alarm system is installed in the building.

9. ***If a fire alarm system is installed in the building, are the smoke detectors required to be connected to it?***

   Yes.

10. ***Can the releasing be performed by the fire alarm system, from the initiation of smoke detectors not listed as releasing devices?***

    Yes, NFPA 72 (1996) allows the fire alarm control panel to perform the releasing or closing of smoke dampers when open area smoke detection is installed. This is the preferred method to prevent the spread of smoke due to the dilution effect of smoke in air ducts.