

SprinklerScene

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New Worldwide Interest in Domestic Sprinklers

New interest in domestic (residential) sprinklers is surfacing around the world, evidenced by the development of new installation standards. The latest effort is in England, where the Institute of Plumbing is proposing a new standard to replace Technical Bulletin TB14: 1990:1 of the Loss Prevention Council (LPC). Noting that 75 percent of the loss of life due to fire is in the domestic dwelling, they are asking the British Standards Institution (BSI) to develop a new sprinkler standard "for dwelling houses, flats and transportable homes." The effort is also being supported by a new British organization named the Residential Sprinkler Association.

The draft of the proposed new standard (DSSG1: Rev 4) calls for fast response sprinklers and substantially reduced water supplies, as little as 25 lpm (6.6 gpm) for any single sprinkler and 30 lpm (7.9 gpm) for two sprinklers operating simultaneously in a single compartment. By way of contrast, the lowest flow residential sprinkler currently recognized by Underwriters Laboratories requires 38 lpm (10 gpm) for one sprinkler and 61 lpm (16 gpm) for two sprinklers in an NFPA 13D application. The current LPC standard TB14 calls for a minimum of 60 lpm (15.8 gpm) for a single sprinkler and 84 lpm (22.2 gpm) for two sprinklers operating simultaneously.

In the United States, the first edition of NFPA 13D was published in 1975. It relied on existing sprinkler technology, but focused on cost cutting as the means to encourage system installation in private homes. It was not until the second edition of the standard was issued in 1980 that research had led to the development of the fast response residential sprinkler. The improved protection offered by the new technology caught the attention of the fire service and other key decision makers, and led to the adoption of residential sprinkler ordinances in progressive communities scattered across the U.S. In 1989, responding to popular demand for a similar life-safety oriented standard for multiple dwellings; the NFPA Committee on Automatic Sprinklers produced the first edition of NFPA 13R, *Sprinklers for Residential Occupancies up to Four Stories in Height*.

Several other countries have addressed domestic sprinkler installation standards. In 1992, the Australian Fire Protection Association and the Australian Assembly of Fire Authorities jointly published two "Codes of Practice" covering installation of sprinkler systems in residential occupancies, based largely on NFPA 13D and NFPA 13R. In 1995 these two codes of practice were replaced by Standards Australia with the publication of AS 2118.4 - Residential Sprinklers. New Zealand also writes its own standard NZS 4515 as an adaptation of NFPA 13R, applicable for use in residential facilities not exceeding 2000 m² on one or more levels, but no more than four stories total. Several years ago the National Fire Protection Association authorized a translation of NFPA 13R into Swedish, in recognition of its use in that country. The Norwegian Fire Protection Association is currently seeking permission to translate NFPA 13R into Norwegian as well.



Other Developments in Domestic Sprinklers

International Product Standard - Subcommittee 5 of the International Standards Organization's Technical Committee 21 on fire-fighting equipment (ISO/TC21/SC5) has been preparing a sprinkler product standard addressing domestic sprinklers. Working from a draft based on UL 1626, the subcommittee reviewed comments from participating countries at its meeting in London in June of 1997. Modified as a result of those comments, the draft is currently being translated into French, following which time it will be balloted as a Draft International Standard by the ISO member countries.

Home Fire Safety Coalition - In the United States, the National Fire Sprinkler Association has teamed up with the National Fire Protection Association and the American Fire Sprinkler Association to form a Home Fire Sprinkler Coalition. The coalition is working to educate the public about the benefits of domestic fire sprinklers, and has selected the State of Connecticut as a starting point for its efforts. An ambitious statewide publicity campaign is planned, involving residents who have had personal experience with fires and domestic fire sprinklers. The program will include the development of radio public service announcements, video news releases, and a wide variety of printed materials. The coalition recently funded a Home Fire Safety Awareness survey of 200 single-family homeowners in Connecticut, conducted by Burke Marketing Associates. The survey showed that 70% of homeowners feel that they are not at much of a risk from fire, even though 10% have experienced a fire in their homes serious enough to call the fire department. Although 93% indicated they had smoke detectors in their homes and 54% owned at least one fire extinguisher, only 4% reported having an in-home sprinkler system. More than half (62%) of the respondents were not aware that fire sprinkler systems for the home were available. Of the 41 respondents who had been involved with the building of their homes, only one claimed to have been offered an in-home sprinkler system.

Scottsdale Report - The City of Scottsdale, Arizona has published the results of a ten-year study on the effectiveness of its fire sprinkler ordinance, which has required sprinklers in all new construction, including single-family homes, since January of 1986. The study, published by the Home Fire Sprinkler Coalition and summarized in the July/August issue of the *NFPA Journal*, provides a history of the enactment of the local requirements, a look at the cost of system installations over the 10-year period, and the effectiveness of the requirements in reducing fire losses. Some of the highlights:

- Scottsdale experienced a growth in population of more than 50% over the 10-year period.
- The city experienced 598 fire incidents in residential structures during the 10-year period, with 44 incidents (7.35%) resulting in sprinkler activation. Forty-one of the 44 incidents (93%) were controlled by one or two sprinklers. There were no deaths in any of the fires with sprinkler systems.
- Scottsdale has approximately 25% of the property loss due to fire of other cities of approximately equal populations.
- The average loss from a fire in a sprinklered property was \$1,544 as compared to \$11,624 in a nonsprinklered property.
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- The cost of installing residential sprinklers in production homes has decreased from \$1.14 per sq ft (\$12.27/m²) in 1986 to \$0.59 per sq ft (\$6.35/m²) in 1996.

