



California State Fire Marshal CODE INTERPRETATION

Date Issued	02-10-03	Interpretation #	03-014
Topic	Smoke Detectors Controlling HVAC Shut-off		
Code Section(s)	§608, California Mechanical Code (1998 ed)		
Requested by	Jeffrey Montero TMAD Engineers 320 N Halstead St #220 Pasadena, CA 91170		

1. ***Section 608 of the California Mechanical Code requires shut-off for air handling systems supplying in excess of 2000 CFM in which the automatic shut-off is accomplished by interrupting the power source upon detection of smoke in the main supply air duct. Does the code allow equipment-mounted smoke detectors where the smoke detector is mounted inside the equipment supply air chamber at the fan discharge?***

Yes. The detectors must be listed and installed per the manufacturers instructions and engineered for the specific application. However, it must be remembered that the in-duct detectors on the supply side must be downstream of the fan and filters.

2. ***If the code allows such an installation, doesn't it conflict with provisions of §2-10.5 of NFPA 72 and §4-4.4 of NFPA 90A where the smoke detectors are required to be installed in air duct systems due to the needed air sampling and prevent stratification and dead air spaces?***

No.

3. ***If the code does not allow such an installation and requires smoke detectors to be installed in the supply air ducts and a 12 Zone-Multizone Air Handling Unit is installed, does the code require the installation of 12 separate smoke detectors (each one serving one zone branch duct); OR, could a single smoke detector be installed in the branch with the highest CFM capacity?***

If the system is over 2,000 CFM, all 12 branch ducts must be sampled for smoke. This can be accomplished using a single detection device listed for air-velocity, temperature, etc. if it is installed in accordance with the manufacturer's instructions.

4. ***Section 608 of the California Mechanical Code doesn't address smoke detector requirement for the return duct system while NFPA 90A requires smoke detectors at the return side of air handling systems with a capacity of 15,000 CFM and greater. Does the State Fire Marshal require such a smoke detector for systems with such capacity?***

The answer to your question depends upon the design of the return air system controls. Section 2-10.4.2.2 refers to detection in return air ducts. Section 2-10.3.2 states that "if smoke detectors are used to initiate selectively the operation of equipment to control smoke spread, the requirements of Section 2-10.4.2.2 shall apply". This means that if air-handling equipment is "globally" shut down, then Section 2-10.4.2.2 does not apply and return air detectors are not required.