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GOVERNOR

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC SAFETY AND CORRECTIONS

OFFICE OF STATE FIRE MARSHAL

COL. PAUL W. FONTENOT
DEPUTY SECRETARY

INTERPRETATIVE MEMORANDUM

TO: Fire Marshal Review Staff and
Inspection Personnel, Architects, Engineers
and Contractors

FROM: Jerry W. Jones, Chief Architect 

RE: Location of Smoke Detectors With Respect
to Ceiling Fans

Note: Issue was brought by the Louisiana Nursing
Home Association

DATE: April 20, 1994

A question has arisen regarding the location of smoke detectors in proximity to ceiling fans. NFPA 72 and 72E does not provide specific guidance concerning this issue. NFPA 72:5-3.6.1 (1993 edition) reads:

In spaces served by air handling systems, detectors shall not be located where air from supply defusers could dilute smoke before it reaches the detectors. Detectors shall be located to intercept the air flow toward the return air openings. This may require additional detectors, since placing detectors only near return air openings may lead the balance of the area with inadequate protection when the air handling system is shut down.

A-5-3.6.1 reads:

Detectors should not be located in the direct air flow nor closer than 3' from any air supply defuser.

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As you can see, this section does not specifically address smoke detector placement in close proximity to ceiling fans. However, Section 5-3.7.1 appears to address this issue. A5-3.7.1.1 reads:

The installation of smoke detectors shall take into consideration the range of environmental conditions present. Smoke detectors shall be intended for installation in areas where the normal ambient conditions are not likely to exceed the following:

- (a) A temperature of 100 degrees fahrenheit, or fall below 32 degrees fahrenheit; or
- (b) A relative humidity of 93%; or
- (c) An air velocity of 300 ' per minute.

Exception: Detectors specifically designed for use in ambients exceeding the limits of (a) through (c) and listed for the temperature, humidity, and air velocity conditions expected.

Table A-5-3.7.1.1 in the appendix indicates that air velocities higher than 300' per minute does not adversely affect photoelectric beam or air sampler detectors. Therefore, after discussing this issue with staff at the National Fire Protection Association, this office has made the following determination:

- 1. This office will allow fans to remain where photoelectric, beam or air sampling detectors are utilized.
- 2. Where ionization detectors are used;
 - (A.) The ionization detectors must be replaced with photoelectric devices (that are listed and where required compatible); or,
 - (B.) This office must require the facilities to document that fans will not produce air velocities in excess of 300' per minute or this office must require the facility to provide smoke detector manufacturer listing report indicating the detector is specifically designed and listed for air velocities in excess of 300' per minute.

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CLEANING OF DETECTORS - Detectors located in areas with ceiling fans must be cleaned more frequently than detectors that are not located in areas with ceiling fans. As a minimum, detectors located in areas with ceiling fans must be cleaned every six months. Where, in the opinion of the Fire Marshal Deputy Inspector shorter frequencies between cleaning are necessary, this office shall reserve the right to modify this minimum requirement and issue inspection orders accordingly.

JWJ/adg

cc: Charles E. Fredieu
Patricia Slaughter
Michael Cammarosano