NFPA®

87

Standard for Fluid Heaters

2018

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NFPA® 87

Standard for

Fluid Heaters

2018 Edition

This edition of NFPA 87, *Standard for Fluid Heaters*, was prepared by the Technical Committee on Fluid Heaters. It was issued by the Standards Council on August 1, 2017, with an effective date of August 21, 2017, and supersedes all previous editions.

This edition of NFPA 87 was approved as an American National Standard on August 21, 2017.

Origin and Development of NFPA 87

The 2011 edition of NFPA 87 was the first edition of the document. In 2006, the Standards Council authorized the Technical Committee on Ovens and Furnaces to begin work on a new recommended practice on process heaters. The task force formed by the committee to develop the recommended practice comprised members of the Technical Committee on Ovens and Furnaces (NFPA 86, *Standard for Ovens and Furnaces*) and fire safety professionals from the community of fluid heater users and manufacturers.

The need for NFPA to develop a document on fluid heaters became apparent over a number of years as NFPA received requests for interpretation as to whether fluid heaters were covered by any existing NFPA codes and standards. The Technical Committee on Boiler and Combustion Systems specifically excludes process heaters used in chemical and petroleum manufacture from coverage by NFPA 85, *Boiler and Combustion Systems Hazards Code*. NFPA 86 does not exclude process heaters, but the Technical Committee on Ovens and Furnaces recommended the development of a new document that recognizes that process heaters are fundamentally different from ovens and furnaces.

NFPA 87 incorporates many safety recommendations that are consistent with requirements in NFPA 86 and NFPA 85, especially those related to hazards associated with the combustion of gaseous and liquid fuels. Additional recommendations have been added to NFPA 87 that address unique hazards associated with the combustible fluids being heated in these systems (e.g., pressure containment, flow and temperature monitoring, and mitigation of accidental fluid releases).

The 2015 edition of NFPA 87 included several changes to Chapter 3 due to the addition of definitions for *burner management system (BMS)* and *emergency shutoff valve (ESOV)* and other updates to definitions for consistency with NFPA 86. Changes to Chapter 6 intended to make the document consistent with NFPA 86 included ESOV requirements, emergency isolation valves, and overpressure protection. The Committee added procedures for placing equipment into service based on purging practices in NFPA 54 and the new NFPA 56. The committee added a requirement prohibiting manifolding vent lines from different pressure levels based on NFPA 85. As a result of introducing definitions for BMS and combustion safeguard, the committee modified requirements for logic systems for both BMS logic and PLC systems. The committee completely revised requirements for Class F heaters in Chapter 9 and added new content for Chapters 10 and 11 on Class G and H heaters, respectively.

For the 2018 edition, NFPA 87 has transitioned from a recommended practice to a standard. After development of the document for two revision cycles, the technical committee decided the document was prepared to move from recommendations to requirements. During this process, several changes have been made to facilitate its use as a standard. The committee added nine new definitions to Chapter 3, extracted from NFPA 86, including *self-piloted burner*, *line pressure regulator*, *monitoring pressure regulator*, *series pressure regulator*, *service pressure regulator*, *flame rod*, *flame detector*, *supervised flame*, and *flame failure response time (FFRT)*. A definition for *authorized personnel* has been modified from NFPA 1901, and *qualified personnel* has been modified from *NFPA 70*.

In addition, the three types of heaters previously referenced in NFPA 87 (i.e., Class F, G, and H) have been combined into one chapter due to the similarity of the requirements for all three classes of heaters. Fluid mixture changes now need to be in accordance with heater manufacturers' recommendations, fluid manufacturers' recommendations, or third-party approved by the AHJ. Fluid type changes need to be in accordance with heater manufacturers' recommendations or third-party approved by the AHJ. New provisions in 8.2.9 require the use of two manual hardwired emergency switches — one located remotely and one located locally in reference to the fluid heater. Requirements in 8.5.2.5 now address the issue of false flame signal for flame sensing technologies. The PLC software section has been altered to now refer to the PLC logic programming instead of the general term *software*.

Finally, interlocks previously found in Chapter 9 have been moved to Chapter 8 with the other system interlocks. Chapter 9 now allows secondary catch/storage tanks, and safety PLC requirements have been aligned with NFPA 86. A new requirement for blanket gas low-pressure proving devices also has been added.

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