

YOU ASKED:

ARE "PURGE" OR "VENTILATION SYSTEMS" REQUIRED WHEN INSTALLING A CLEAN AGENT SYSTEM?

WHAT THE CODE SAYS

All jurisdictions within the State of Florida are currently enforcing the 2004 edition of *NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems* in accordance with the Florida Fire Prevention Code.

NFPA 2001 section 1.5.1.4.1*

"Suitable safeguards shall be provided to ensure prompt evacuation of and prevent entry into hazardous atmospheres and also to provide means for prompt rescue of any trapped personnel. Safety items such as personnel training, warning signs, discharge alarms, self contained breathing apparatus (SCBA), evacuation plans, and fire drills shall be considered."

NOTE: This section does not mention purge or ventilation systems. However, in Annex A the code states:

NFPA 2001 A1.5.1.4.1

"The steps or safeguards necessary to prevent injury or death to personnel in areas where atmospheres will be made hazardous by the discharge or thermal decomposition of clean agents can include the following:"

11 items are listed, we'll focus on #9

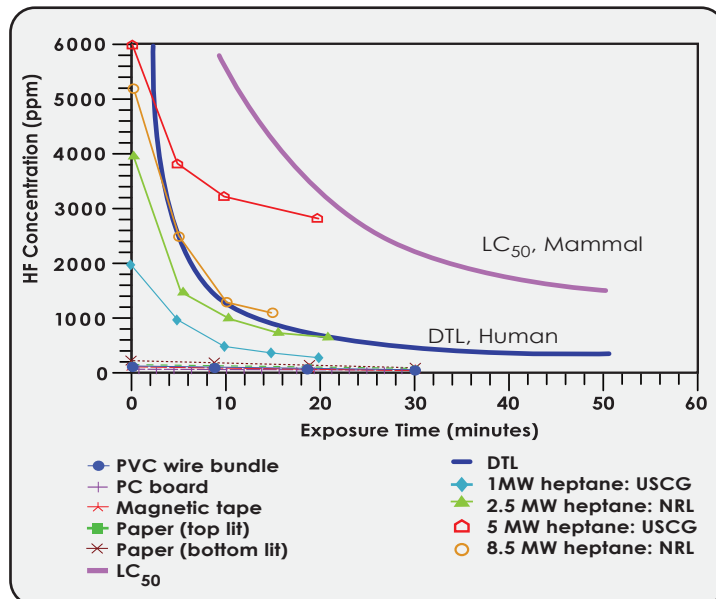
ITEM 9

"Provision of means for prompt ventilation of such areas. Forced ventilation will often be necessary. Care should be taken to rapidly dissipate hazardous atmospheres and not merely move them to another location."

WE ANSWER

Each protected hazard should be analyzed to determine if "atmospheres will be made hazardous by the discharge or thermal decomposition of clean agents." This is a seemingly difficult task. However, the code gives us some information which helps us analyze fires in telecommunication spaces and data centers, the most common hazards protected by clean agent systems. Section A.5.7.1.2 provides a long dissertation on the history and applicable research regarding the relationship between fuels, discharge time, agent concentration, and the production of decomposition products. Specifically, this section describes tests conducted by Hughes Associates, Inc. in 1995 to

NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems FIGURE A.5.7.1.2(b)



evaluate the thermal decomposition products produced in fires involving materials typically found in telecommunication and data center environments which are extinguished by HFC-227ea (FM-200). Figure A.5.7.1.2(b) shows the results of these tests.

The results clearly show that the only fires which produced potentially toxic levels of HF were Heptane fires, a Class B fuel. All the fires utilizing fuels commonly found in telecom and data center environments (wire, pc boards, paper, magnetic tapes, etc) produced HF levels significantly below levels considered toxic to humans. The authors of this study concluded that, "from an examination of the HF exposures, it is evident that this type of fire does not pose a toxic threat."

CONCLUSION

Therefore, we conclude unless a specific hazard exists which would make the atmosphere hazardous due to the discharge of the clean agent or the thermal decomposition of the clean agent (such as the presence of a class B fuel) purge systems are not required when installing a clean agent system.



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