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# Memorandum of Understanding

July 12, 2006

Local and state representatives from building, fire, and elevator codes departments and the sprinkler industry came together to discuss the concern about the use of isolated solenoid valves in sprinkler system branch lines serving elevator hoistways and machine rooms. The meeting was held at the Memphis Shelby County Department of Construction Code Enforcement building Thursday, April 20, 2006, at 8:30 a.m.

TN SFMO Representatives: Bud Fiedler, Dan Fitzgerald, Fred Garbler, Terry Singleton, and Tom Battle

It is agreed and understood that an automatic fire protection sprinkler system listed by a nationally recognized testing laboratory is to be provided for elevator machine rooms. No equivalent protection such as providing a fire rated enclosure whether it is 2-hour, 3-hour, or 4-hour is acceptable. When owners, designers, and codes enforcement officials mandate a dry type sprinkler system for sprinklering the bottom of the elevator hoistway and elevator machine room only a listed system such as a preaction sprinkler system is acceptable. This applies to new elevator installations in sprinklered buildings and existing building renovations affecting new or existing elevators with sprinkler systems.

The consensus of the meeting participants was to provide automatic sprinkler protection in the machine room and not use any alternate fire rated enclosure for equivalent protection. Apparently, according to one of the sprinkler contractor representatives, an NFPA 13 interpretation was issued that does not extend the electrical control room exception to elevator machine rooms (2-hour fire rated enclosure as exception to sprinkler protection (2002 NFPA 13 8.14.10.3)). Another concern is the hydraulic tank and pump assembly that is installed in an elevator machine room for hydraulic elevators. This would be another reason the electrical equipment room sprinkler exception would not apply.

The owner/architect/engineer has five options for sprinklering the elevator hoistway and machine room.

1. Listed sprinkler preaction system for both hoistway and machine room
2. Sidewall sprinkler head recessed into the wall for machine room
3. Recessed pendent sprinkler head in ceiling for machine room
4. Pendent sprinkler head with UL approved guard for machine room
5. Upright sprinkler head with UL approved guard for machine room

Elevator hoistways and machine rooms must be protected according to the code in fully sprinklered buildings. [2002 NFPA 8.14.5] Sprinkler protection at the top of the hoistway is not required when the hoistway is noncombustible and the car enclosure material meets finish criteria. [2002 NFPA 13 8.14.5.5] A sidewall sprinkler head is not required at the bottom of a noncombustible elevator hoistway except for hydraulic elevators. [2002 NFPA 8.14.5.2] It is our understanding that the elevator enforcement authorities require a sidewall sprinkler head at the bottom of any elevator hoistway to mitigate trash accumulation. Providing a wet head for this application is acceptable to them. The elevator machine room must be sprinklered to be a fully sprinklered building (no specific exception is provided). [2002 NFPA 13 8.1.1(1)]

It was clear from the meeting that isolated solenoid valves are not an acceptable equivalency for a preaction sprinkler system for sprinkler protection of elevator hoistways and elevator machine rooms. The isolated solenoid valve is not listed (2002 NFPA 13 6.1.1) for this application and is not supervised (2002 NFPA 13 8.15.1.1.2). The reason the isolated solenoid valve has been used is to provide a dry pipe system from the solenoid valve to the elevator hoistway and machine room. There have been actions by individuals in the past that have caused an accidental discharge of a sprinkler head in an elevator machine room which has caused elevators to malfunction (trapping occupants in between floors levels once the electrical shunt trip occurs or run away elevator in the hoistway).

A solenoid valve is used as a component of a sprinkler system preaction valve assembly and is included with the overall listing of a preaction valve system. There is no current listing yet available for an isolated solenoid valve used within sprinkler system piping that feeds an elevator hoistway or elevator machine room.

Local authorities can not adopt or enforce any ordinance prescribing less stringent standards of fire prevention, fire protection, or building construction safety. [Rule 0780-2-2-.05 Local Ordinances] A currently enforced Memphis/Shelby County ordinance (Chapter 30) mandating the use of isolated solenoid valves for elevator hoistways and elevator machine rooms became effective 1988. Memphis authorities did say that they would talk with administrators about changing the local ordinance so that it would meet the minimum code.

*Randy Safer*

Randy Safer, Director

*7-12-06*

Date