



California State Fire Marshal **CODE INTERPRETATION**

Date Issued	11/16/2006	Interpretation #	06-015
Topic	Duct Smoke Detector		
Code Section(s)	California Building Code (2001) 713.10.2 Methods of Activation		
Requested by	Bill Hopple 1040 Menay Drive, Tracy, CA 95376-9777		

Question and Background # 1

CBC (2001) Section 713.10.2 Methods of Activation; item 1; requires that when a smoke fire damper is installed within a duct, a smoke detector shall be installed in the duct within 5 ft. of the damper.

Does method number 1 require the detector to be (physically) mounted in the duct (i.e., an in-duct detector), or “is” a sampling tube type duct detector or light beam detector acceptable to perform the actuation of the damper?

The detection element does not have to be inside the duct. In-duct spot-type, projected light-beam, sampling tube-type detectors are all examples of acceptable devices for this application. The intent of this text is that the sensing element; whether internal or external to the mechanical duct; be within 5 feet of the damper. It is not the intent of this text that the detection element is "inside" the mechanical duct.

The following types of duct-smoke detector installations are acceptable to perform the actuation of the damper in accordance with Method of Activation # 1 per 2001 CBC Section 713.10.2.

- A. A spot-type smoke detector listed for air duct applications installed inside the duct.
- B. Air sampling-type duct smoke detector with the base unit mounted on the exterior of the duct with the sampling tubes protruding inside the duct.
- C. A smoke detector with the base unit mounted on the exterior of the duct with the sensing element protruding into the duct.

D. Projected beam-type smoke detectors with the projected light beam through the duct.

Question # 2

What is the definition of a duct detector?

NFPA 72 (1999) does not specifically define a duct detector. However, NFPA 72, Section 2-10-5-1 does require that all detectors be listed for the purpose for which they are to be used and Section 2-10-5-2 specifies the methods by which air duct detectors are to be installed.

The UL Fire Protection Equipment Directory provides considerable guidance (p.330) relative to what a "duct detector" is tested to provide. These devices may be mounted outside or inside the ductwork.

A generic definition of a "duct detector" would be: an approved smoke detection device listed for air duct applications.

Question and Background # 3

CBC 713.10.2, methods 2 and 3 refer to "spot-type" detectors, listed for releasing service.

Question # 3: Does this mean that the "SFM listing" sheet must list the detector as a "spot-type" if they are to be used in these two cases?

No. SFM Listing sheets will rarely refer to these detectors as "spot type". There is a definition for "spot type detector" in NFPA 72, which simply states that the detection element is located in a single spot.

However, CBC section 713.10.2 requires detectors used to operate dampers under methods 2 and 3 to be listed for releasing service because it is the intent of method(s) 2 and 3 that the detection device (locally) controls the damper and is not necessarily connected to a fire alarm system.