

Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems





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NFPA® 16

Standard for the

Installation of Foam-Water Sprinkler and Foam-Water Spray Systems

2019 Edition

This edition of NFPA 16, *Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems*, was prepared by the Technical Committee on Foam-Water Sprinklers and released by the Correlating Committee on Automatic Sprinkler Systems. It was issued by the Standards Council on May 5, 2018, with an effective date of May 25, 2018, and supersedes all previous editions.

This edition of NFPA 16 was approved as an American National Standard on May 25, 2018.

Origin and Development of NFPA 16

The first standard involving foam-water sprinkler systems was published in 1954 by the National Board of Fire Underwriters (now American Insurance Association) and was titled *Standard for Combined Foam- and Water-Spray Systems.* The NFPA Technical Committee on Foam-Water Sprinklers was established in 1959 with assistance from the NBFU. The first edition of this standard was published in 1962.

Various updates to the standard were completed in 1968, 1974, 1988, and 1990. Changes were made to recognize the use of new foam concentrates and to improve the language and format of the document.

The 1995 edition included clarification of the scope of the standard, improvements to the hydraulic design criteria, and recognition of a fourth proportioning method.

The 1999 edition combined NFPA 16 and NFPA 16A into one comprehensive document. Numerous editorial changes also were instituted.

The 2003 edition was reformatted to conform to the *Manual of Style for NFPA Technical Committee Documents* and was revised to recognize the use of different types and brands of foam concentrate.

The 2007 edition of the standard was revised to coordinate definitions and requirements for fire department connections and underground pipe with those of other documents.

The 2011 edition was updated to clarify the criteria for acceptance testing of the concentration of foam to specific tolerance ranges.

The standard clarified that the orifice indicator tabs or nameplate must be permanently marked. The 2011 edition also made the hose stream allowance consistent with NFPA 13, *Standard for the Installation of Sprinkler Systems*. In addition, the alcohol-resistant foams did not follow the Darcy-Weisbach formula because they are non-Newtonian fluids, and a change was made to consult the manufacturers regarding friction loss.

The 2015 edition of NFPA 16 updated several definitions for foam water system types, including foam-water sprinkler system, foam-water deluge system, foam-water dry pipe system, and foam-water preaction system. The strainer and galvanized piping C-factor requirements were revised to correlate with NFPA 13. Multiple changes were made to the standard from a system acceptance perspective. Language was added to the acceptance testing criteria to confirm that the proportioning system meets the actual calculated system discharge demand at the most remote four sprinklers. Finally, the Contactors Material and Test Certificate from NFPA 13 was added for correlation purposes.

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The 2019 edition of NFPA 16 was reorganized in a fashion consistent with that of the 2019 edition of NFPA 13 — to present information in the order in which it is needed when planning and designing a foam water sprinkler/spray system. Technical changes include the addition of requirements for working drawings using information from both NFPA 11 and NFPA 13 to provide a comprehensive list of information. Information about the type of foam concentrate piping was extracted from NFPA 11 to be consistent with that standard. Information was also extracted from NFPA 30 to address containment, drainage, and spill control.

2019 Edition

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