

SUBCHAPTER C. STANDARDS AND FEES FOR STATE FIRE MARSHAL INSPECTIONS
DIVISION 1. GENERAL PROVISIONS
28 TAC §34.303

SUBCHAPTER E. FIRE EXTINGUISHER RULES
28 TAC §34.507

SUBCHAPTER F. FIRE ALARM RULES
28 TAC §34.607

SUBCHAPTER G. FIRE SPRINKLER RULES
28 TAC §34.707

INTRODUCTION. The Texas Department of Insurance (TDI) proposes amendments to 28 TAC §§34.303, 34.507, 34.607, and 34.707. The proposed amendments primarily update various National Fire Protection Association (NFPA) code standards that are adopted by reference in the noted rules. Specifically, the amendments to Section 34.303 update the NFPA Fire Code and Life Safety Code; the amendments to Section 34.507 update 14 NFPA codes that establish standards related to fire extinguisher systems; the amendments to Section 34.607 update 17 NFPA codes that establish standards related to fire alarm and fire detection systems; and the amendments to Section 34.707 update 16 NFPA codes that establish standards related to fire protection sprinkler systems.

EXPLANATION. Under Government Code §417.008(e), the Commissioner may adopt by rule any appropriate standard developed by a nationally recognized standards-making association under which the state fire marshal may enforce state laws related to firefighting, fire prevention, and inspection of dangerous conditions. The NFPA is a nationally recognized standards-making association, and the State Fire Marshal's Office (SFMO) has relied on NFPA codes since at least the 1990s. *See, e.g.,* 21 TexReg 1286 (adopting the 1994 edition of the NFPA Life Safety Code). Insurance Code Chapters 6001, 6002, and 6003 also specifically authorize the Commissioner to adopt NFPA code

standards applicable to fire extinguisher systems, fire alarm and fire detection systems, and fire protection sprinkler systems.

NFPA codes are generally updated every three or five years, depending on the revision cycle of the particular code. However, TDI has not adopted updated NFPA standards since 2017. Therefore, the proposed amendments will ensure that SFMO is using the most up-to-date NFPA codes when performing its duties under the law. NFPA codes can be accessed at: <https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Free-access>

TDI intends to delay the effective date of the proposed rule, if adopted, for four months from the filing of the adoption order. This would give stakeholders additional time to prepare for the possible change in adopted code standards.

The proposed amendments to the sections are described in the following paragraphs.

Section 34.303. Adopted Standards. Amendments to §34.303 adopt the 2021 NFPA Fire Code (NFPA 1) and Life Safety Code 101 (NFPA 101) and make other changes to the rule text to adhere to current agency style. Specifically, the proposed amendments:

- revise references to the two applicable NFPA codes;
- capitalize the words "commissioner" and "subchapter" and lowercase "state fire marshal";
- narrow the scope of the exception of NFPA Chapter 60. Chapter 60 provides important safety standards applicable across laboratories. NFPA 45 (Standard on Fire Protection for Laboratories Using Chemicals) will generally apply to university laboratories;
- substitute the NFPA's physical address for its web address where the public can access the NFPA standards;

- modify language regarding the adoption of the NFPA standards to be consistent with the other adopted standards sections of this proposal. In particular, the associated annexes to the NFPA standards are included in the proposal to assist with clarifying the code language; and

- make changes to code, including requiring mandatory sprinklers in new-build daycares with occupancies of more than 12 clients, and carbon monoxide detection for existing hotels and dormitories.

The adoption of NFPA 1 and NFPA 101 provides SFMO inspectors with more comprehensive standards than are currently adopted in §34.303. For example, NFPA 1 is a national consensus fire code that references many other NFPA standards. NFPA 1 allows a fire inspector to inspect a premises and the sufficiency of its fire sprinklers, egress of occupants, compliance with electrical standards, need for fire extinguishers, and storage of products that cause increased fire hazards. NFPA 1 requirements also minimize risk exposure for people at the premises and in the surrounding community. NFPA 1 is similar to the International Fire Code that most municipalities in Texas use.