World Sprinkler News

- ◆ Plans are proceeding for the 3rd International Fire Sprinkler Conference, scheduled for July 1-3, 1998 in Glasgow, Scotland. Sponsored by the British Automatic Sprinkler Association (BASA), the Canadian Automatic Sprinkler Association (CASA) and the National Fire Sprinkler Association (NFSA), the event will begin with a reception the evening of July 1st. A two-day speaker program will focus on the development of new sprinkler markets and the role of new sprinkler technology. The evening of July 2nd will feature a reception at Stirling Castle, as seen in the film *Braveheart*. Previous international sprinkler seminars were held in Edinburgh, Scotland in 1990 and in Kuaii, Hawaii in 1994.
- ◆ The need for fire sprinklers in supermarkets and superstores was raised in a maiden speech in British Parliament on July 30, 1997. The new Labour MP for Gloucester, Tess Kingham, called for mandatory installation of sprinklers in all new warehouse-style, single-story buildings over 2,000 m² (20,000 ft²) used for commercial purposes.
- ◆ The NFPA Committee on Automatic Sprinklers has been replaced by four separate technical committees reporting to a correlating committee. The four committees will address Hanging and Bracing of Water-Based Systems, Residential Sprinkler Systems, Sprinkler System Discharge Criteria, and Sprinkler System Installation Criteria. The restructuring is part of a plan to incorporate standards 24, 231 and 231C within the next edition of NFPA 13, producing a more comprehensive design and installation standard. The first committee meetings for the restructured project were held in early November, beginning work on what is expected to be the 1999 edition of the sprinkler rules. Although the new committees are mainly comprised of representatives of U.S. interests, there are also members from Australia, Canada, France and the United Kingdom.
- ◆ NFSA member sprinkler manufacturers report that, while the total number of sprinklers installed per year in the United States increased 25% between 1987 and 1997, the number of quick response and residential sprinklers installed each year increased over 400% during the same 10-year period. Specific totals are not available. The manufacturers attribute the trend to both the growth of the residential sprinkler market and the increased requirements and incentives for the use of the new technology fast response sprinklers, both in building codes and the NFPA 13 installation standard.
- ◆ The fire sprinkler industry in Norway received new sprinkler rules this year from its insurance authorities. More than 90% of the new rules track those in the new national standard (NS pr. EN 12845), common to the European community.
- ◆ A new U.S. government report entitled "Analysis of High Bay Hangar Facilities for Fire Detector Sensitivity and Placement" indicates that 175°F (79°C) quick response sprinklers used as part of a closed-head sprinkler system could be as effective as a deluge system, without the problems of potential false alarms. The study, which involved 33 full-scale experiments in hangars, was a joint effort of the National Institute for Standards and Technology (NIST) and the Naval Facilities Engineering Command (NAVFAC). The quick response sprinklers activated faster than would have been predicted by unconfined ceiling zone models. The report recommends that NFPA 409 be reevaluated as a result of the tests. The report, NIST TN 1423, is available from the US Government Printing Office, Washington, DC, 20402.

- ◆ The British Standards Institution has published a new guide to the application of fire safety engineering principles as DD240: Part 1: 1997. A review of the guide published in the August 1997 issue of *Fire Safety Engineering* suggests that its strengths and weaknesses will only become apparent after its extensive application in the field, but that it promises to “ultimately become the world’s leading fire safety standard”. The guide is available for the price of £43.25 for members and £86.50 for non-members. A commentary on the equations given in Part 1 is available as DD240: Part 2: 1997 for the price of £13.00 for members and £26.00 for non-members. Orders can be faxed to BSI Customer Services at 44-1-81-996-7001.
- ◆ The U.S. Coast Guard has submitted an information paper for December’s 42nd session of the International Maritime Organization’s Subcommittee on Fire Protection, describing recent Underwriters Laboratories testing of a dedicated window sprinkler arrangement. The SOLAS Regulation II-2/33.3 gives credit to such protection, but does not define test requirements.

Upcoming Meetings, Seminars and Exhibitions of Interest

- December 3-6, 1997 - Security Brazil '97, ITE Security & Fire Safety Division, Rio de Janeiro, FAX + 44 171 286 0177.
- February 25-27, 1998 – Second Fire Suppression and Detection Research Application Symposium, National Fire Protection Research Foundation, Orlando, Florida, USA, FAX 1-617-984-7030.
- May 18-21, 1998, NFPA Annual Meeting and Exhibition, Cincinnati, Ohio, USA FAX 1-617-984-7030.
- May 27-29, 1998, 25th Meeting of Subcommittee on Sprinkler and Water Spray Equipment (ISO TC21/SC5), Quincy, Massachusetts, USA, FAX 716-770-3000.
- July 1-3, 1998 - 3rd International Fire Sprinkler Conference, Glasgow, Scotland, UK, NFSA/CASA/BASA, FAX 1-914-878-4215.
- September 16-20, 1998 – NFSA Annual Seminar, San Antonio, TX, USA, FAX 1-914-878-4215.

A Fire Sprinkler Legend Passes On

On October 1, 1997, Harry Marryatt, the founding Chairman of the Australian Fire Protection Association, passed away at age 90 as a result of a stroke. A long-time employee of the Wormald Company, he was an innovator and leader in the fire sprinkler industry. He was a fellow of the Society of Fire Protection Engineers, and a life member of both the Australian Fire Protection Association and the National Fire Protection Association. He is perhaps best known internationally for his book *Fire – Automatic Sprinkler Performance in Australia and New Zealand 1996-1968*, and its sequel *Fire – A Century of Automatic Sprinkler Protection in Australia and New Zealand 1886-1986*. This compilation of sprinkler performance data has advanced the recognition of fire sprinkler reliability worldwide. His many contributions to the cause of automatic fire sprinkler protection will long be appreciated.