International

SprinklerScene

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IFSA Elects New Officers; Supports European Initiatives

The International Fire Sprinkler Association (IFSA) held its 5th Annual Meeting in Dallas, Texas, USA, on 19 May 2003. Like the IFSA's inaugural meeting on 18 May 1999, this meeting was held in conjunction with the annual meeting and exhibition of the NFPA.

Torsten Habeck of Minimax in Germany was elected to a 2-year term as Chairman, with Nick Groos of the Viking Corporation in Luxembourg elected Vice-Chairman. Bob Brinkman of Tyco Fire & Building Products was elected Treasurer. The Board also designated Managing Director John Viniello, Tony Ackland of Kidde, and Nick Groos of Viking as ISFA representatives to the European Fire Sprinkler Association.

Organized to foster the formation and growth of national and regional organizations that can promote the fire sprinkler concept around the world, it was recognized that the IFSA has distributed nearly one million US dollars in funding in its first five years of operations.

Among its activities at the 5th Annual Meeting were the awarding of grants to the Fire Sprinkler Association (FSA) in the United Kingdom and the European Fire Sprinkler Network (EFSN). The FSA is the result of a recent merger between the Residential Sprinkler Association and the Association of Fire Protection Engineers, and is headed by Sir George Pigot. The EFSN, which named Alan Brinson its Executive Director earlier this year, was founded in 2002 by IFSA in conjunction with the Sprinkler Section of Eurofeu, and is intended to allow private and public entities to work together to:

- Educate and inform the general public, local authorities, national governments and European institutions about the effectiveness of fire sprinklers
- Campaign for greater use of fire sprinklers in both new and existing buildings, including promotion of appropriate legislation to accomplish this goal
- Promote the benefits of a coordinated effort within the fire protection community
- Encourage research and development in the area of fire sprinkler performance and application

At its Annual Meeting, the IFSA Board also set the date for the 5th International Fire Sprinkler Conference, to be held 8-9 July 2004 in Berlin, Germany. Additional information and registration materials will be available later in the year at the IFSA website www.sprinklerworld.org.

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P.O. Box 1000 ● 40 Jon Barrett Road ● Patterson, NY 12563 U.S.A. ● (845) 878-4200 ● FAX (845) 878-4215

Mist Conference Focuses on New Technologies and Techniques

On 24-27 February 2003, the Center for Commercial Applications of Combustion in Space, Hughes Associates, the International Water Mist Association and the U.S. Navy Technology Center sponsored a "Workshop on Fire Suppression Technologies" in Mobile, Alabama. Topics that were discussed during the conference included fine water spray properties, fire suppression modeling, current water mist testing, the cutting edge of mist research, and system additives.

New technology concepts included a portable water-mist extinguisher patented by the National Research Council of Canada, a nano-scale water mist technology using very fine (1 to 5 micron diameter) droplets produced by ultrasound by NanoMist Systems, LLC, and ice mist, a technology developed by ICE-TEX using a suspension of very small ice crystals in a water mixture, with a cooling capacity claimed to be six times that of water alone.

Dr. André W. Marshall of the University of Maryland presented "An Analytical Model for Predicting Initial Spray Properties from Liquid Suppression Devices", discussing a sprinkler atomization model that can predict initial drop size, drop velocity and drop location distributions. The model has been shown to be consistent with experimental data from actual sprinklers. If this model can be applied to computational fluid dynamics (CFD) models that are currently modeling the fire side of a scenario, it promises to more accurately predict fire control and suppression.

The U.S. National Institute for Occupational Safety and Health (NIOSH) reported mist testing simulating an underground mine diesel fuel storage area, with unobstructed and obstructed diesel fuel pool fires ranging from 0.5 MW to 3 MW. The larger unobstructed fires were more easily extinguished. The obstructed fires proved to be a challenge to the water mist system, which had droplets in the 200 to 400 μm range, and the fires were generally controlled rather than extinguished.

"Update on AFFF Environmental Issues" provided a current view on where the testing and evaluation of Aqueous Film Forming Foam stands. The 3M Company has pulled their AFFF product off of the market as it contained a toxic element, called PFOS (perfluoroctyl sulfonate). All other AFFF foams use a telomerization process. A multi-year study of the environmental effects and toxicity of telomers was initiated by telomer manufacturers in August of 2000. At this time AFFF still meets the requirements of the U.S. Environmental Protection Agency (EPA), although the test series is not yet complete.

Two panel discussions took place in the last lecture session of the conference. The first was a comparison of low pressure and high pressure water mist systems. The panel was evenly split as to which type they preferred, but most answers were dependant upon the application of the system. The second panel discussion was on future directions for water mist systems, and brought up numerous potential applications. The main determination was that more research will be the first step to any new applications. Another point was the lack of history for water mist systems. Recognizing that the earliest installed systems are now approaching 10-12 years in service, it was resolved that data needs to be collected on system activations.

World Sprinkler News

UK Architects Held Liable for Poor Fire Protection – While the specific amount of damages remain to be set, a judgment has been announced against an architectural firm in relation to a 1998 fire in the United Kingdom that resulted in a loss of £17,000,000. The firm was charged with specifying the use of combustible core composite construction panels for interior partitioning that, in combination with cooking equipment, posed a foreseeable and avoidable risk of fire spread. The architects were held liable for all damage outside the immediate area of the fire despite the fact that there was no alleged breach of building regulations.