Section 34.507. Adopted Standards. Amendments to §34.507 adopt current NFPA standards and make text changes to adhere to current agency style. Specifically, the proposed amendments revise references to the following standards:

- NFPA 10-2018, Standard for Portable Fire Extinguishers;
- NFPA 11-2016, Standard for Low-, Medium-, and High-Expansion Foam;
- NFPA 12-2018, Standard on Carbon Dioxide Extinguishing Systems;
- NFPA 12A-2018, Standard on Halon 1301 Fire Extinguishing Systems;
- NFPA 15-2017, Standard for Water Spray Fixed Systems for Fire Protection;
- NFPA 16-2019; Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems;

- NFPA 17-2021, Standard for Dry Chemical Extinguishing Systems;
- NFPA 17A-2021, Standard for Wet Chemical Extinguishing Systems;
- NFPA 18-2021, Standard on Wetting Agents;
- NFPA 25-2020, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems;
- NFPA 33-2018, Standard for Spray Application Using Flammable or Combustible Materials;
- NFPA 96-2021, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations;
- NFPA 2001-2018, Standard on Clean Agent Fire Extinguisher Systems; and
- NFPA 2010-2020, Standard for Fixed Aerosol Fire-Extinguishing Systems.

For consistency with current agency style, the word "commissioner" is revised to be capitalized. The amendments to this section also substitute the NFPA's physical address for its web address where the public can access the NFPA standards.

Section 34.607. Adopted Standards. Amendments to §34.607 adopt current NFPA codes and standards and make text changes to adhere to current agency style. Specifically, the proposed amendments revise references to the following codes and standards:

- NFPA 11-2016, Standard for Low-, Medium-, High-Expansion Foam;
- NFPA 12-2018, Standard on Carbon Dioxide Extinguishing Systems;
- NFPA 12A-2018, Standard on Halon 1301 Fire Extinguishing Systems;
- NFPA 13-2019, Standard for the Installation of Sprinkler Systems;
- NFPA 13D-2019, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes;

- NFPA 13R-2019, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies;
- NFPA 15-2017, Standard for Water Spray Fixed Systems for Fire Protection;
- NFPA 16-2019, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems;
- NFPA 17-2021, Standard for Dry Chemical Extinguishing Systems;
- NFPA 17A-2021, Standard for Wet Chemical Extinguishing Systems;
- NFPA 25-2020, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems;
- NFPA 70-2020, National Electrical Code;
- NFPA 72-2019, National Fire Alarm and Signaling Code;
- NFPA 90A-2021, Standard for the Installation of Air Conditioning and Ventilating Systems;
- NFPA 101-2021, Life Safety Code;
- UL 827 December 3, 2021, Standard for Central Station Alarm Services; and
- NFPA 2001-2018, Standard on Clean Agent Fire Extinguisher Systems.

For consistency with current agency style, the word "commissioner" is revised to be capitalized. The amendments to this section also substitute the NFPA's physical address for its web address where the public can access the NFPA standards. The amendments also correct the name of NFPA 101 by removing "(r)" from the reference to the standard in the rule text.

Section 34.707. Adopted Standards. Amendments to §34.707 adopt current NFPA codes and standards and make text changes to adhere to current agency style. Specifically, the proposed amendments revise references to the following codes and standards:

- NFPA 13-2019, Standard for the Installation of Sprinkler Systems;
- NFPA 25-2020, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems;
- NFPA 13D-2019, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes;
- NFPA 13R-2019, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies;
- NFPA 14-2019, Standard for the Installation of Standpipe and Hose Systems;
- NFPA 15-2017, Standard for Water Spray Fixed Systems for Fire Protection;
- NFPA 16-2019, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems;
- NFPA 20-2019, Standard for the Installation of Stationary Pumps for Fire Protection;
- NFPA 22-2018, Standard for Water Tanks for Private Fire Protection;
- NFPA 24-2019, Standard for the Installation of Private Fire Service Mains and Their Appurtenances;
- NFPA 30-2021, Flammable and Combustible Liquids Code;
- NFPA 30B-2019, Code for the Manufacture and Storage of Aerosol Products;
- NFPA 307-2021, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves;
- NFPA 214-2021, Standard on Water-Cooling Towers;
- NFPA 409-2016, Standard on Aircraft Hangers; and
- NFPA 750-2019, Standard on Water Mist Fire Protection Systems.

The amendments delete an unnecessary subsection (a) designation. In addition, for consistency with current agency style, the word "commissioner" is revised to be capitalized. The amendments to this section also substitute the NFPA's physical address for its web address where the public can access the NFPA standards and capitalize "installation."

