

NFPA®

160

Standard for the
Use of Flame Effects
Before an Audience

2021



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NFPA® 160

Standard for the

Use of Flame Effects Before an Audience

2021 Edition

This edition of NFPA 160, *Standard for the Use of Flame Effects Before an Audience*, was prepared by the Technical Committee on Special Effects. It was issued by the Standards Council on March 15, 2020, with an effective date of April 4, 2020, and supersedes all previous editions.

This edition of NFPA 160 was approved as an American National Standard on April 4, 2020.

Origin and Development of NFPA 160

NFPA 160, *Standard for Flame Effects Before an Audience*, was developed by the Technical Committee on Special Effects, which was established in 1994 in response to a recognized need for a document to provide guidance to public safety officials, designers, and operators of flame effects. The purpose of this standard is to provide requirements for reasonable protection for viewing audiences and performers of flame effects. The first edition of the standard was 1998.

For the 2001 edition, the Committee completed a partial revision of the standard. Revisions included amendments to standardized definitions, harmonization with the pyrotechnics special effects document, and editorial changes according to the *Manual of Style for NFPA Technical Committee Documents*.

The 2006 edition included a complete revision of the standard by the Committee. Key changes found in the 2006 edition included revisions to Chapter 3, Definitions; clarification of the document applicability by modifying the document title; definitions for temporary and permanent installations to correlate with the effect classifications based upon those terms; a new requirement for inspection intervals; and a new Annex C on inspection guidelines.

The 2006 edition of the standard also incorporated editorial changes according to the *Manual of Style for NFPA Technical Committee Documents*.

The 2011 edition of the standard incorporated amendments to the application section to clarify that NFPA 140, *Standard on Motion Picture and Television Production Studio Soundstages, Approved Production Facilities, and Production Locations*, applies to flame effect use when no audience is present. The Committee added definitions for the terms *performer* and *support personnel* extracted from NFPA 1126, *Standard for the Use of Pyrotechnics Before a Proximate Audience*, for consistency between the special effects documents. Requirements for development and approval of the flame effects plan were included. The Committee revised the separation distance requirements to eliminate the thermal flux provision and retain the skin surface temperature requirements. The skin surface temperature is based on a test method that can be more easily performed in the field.

The 2016 edition of NFPA 160 defined *hybrid flame effect* and added requirements for its use. The 2016 edition also indicated which portions of hybrid flame effects are covered by NFPA 160 and which are covered by NFPA 1126, since both documents apply, and added explanatory annex material to provide further guidance on the simultaneous application of NFPA 160 and NFPA 1126. In addition, the 2016 edition clarified that the use of ground-based effects utilizing explosives, liquid fuels, or other combustibles in air show environments is not covered by NFPA 160 and provided a reference for the use of such effects.