

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
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Smoke Detector for Common Supply and Return Air Systems

Code: 2012 Mechanical Code
Section: 606.2.2

Date: September 1, 2011

Question:

If two or more air-handling systems serve a common space and one or more of these systems serve additional spaces and the aggregate capacity of the combined systems exceeds 2,000 cfm, what are the requirements for smoke detectors per Section 606.2.2?

Answer:

Section 606.2.2 requires that when two or more air systems serve common supply or return ducts or plenums with a combined design capacity greater than 2000 cfm, the return system shall be provided with smoked detectors. Section 606.2 states that smoke detectors are not required where the air distribution system is incapable of spreading smoke beyond the closing walls, floors and ceiling of the room or space win which the smoke is generated.

If two or more systems serve a common space, but do not share common ducts or plenums, and each system has a design capacity of 2,000 cfm or less, no smoke detector is required. If their combined design capacity is > 2,000 cfm, and no single unit has a design capacity of 2,000 cfm or more, no smoke detector is required because they do not share common ducts or plenums.

If multiple systems share common ducts or plenums and the distribution system is incapable of spreading smoke beyond the enclosure of the room or space where the smoke is generated, then no smoke detector is required.

Keywords:

smoke detection system control