Summary of Changes to Adopted Standards

NFPA 1, Fire Code. Changes to the 2018 edition of NFPA 1, which are carried into the latest edition, include revisions to requirements for the application of referenced publications in Sections 1.4.1.1 and 2.1.1; references for the professional qualifications for fire inspectors, plan examiners, and fire marshals in Section 1.7.2; new minimum fire prevention inspection frequencies for existing occupancies in Section 10.2.7; updates to premises identification in Section 10.11.1; new and updated marking and access criteria for photovoltaic systems in Section 11.12; new provisions for rubberized asphalt melters in Section 16.7; listing requirements for electric gates used on fire department access roads in Section 18.2.4.2.6; new provisions on the outside storage of biomass feedstock in Section 31.3.10; and new requirements for the outdoor storage of wood and wood composite pallets or listed pallets equivalent to wood in Section 34.10.3.

Chapter 38 is created to address marijuana growing, processing, or extraction facilities, and the revisions to Chapter 40 replace extracts from NFPA 654 (Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids) with extracted provisions from NFPA 652 (Standard on the Fundamentals of Combustible Dust). Section 42.10 addresses the reorganization of aircraft fuel servicing provisions in accordance with NFPA 407 (Standard for Aircraft Fuel Servicing); Section 50.7 is created to address mobile and temporary cooking operations, and there are extensive revisions of Chapter 52 on energy storage

systems. A new Chapter 55 is created to address cleaning and purging of flammable gas piping systems with reference to NFPA 56 (Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems), Section 63.9 is created to address provisions for insulated liquid carbon dioxide systems extracted from NFPA 55 (Compressed Gases and Cryogenic Fluids Code), and Annex E is created to address fire-fighter breathing-air replenishment systems.

Changes to the 2021 edition of NFPA 1 include updates to Section 11.10 to address in-building emergency responder communication enhancement system requirements for better alignment with NFPA 1221 (Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems), and there are new signage requirements for non-sprinklered high-rise buildings in Section 13.3.2.25.2.4. Chapter 38 has new provisions for carbon dioxide enrichment equipment, indoor horticultural grow structures, and listing requirements for extraction equipment as they relate to cannabis facilities; new Chapter 39 is created to address wastewater treatment and collection facilities; new Chapter 46 is created to address additive manufacturing (3D printing); and new Chapter 52 is created to address the energy storage system requirements extracted from NFPA 855 (Standard for the Installation of Stationary Energy Storage Systems).

NFPA 10, Standard for Portable Fire Extinguishers. Changes to the 2018 edition of NFPA 10 incorporate clarifications on a wide array of topics, including electronic monitoring, obsolete extinguishers, extinguishers installed in areas that contain oxidizers, extinguisher signs, and extinguisher mounting equipment and cabinets. The revisions also include a new requirement regarding maintenance of hose stations that are used in lieu of extinguishers. The fire classification marking system is expanded to include markings for extinguishers rated for Class AC and Class AK. The annexes are updated to address

current extinguisher types and ratings, while removing information on obsolete equipment.

NFPA 11, Standard for Low-, Medium-, and High-Expansion Foam. Changes to the 2016 edition of NFPA 11 include the reorganization and clarification of piping requirements, addressing issues regarding acceptance criteria for annual foam concentrate testing, recognition of environmentally friendly methods of testing foam proportioners, and changes to provide that seal-only protection is permitted for composite roofs that meet specific criteria.

NFPA 12, Standard on Carbon Dioxide Extinguishing Systems. Changes to the 2015 edition of NFPA 12, which are carried into the latest edition, incorporate a general update of references and other minor improvements. In addition, a new system acceptance report is added to permit compliance with the commissioning procedures of NFPA 3 (Standard for Commissioning of Fire Protection and Life Safety Systems).

Changes to the 2018 edition of NFPA 12 include the introduction of a new requirement to conduct testing of integrated fire protection and life safety systems in accordance with NFPA 4 (Standard for Integrated Fire Protection and Life Safety System Testing). In addition, the 2018 edition changes add a new section on pipe hangers and supports and a new annex on full discharge testing. Finally, there are revisions to the equivalency statement to use the standard text, which specifies that the authority having jurisdiction is responsible for approving an equivalent system, method, or device.

NFPA 12A, Standard on Halon 1301 Fire Extinguishing Systems. Changes to the 2015 edition of NFPA 12A, which are carried into the latest edition, incorporate support for electronic storage of system maintenance records.

