



Coffee Break Training - Fire Protection Series

Fire Alarms and Detection: Smoke Detector Application Listings

No. FP-2010-34 August 24, 2010

Learning Objective: The student shall be able to describe five different applications for which smoke detectors are listed.

Smoke detectors are the preferred devices for early fire detection and life safety, but they are not always the most suitable fire sensing devices because of the environment in which they may have to be installed. Installing smoke detectors in an atmosphere that is normally dirty, dusty, or humid only invites false alarms.



This beam detector transmitter is listed for open area protection.

Due to the variety of conditions in which smoke detectors may be installed, they are listed for specific applications:

- Open Area Protection: for use in small or large open areas where normal ceiling temperatures exist and air movement is limited;
- Releasing Service: for use only with other fire protection features such as door release service;
- Combination Open Area and Releasing Service: open area detectors with supplementary contacts for connection to releasing devices;
- Duct Detector (Sampling Tube): for installation on the outside of an air handling duct with sampling tubes inserted into the duct; and
- Duct Detector (Internal): for installation within the duct for air sampling.

Duct detectors are installed to shut down blowers or air handling equipment to prevent smoke migration throughout a building and the associated panic that might result. Note that Underwriters Laboratories (UL) *Fire Protection Equipment Directory* strongly emphasizes that duct detectors are not intended as a substitute for open area protection.

Requirements for heating, ventilating, and air conditioning (HVAC) smoke detector controls are found in the locally adopted mechanical codes or National Fire Protection Association (NFPA) 90A[®], *Air Conditioning and Ventilating Systems*.

For additional information, refer to NFPA 72[®], *National Fire Alarm and Signaling Code*[®], or visit the UL Online Certifications Directory at <http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html>



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