

Table 8.1: General Requirements of Fire Detection and Alarm Systems

ITEMS	REQUIREMENTS
29. SMOKE CONTROL SYSTEMS	<ul style="list-style-type: none"> i. Smoke detectors installed and used to prevent smoke spread by initiating control of fans, dampers, doors, and other equipment shall be classified in the following manner: <ul style="list-style-type: none"> a. Area detectors that are installed in the related smoke compartments b. Detectors that are installed in the air duct systems. c. Video image smoke detection that is installed in related smoke compartments. ii. To prevent the recirculation of dangerous quantities of smoke, a detector approved for air duct use shall be installed on the supply side of air-handling systems. iii. Area smoke detectors within smoke compartments shall be permitted to be used to control the spread of smoke by initiating operation of doors, dampers, and other equipment.
30. DETECTORS IN AIR DUCTS	<ul style="list-style-type: none"> i. Detectors shall be listed for installation in air ducts. ii. Air duct detectors shall be installed in such a way as to obtain a representative sample of the airstream. This installation shall be permitted to be achieved by any of the following methods: <ul style="list-style-type: none"> a. Rigid mounting within the duct b. Rigid mounting to the wall of the duct with the sensing element protruding into the duct c. Installation outside the duct with rigidly mounted sampling tubes protruding into the duct d. Installation through the duct with projected light beam iii. Detectors shall be mounted in accordance with the manufacturer's published instructions and shall be accessible for cleaning by providing access doors or control units. iv. The location of all detectors in air duct systems shall be permanently and clearly identified and recorded. v. Detectors mounted outside of a duct that employs sampling tubes for transporting smoke from inside the duct to the detector shall be designed and installed to allow verification of airflow from the duct to the detector. vi. Detectors shall be listed for operation over the complete range of air velocities, temperature, and humidity expected at the detector when the air-handling system is operating. vii. All penetrations of a return air duct in the vicinity of detectors installed on or in an air duct shall be sealed to prevent entrance of outside air and possible dilution or redirection of smoke within the duct. viii. Where in-duct smoke detectors are installed in concealed locations more than 3 m above the finished floor or in arrangements where the detector's alarm or supervisory indicator is not visible to responding personnel, the detectors shall be provided with remote alarm or supervisory indication in a location within the room. ix. Remote alarm or supervisory indicators shall be installed in an accessible location and shall be clearly labeled to indicate both their function and the air-handling unit(s) associated with each detector.