Changes to the 2018 edition of NFPA 12A revise the annex on nozzle and piping calculations (Annex H) to correct errors, comply with the *Manual of Style for NFPA Technical Committee Documents*, and clarify the details of the procedure.

NFPA 13, Standard for the Installation of Sprinkler Systems. Changes to the 2016 edition of NFPA 13, which are carried into the latest edition, include revisions that review all metric conversions. Historically, the document has used an "exact" conversion process, but this revision uses an approximate conversion process. Another change includes a pipe venting requirement to eliminate as much air as possible from wet pipe systems. This requirement contemplates only a single vent in each wet system. New design criteria are included for the protection of exposed, expanded Group A plastics stored in racks. Also, this revision adds a ceiling and in-rack design approach, called an "alternative protection scheme," to Chapters 16 and 17. A similar concept has existed for sprinkler protection in NFPA 30 (Flammable and Combustible Liquids Code) for several revision cycles. The revisions also add a new section on sprinkler design where cloud ceilings are installed. This design scheme allows sprinklers to be omitted above cloud ceilings when the gap between clouds (or clouds and walls) meets a maximum allowable dimension based on the floor-to-cloud ceiling height. The revisions significantly revise Chapter 10, which is extracted from NFPA 24 (Standard for the Installation of Private Fire Service Mains and Their Appurtenances), based on the rewrite of NFPA 24.

Changes to the 2019 edition of NFPA 13 include revisions that reorganize NFPA 13; it is now reordered according to how one would approach the design of a sprinkler system. Users will now find hazard classifications, water supplies, and underground piping at the beginning of the standard. The revisions divide Chapter 8 into several new chapters, breaking out general rules for sprinkler locations into one chapter and several other chapters specific to sprinkler technology. The revisions also reorganize storage chapters

by sprinkler technology and address ceiling-only design. The revisions also revise Chapter 25, which now contains all the requirements for in-rack sprinklers. And the revisions clarify requirements for vertical pipe chases and requirements for electrical equipment rooms where sprinklers can be omitted. Finally, the revisions add new beam rules for residential sprinklers and additional details.

NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes. Changes to the 2016 edition of NFPA 13D, which are carried into the latest edition, include revisions that add a new figure that addresses positioning of sprinklers to avoid obstructions where there are sloped ceilings. The revisions further clarify that once a sprinkler is removed from a fitting or welded outlet, it should not be reinstalled if torque was applied to the sprinkler itself. A new sketch shows an insulation practice using tenting in an attic or concealed space.

Changes to the 2019 edition of NFPA 13D include revisions that add beam rules for sprinklers installed under and adjacent to beams (along with new figures), requirements for closets where ventless clothes dryers are installed, and requirements where pressure-reducing and pressure-regulating valves are installed. The revisions add a section to Chapter 12 to address inactive systems in structures left vacant. The revisions clarify requirements for the use of well pumps as a water supply and add images to clarify sprinkler locations and clearances needed around fireplaces.

NFPA 13R, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies. Changes to the 2016 edition of NFPA 13R, which are carried into the latest edition, include revisions that change the definition of "sprinkler system" to correlate with NFPA 13 (Standard for the Installation of Sprinkler Systems) and NFPA 25 (Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems), and to

significantly update Annex A text for the Scope statement of the document to address mixed-use buildings and the applicability of NFPA 13R systems. The revisions also clarify that once a sprinkler is removed from a fitting or welded outlet, it should not be reinstalled if torque was applied to the sprinkler itself. The revisions update the nonmetallic piping compatibility language for consistency with NFPA 13 and reorganize and restructure the section addressing sprinkler protection outside dwelling units to make it easier for the user to follow. The revisions also add language to address sprinkler protection where the device is intended to protect a glazing assembly.

Changes to the 2019 edition of NFPA 13R include revisions that add a new definition for "carport" and add several new requirements that address where pipe and tube listed for light hazard can be used in an ordinary hazard application. There are revisions to sprinkler heads that are installed under and adjacent to beams (along with new figures); inside waste and linen systems; installation of fuel-fired equipment; and obstructions in hallways. The revisions reorganize Chapter 9 and move the domestic demand tables from the annex to the body of the standard and update values. In addition, the revisions add new images clarifying sprinkler locations and clearances needed around fireplaces.

