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FIRE SAFETY/FIRE PROTECTION: THE HIGHLIGHT REEL (PART 1)

By Richard Schulte

"In a time of universal deceit, telling the truth is a revolutionary act."

George Orwell

Smoke/Heat Vents

An announcement of new research on the issue of the use of smoke/heat vents in buildings protected by a sprinkler system appeared in the **Summer 2006** issue of the AAMA newsletter, the **AAMAnet.work**. The following is an excerpt from the newsletter:

"To concretely demonstrate the value of S&HV in terms of property protection, occupant safety, firefighter safety, and firefighter effectiveness, AAMA's Smoke Vent Task Group (SVTG) has inked a contract with Hughes and Associates to conduct Large Eddy Simulation (LES) and Computational Fluid Dynamics (CFD) studies in cooperation with the University of Maryland and the National Institute of Standards and Technology. . ."

*"The concern remains that if C. Beyler is not willing to support the \$100K SVTG Modeling Study, then the study is **worthless**."*

On February 18, 2008, Hughes Associates, Inc. released a report titled "*Analysis of the Performance of Ganged Operation of Smoke and Heat Vents with Sprinklers and Draft Curtains*".

The following is an excerpt from the minutes of a Smoke Vent Task Group teleconference held on Tuesday, March 24, 2009 addressing the research on the concept of the "ganged" operation of roof vents in sprinklered buildings. (This excerpt is from page 128 of a document titled "**Minutes 2009 AAMA 72nd Annual Conference, February 22-25, 2009**". The document indicates that it has been revised to include additional teleconference minutes through May 11, 2009. It appears that this document can no longer be found on the internet.)

*“The concern remains that if C. Beyler is not willing to support the \$100K SVTG Modeling Study, then the study is **worthless**. The members questioned why no other groups, organizations, or Fire Protections [Protection] Engineers have come forward to defend the FDS program, particularly, Kevin McGratten [McGrattan], from NIST, who wrote the original version of FDS, and has been intimately involved in it since its development. B.Sampson will contact K. McGratten to obtain his thoughts on this.”*

“. . .The members questioned why no other groups, organizations, or Fire Protections [Protection] Engineers have come forward to defend the FDS program, particularly, Kevin McGratten [McGrattan], from NIST, who wrote the original version of FDS, and has been intimately involved in it since its development. . .”

Apparently, the AAMA Smoke Vent Task Group has yet to announce that the Hughes Associates, Inc. study which was *“to concretely demonstrate the value of S&HV in terms of property protection, occupant safety, firefighter safety, and firefighter effectiveness”* is *“worthless”*.

The reason why the study is *“worthless”* is because the fire model utilized in the study, the Fire Dynamics Simulator, has not been “validated” for the purposes used by Hughes Associates, Inc. In other words, Hughes Associates, Inc. improperly utilized the Fire Dynamics Simulator in the research on the concept of the “ganged” operation of smoke/heat vents.

An ethics complaint against Dr. Craig Beyler, regarding statements which he made addressing the issue of the “validation” of the Fire Dynamics Simulator in presentations on the Hughes Associates, Inc.’s study, was filed with the Society of Fire Protection Engineers (SFPE) in late July 2008. Eight months later, in April 2009, the SFPE found that there was insufficient “evidence” submitted to determine that Beyler had violated the SFPE Ethics Code. (In other words, he was found to be “not guilty” by the SFPE, but that’s different from being found to be “innocent”.)

As of today, we’re still waiting for the research which will *“concretely demonstrate the value of S&HV in terms of property protection, occupant safety, firefighter safety, and firefighter effectiveness”*. The reason why this research is necessary is because earlier research conducted at Underwriters Laboratories in 1997/1998 demonstrated that individually-activated smoke/heat vents are unlikely to open in buildings protected by spray sprinklers. It appears that water spray collects on the activating mechanism of the vents preventing the vents from opening when sprinklers are activated.

New provisions in the 2010 edition of NFPA 13 have been specifically included in the sprinkler standard to prevent the automatic operation of smoke/heat vents in buildings protected by a sprinkler system. These new provisions in NFPA 13 make the installation of smoke/heat vents “*worthless*” in sprinklered buildings, if the sprinkler system successfully controls the fire. (Provisions contained in NFPA 204 specifically indicate that smoke/heat vent systems provided in sprinklered buildings should be designed based upon the assumption that the sprinkler system will successfully operate.)

Why are we still talking about using smoke/heat vents in sprinklered buildings based upon the above? The Smoke Vent Task Group, the trade association which represents smoke/heat vent manufacturers, has retained the services of “high-powered” (and “highly-paid”) consultants, namely Dr. Craig Beyler, William Koffel and Rick Thornberry, to make sure that the code provisions which mandate the installation of smoke/heat vents in one-story industrial and storage buildings are not removed from the International Building Code and International Fire Code. So far, Beyler, Koffel and Thornberry have been successful in their efforts.

Do smoke/heat vents really work in sprinklered buildings? Of course not. We’ve known that sprinkler activation prevents the opening of individually-activated smoke/heat vents since 1998. That’s why Beyler/Hughes Associates, Inc. proposed the “ganged” operation of roof vents.

Some consultants will say anything for a few hundred thousand dollars a year, not that the highly-paid consultants mentioned above would do that. Beyler, Koffel and Thornberry are “true believers” when it comes to the use of smoke/heat vents in sprinklered buildings and no amount of money would influence their opinions on this subject.

One has to wonder how much capital has been wasted on installing smoke/heat vents in sprinklered industrial and storage buildings in the last 30 years. Just a guess, but \$30 billion would probably be a low estimate. That’s enough money to prevent both the State of Illinois and the City of Chicago from declaring bankruptcy in 2011.

You would think that more people in the fire protection field would speak up about this smoke/heat vent nonsense. It is interesting to note that NFPA 5000 does not include provisions which require smoke/heat vents in sprinklered buildings. You can’t help but wonder why.

One final thought, at least for today, regarding the issue of the use of smoke/heat vents in industrial and storage buildings protected by sprinklers. There is a difference between the ethical standards in the legal profession and every other profession. The legal profession is required to represent every client, regardless of merit. What is considered to be ethical conduct in the legal profession is considered to be unethical in every other profession. Not every client is entitled to representation by an engineer. From an ethical standpoint, engineers are expected to represent “hard facts”, not simply a client’s interests. Testimony and representations regarding a particular product are required to be factual. While the “twisting of facts” is considered to ethical behavior in the legal profession, the “twisting of facts” or “out-and-out” misrepresentation of facts is not ethical conduct for an engineer-not that this last comment would apply to anyone mentioned above.

This last comment is sort of like asking the question “*when did you stop beating your wife?*”. Oh well, to quote a famous attorney, Johnnie Cochran, “*if it doesn’t fit, you must acquit*”. Of course, if the glove does fit, then just maybe you did it.

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