BASA Ends Merger Talks – The British Automatic Sprinkler Association (BASA) released a statement expressing regret and sadness over the inability of various groups to reach an agreement for full sprinkler industry unity in the UK.

Chinese Hotel Fire Claims 33 – A fire starting in a restaurant in the Tiantan Hotel in the town of Harbin in Northeast China on 2 February 2003 resulted in 33 deaths. The fire is believed to have been started by an employee trying to refuel a stove with kerosene. More than 300 guests were present celebrating the Chinese New Year. No sprinkler protection was provided.

New Swedish Navy Stealth Ships Use Water Mist – Five carbon fiber-reinforced plastic ships being built by the Swedish Navy for a range of missions from submarine hunting to mine sweeping are being equipped with small-bore stainless-steel water mist systems. The systems protect living quarters using a pressure of 120 bar and a flow rate per nozzle of 16 lpm.

British Developing New Sprinkler Protection Criteria –The British Research Establishment (BRE) is conducting research aimed at recognizing the use of K-115 sprinklers with a coverage area of 16 m^2 and maximum spacing of 4.2 m for protection of Ordinary Hazard Group 3 risks. This would be an alternative to the present use of K-80 sprinklers with a coverage area of 12 m^2. Testing to date has shown similar operating times but improved fire control. The hazard category includes rack storage of Category 3 goods (including most plastics) up to 1.7 m (5 ft) in height. The new extended coverage K-115 sprinklers will be required to provide a suppression-oriented application rate of 10 mm/min (0.25 gpm/ft^2) to the most remote four sprinklers, but will also involve a second design point for a lesser degree of fire control over a larger area of sprinkler operation. The protection method will be introduced in an LPC Sprinkler Rules Technical Bulletin late in 2003.

Swedish Tests Suggest Use of Beams in Rack Storage Protection – Scale model (1:5) testing of rack storage conducted at the Swedish National Testing and Research Institute (SP) suggests that the distance between the top of goods stored and the ceiling is an important factor in determining the rate of spread of flames between racks. Flames reaching the ceiling are deflected to the side and increase the radiation to the top of adjacent racks. The fastest spread was observed with a distance equivalent to 3 m in full scale. With a distance representing only 1 m, the fire did not spread as quickly due to the fact that combustion was less complete when the flames reach the oxygen-depleted layer of gases formed below the ceiling. The modeling work, funded by the Swedish Fire Research Board, is also exploring the use of beams to deliberately channel the hot gases, operating sprinklers parallel to the racks quickly while delaying the spread of hot gases to adjacent racks.

Growth in Fire Protection Computer Models – A survey published in the Society of Fire Protection Engineers' *Journal of Fire Protection Engineering* updates a 1992 effort to catalogue various computer models for fire and smoke. The original survey identified 74 programs, while the new effort lists a total of 130 models produced in 16 different countries. These include 48 zone models for compartments, 17 field models, 8 detector response models, 16 egress models, 22 fire endurance models, and 19 miscellaneous models.

British Firefighter Dispute Ended – The 10-month dispute over pay and modernization has ended for British firefighters, with a 3-1 vote by members of the UK Fire Brigades Union voting to accept an offer on 12 June 2003.

Few Sprinklers in São Paulo High Rises – A review of fire department statistics in São Paulo, Brazil for the years 1996-2000 showed that only 3 of 30 nonresidential high-rise (over 23 m) buildings were equipped with sprinkler protection. Almost all (28) had fire extinguishers and 25 had hydrant (standpipe) systems.

Scandinavian Labs Skirmish Over Mist Testing – The Swedish laboratory SP and the Finnish laboratory VTT are at odds over testing of water mist systems. In an article published in the February 2003 issue of *International Fie Protection*, SP representatives argued that time to extinguishment was a poor measure of water-based fire protection systems due to lack of repeatability and the fact that some free-burning fires may self-extinguish faster than they can be suppressed. SP proposed an evaluation of mixing, inerting and cooling properties. VTT has responded in the May issue of the same magazine by criticizing the SP proposal, noting that it was developed on the basis of pool fires rather than the more common spray fires, and that the lack of emphasis on extinguishment takes away an advantage that high pressure mist systems have over low pressure water mist and water spray systems. VTT notes that the self-extinguishment problem only exists with unvented fires, and that fire suppression systems that can prove their effectiveness in ventilated enclosures possess an important safety factor for use in real fires.

Upcoming Meetings, Seminars, and Exhibitions of Interest

22-24 July 2003 – 3rd Annual Americas' Fire Expo, Miami, Florida, USA, National Fire Protection Association, (www.nfpaamericasfire.com)

22-24 September 2003 – 3rd International Water Mist Conference, Madrid, Spain, International Water Mist Association, www.iwma.net

20-21 November 2003 – International Conference on Fires in Tunnels, SP, Borås, Sweden. Contact katja.carlsson@sp.se.

4 December 2003 – Meeting of IFSA Board of Directors, Brussels, Belgium

8-9 July 2004 – 5th International Fire Sprinkler Conference, Berlin, Germany, IFSA (www.sprinklerworld.org)