NFPA 14, Standard for the Installation of Standpipe and Hose Systems. Changes to the 2016 edition of NFPA 14, which are carried into the latest edition, include revisions to Chapter 6 to clarify the building construction and building types under which standpipe system piping needs to be protected. The revisions add new definitions of construction types to Chapter 3. The revisions also change the horizontal exit requirements in Chapter 7 to align them with building code requirements and add new annex figures. The revisions update and reorganize Section 7.3.2 in its entirety. The revisions also clarify Section 7.6, stating that only partially sprinklered buildings require 6-inch standpipes, while all others,

if in a fully sprinklered building, whether combined or not, require only 4-inch standpipes, where supported by hydraulic calculations. The revisions also change the requirement for pressure gauges to no longer require gauges to be listed, only approved.

Changes to the 2019 edition of NFPA 14 include revisions that update the terminology to make it consistent throughout the document by changing the terms "outlet(s)" and "hose outlet(s)" to "hose connection(s)." The revisions add definitions and requirements for "distance monitoring," "automated inspection," and "testing" because technology now allows for monitoring of certain conditions, as well as inspecting and testing standpipe systems from a remote location. The revisions also add a definition for "open parking garage" and a requirement that permits manual standpipes in open parking garages under a certain height.

The revisions no longer require the signage for pressure requirements when the pressure is 150 psi or less, as NFPA 13E (Recommended Practice for Fire Department Operations in Properties Protected by Sprinkler and Standpipe Systems) requires a standard pressure of 150 psi unless a sign indicates more pressure is required. The revisions increase the maximum pressure permitted at any point in the system from 350 psi to 400 psi. The revisions in Section 7.8.1 clarify that the required pressure is to be calculated at the outlet of the hose valve. The revisions revise the hydraulic calculation procedures to clarify that additional standpipes should be calculated at the point of connection rather than at the topmost outlet. The revisions to Section 7.11.2 delineate between a standpipe system main drain and individual standpipe drains. The revisions also change the required number of fire department connections because of the ease with which a single connection can be compromised. Finally, the revisions add a new Chapter 13 on maritime standpipe and hose systems.

NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection. Changes to the 2017 edition of NFPA 15 include revisions on pipe support requirements and the incorporation of several new tables. To align this standard with NFPA 13 and NFPA 20 (Standard for the Installation of Stationary Pumps for Fire Protection), the revisions add a 12-month limitation on water flow test information, in addition to requirements for hydraulic design information signs and general information signs. The revisions also add a requirement that a hazard analysis be performed on the physical and chemical properties of materials, layout, design, and installation be performed by qualified persons. Finally, the revisions add new definitions for the terms "hazard analysis" and "qualified."

NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems. Changes to the 2015 edition of NFPA 16, which are carried into the latest edition, include revisions that update several definitions for foam-water system types, including "foam-water sprinkler system," "foam-water deluge system," "foam-water dry pipe system," and "foam-water pre-action system." The revisions also update the strainer and galvanized piping C-factor requirements to correlate with NFPA 13. The revisions make multiple changes to the standard from a system acceptance perspective, add new language to the acceptance testing criteria to confirm that the proportioning system meets the actual calculated system discharge demand at the most remote four sprinklers, and make the Contactors Material and Test Certificate from NFPA 13 a requirement for correlation purposes.

Changes to the 2019 edition of NFPA 16 include revisions that make its organization consistent with that of the 2019 edition of NFPA 13 to present information in the order 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. The revisions also extract information about the type of foam concentrate piping from NFPA 11 to be consistent with that standard and information from NFPA 30 (Flammable and Combustible Liquids Code) to address containment, drainage, and spill control.

NFPA 17, Standard for Dry Chemical Extinguishing Systems. Changes to the 2017 edition of NFPA 17, which are carried into the latest edition, include revisions to clarify the intent of component and system requirements in Chapters 4 and 5, respectively. The revisions also include editorial changes to update the standard to comply with the *Manual of Style for NFPA Technical Committee Documents*.

Changes to the 2021 edition of NFPA 17 include revisions that provide new requirements consistent with NFPA 12 and NFPA 2001 (Standard on Clean Agent Fire Extinguishing Systems) on the methods for supporting pipe and addresses provisions on a common failure of special hazard fire extinguishing systems, consistent with NFPA 72® (National Fire Alarm and Signaling Code®) and NFPA 2001.

NFPA 17A, Standard for Wet Chemical Extinguishing Systems. Changes to the 2017 edition of NFPA 17A, which are carried into the latest edition, include revisions that eliminate redundant language within NFPA 17A and NFPA 96 (Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations) for correlation purposes. The revisions delete other sections for correlation purposes with NFPA 96. The revisions add new annex material to identify the areas of protection for the discharge nozzles. The revisions made changes requiring the authority having jurisdiction to approve used components in the system. A requirement was added for a placard to be placed near all Class K portable fire extinguishers indicating that the fire protection system must be activated before a portable fire extinguisher is used.

Changes to the 2021 edition of NFPA 17A include revisions that add a new Chapter 6 that addresses wet chemical extinguishing systems for mobile equipment. Because the application in the previous editions of the standard was limited to the protection of cooking equipment and its exhaust systems, the new Chapter 6 parallels similar requirements in NFPA 17 and addresses issues specific to wet chemical extinguishing systems. Other revisions include new provisions on the methodology of how to test for blocked piping, a new requirement that impairments be communicated in a timely manner, and modified language throughout the standard to correlate provisions between NFPA 96 and NFPA 17A.

NFPA 18, Standard on Wetting Agents. Changes to the 2017 edition of NFPA 18, which are carried into the latest edition, include both technical and editorial revisions. Technical changes include clarification that all aspects of the listing for wetting agents must be observed and an explanation on the units of the corrosion rate equation in Chapter 5. The revisions create a new section in Chapter 5 to provide requirements for alternate viscosity test methods for situations where the viscosity is too low to obtain meaningful results. Editorial changes include updating the standard to comply with the *Manual of Style for NFPA Technical Committee Documents*.

Changes to the 2021 edition of NFPA 18 include updated references and editorial changes to make the document more user friendly.

NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection. Changes to the 2016 edition of NFPA 20, which are carried into the latest edition, include revisions that provide new requirements for pumps in series relative to the protection of control wiring, status signals, and communications. NFPA 20 recognized the potential use of multistage, multiport pumps in fire suppression systems and provided requirements

specific to that application. The revisions remove break tank criteria, which are now in accordance with NFPA 22 (Standard for Water Tanks for Private Fire Protection). The revisions add Annex C to provide guidance on controller security where a controller is connected to the internet. The revisions to Chapter 4 add new requirements to address use of an automatic fuel maintenance system with a diesel fire pump installation, and protection criteria for both a diesel fire pump room and an electric fire pump room.

Changes to the 2019 edition of NFPA 20 include revisions that recognize new technologies, including automated inspection and testing, distance monitoring, automated valves, and self-regulating variable speed fire pump units. The revisions add new provisions to require that a single entity be responsible for acceptable fire pump unit performance. The revisions add a new definition for "lowest permissible suction pressure" to provide a better understanding of the maximum available flow by connecting it to a suction pressure. The revisions add requirements to clarify where manifolding of fire pump test piping is permitted, as well as where combining fire pump test piping with relief valve discharge piping is permitted. The revisions also add new definitions to differentiate between "standby power" and "alternate power" and to ensure proper application of these terms throughout the document. The revisions define the term "very tall building" and expand the requirements pertaining to these buildings, including those for automatic tank refill valves. The revisions add new requirements and annex material to help package designers through the evaluation of mass elastic systems, as well as revise requirements for hydraulic cranking systems to distinguish between systems used as primary cranking systems and those used as secondary cranking systems. Finally, the revisions revise Annex C to make data formatting more universal.

NFPA 22, Standard for Water Tanks for Private Fire Protection. Changes to the 2018 edition of NFPA 22 include revisions to Chapters 5 and 6 that remove duplicate

requirements to American Water Works Association (AWWA) D100 (Welded Carbon Steel Tanks for Water Storage) and D103 (Factory-Coated Bolted Carbon Steel Tanks for Water Storage) and make references to AWWA D100 and D103 for the design, fabrication, and erection of water tanks, and requirements specific to fire protection remain. The revisions in Chapter 14 clarify requirements for check valves in the discharge pipe of a suction tank and modify tank repair requirements requiring the impairment procedures of NFPA 25 (Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems) to be followed. And the revisions in Chapter 16 add new criteria for electric immersion heaters and remove the lowest one-day mean temperature map in lieu of using calculations to determine tank heating needs.

NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances. Changes to the 2016 edition of NFPA 24, which are carried into the latest edition, include revisions that clarify the hydrant definitions to describe the type of hydrant in question, as opposed to describing when and where they would be used. The revisions rewrite the valve arrangement requirements for clarity, and annex figures are added to provide figures consistent with NFPA 13. The revisions change the title of Chapter 6 from "Valves" to "Water Supply Connections" to better describe the material in the chapter. Revisions in Section 6.1 more clearly describe the permitted exceptions to indicating valves and permit non-listed tapping sleeve and valve assemblies in connections to municipal water supplies. The revisions update the center of hose outlet measurements to include clear minimum and maximum values for the location of the outlet, along with the appropriate measurement for a hose house installation. The revisions remove steel underground piping references from the table in Chapter 10 because steel pipe is required to be listed other than in the fire department connection

(FDC) line. The revisions also add a statement to allow underground fittings to be used above the ground to transition to aboveground piping.

Changes to the 2019 edition of NFPA 24 include revisions related to trenching and backfill. The revisions include acceptance testing requirements for aboveground piping and revise the standard to clarify the unacceptable use of steel piping for underground service.

NFPA 25, Standard for Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems. Changes to the 2017 edition of NFPA 25, which are carried into the latest edition, include revisions that define the new fire pump terms to align with NFPA 20. The revisions also add criteria to Chapter 4 on automated inspections and testing. The revisions add residential sprinkler replacement requirements to address sprinklers that are no longer available; add new requirements regarding missing escutcheons or, if listed, escutcheons that are no longer available; update the inspection, testing, and maintenance tables throughout the chapters; and add new no-flow test requirements for fire pumps. Revisions to Chapter 13 add new requirements for the inspection, testing, and maintenance of waterflow alarm devices, and pre-action and deluge valves. The revisions also add criteria for air compressors. This edition contains all the general pressure gauge criteria. In addition, the revisions added two new annexes: one on connectivity and data collection and another on color-coded tagging programs.

Changes to the 2020 edition of NFPA 25 include revisions that define the term "electrically operated sprinklers," which is a new technology. The revisions add periodic inspection, testing, and maintenance requirements. The revisions add requirements addressing recalled sprinklers to Chapter 4 and a section on dry hydrants to Chapter 7. The revisions also modify dry sprinkler test requirements from 10 years to 15 years and clarify the automated testing requirements for waterflow alarm devices. The revisions to

Chapter 8 clarify, for safety reasons, that energized pump controllers should not be opened and introduce the concept of an isolating switch in a separate compartment as part of the pump controller. The revisions also revise the fire pump annual flow test and evaluation requirements for the test and add new requirements to Chapter 12 regarding water mist systems.

NFPA 30, Flammable and Combustible Liquids Code. Changes to the 2015 edition of NFPA 30, which are carried into the latest edition, include revisions that impose a 12-foot (3.6 m) storage height restriction on unprotected storage in mercantile occupancies, to be consistent with the storage height restriction already in place for mercantile occupancies protected in accordance with NFPA 13, for ordinary hazard Group 2. The revisions revise Chapter 16 to clarify intent and to eliminate certain inconsistencies between NFPA 30 and NFPA 13, and to correlate terminology and specific requirements in NFPA 13. Revisions to Chapter 17 and 27 reflect recommendations submitted to NFPA by the U.S. Chemical Safety and Hazard Investigation Board. The revisions add a new Annex A item, A.21.7.2.2, to address security of storage tanks in remote unattended locations at the recommendation of the U.S. Chemical Safety and Hazard Investigation Board.

Changes to the 2018 edition of NFPA 30, which are carried into the latest edition, include revising 9.4.1, which sets forth the types of containers considered acceptable under the code, to add item (8), which recognizes nonmetallic intermediate bulk containers that can satisfy the fire exposure test protocols in Section 9.4.1.1. The revisions update Section 9.4.1.1 to specifically reference UL 2368 (UL Standard Sales Site) and FM Class 6020 (Approval Standard for Intermediate Bulk Containers). The revisions replace Section 12.8 with provisions that allow only specific liquid/container combinations to be stored in such facilities. These combinations are allowed in unlimited quantities, but they

must be protected in accordance with the fire protection design criteria in Chapter 16. For consistency, the revisions update Section 12.3.1 and delete (former) Section 12.3.2.

Changes to the 2021 edition of NFPA 30 include revisions to the classification scheme for liquids. The term "ignitable liquid" has been introduced to initiate a process that no longer uses the terms "flammable liquid" and "combustible liquid." This causes the requirements in NFPA 30 and other codes and standards to adopt a scheme based exclusively on the liquid physical state and property (i.e., the liquid flash point) for all liquids that can be ignited. The revisions to Chapter 4 address the classification criteria, whereas Chapter 3 defines specific liquids. The revisions to Chapters 1, 3, and 4 make the requirements consistent with each other in terms of the scope of the code, specific terminology, and the evaluation of liquids within the classification scheme.

NFPA 30B, Code for the Manufacture and Storage of Aerosol Products. Changes to the 2015 edition of NFPA 30B, which are carried into the latest edition, include revisions in Chapters 6 and 7 to incorporate coverage of aerosol cooking spray products and coverage of "plastic aerosol 1" and "plastic aerosol X" products, including classification of such products and protection guidance. The revisions update Section 1.9 to accommodate aerosol cooking spray products and plastic aerosol products. The revisions in Chapter 3 redefine and add several new definitions and terms relating to the manufacture of aerosol products and delete definitions of sprinkler types to eliminate any potential conflict with NFPA 13. The revisions change provisions for the hazardous (classified) location area classification by combining the previous separate requirements for button tippers and test baths into a single set of requirements and by adding additional requirements applicable to button tippers.

The revisions clarify provisions of Section 5.8.2 for storing finished product in production areas and add new requirements for storing finished aerosol products in

plastic containers in production areas. The revisions improve Section 5.13.2 by extending applicability to under-the-cup (UTC) propellant fillers and by eliminating redundant text. The revisions update Section 5.13.3 to consolidate changes made in prior editions into a single section, making these provisions more coherent. The revisions expand Section 5.13.4 to apply to propellant heaters as well as propellant pumps. The revisions change Section 5.15 to designate aerosol product laboratories that handle flammable gases or flammable liquids as Class A laboratory units, in accordance with NFPA 45 (Standard on Fire Protection for Laboratories Using Chemicals). The revisions add a new section to provide specific fire protection requirements for aerosol cooking spray products. The revisions to the existing fire protection requirements for Level 2 and Level 3 aerosol products allow the use of intermediate temperature sprinklers in unconditioned spaces. The revisions change the terminology to correlate with that used in NFPA 13. In many of the sprinkler system design tables, the revisions now allow larger orifice sprinklers to be used, based on demonstrated performance. The revisions change several paragraphs to correlate with provisions of NFPA 13. The revisions add a new section to provide specific fire protection requirements for aerosol products in plastic containers. The revisions also add a new section to establish quantity limitations on plastic aerosol X products in mercantile occupancies. The revisions clarify various portions of Annex A's text and remove redundant text. The revisions amend Annex B to clarify existing text and to correlate with changes in terminology in the body of the code.

Changes to the 2019 edition of NFPA 30B include revisions that add definitions for "palletized" and "solid-piled storage," provide Annex material for other definitions, modify the definition of "Aerosol Product" to include propellant-only products, and add a definition for "Aerosol Valve." The revisions add a new category of aerosol products, Plastic Aerosol X; reaffirms the language in TIA 15-1 (tentative interim amendment) on Aerosol Product Laboratories; and modifies the fire protection tables in Section 6.4.2.7 to

provide clarification as to the application of ceiling-only protection. The revisions also clarify the provisions for in-rack sprinklers in solid shelves in Section 6.4.2.12. TIA 1369 provides newly developed fire protection criteria for Plastic Aerosol 3 products. The fact that these new products represent a fire hazard was not in the previous guidance in NFPA 30B.

NFPA 33, Standard for Spray Application Using Flammable or Combustible Materials. Changes to the 2016 edition of NFPA 33, which are carried into the latest edition, include revisions that update Chapter 1 to include indoor and outdoor spray application processes and operations within temporary membrane enclosures. The revisions also update Chapter 9 to allow for the use of water mist systems and to clarify the sprinkler design area requirement. The revisions also update a figure in Chapter 14 to improve consistency and to clarify the electrical classification requirements in the document. The revisions update Chapter 15 to incorporate the requirements for combustible dusts that are present in operations. Lastly, the revisions add new Chapter 18 to address the use of temporary membrane enclosures.

Changes to the 2018 edition of NFPA 33 include revisions that update Chapter 3 to include new or revised definitions for "automated spray application operations," "basement," "control area," "dry particulate scrubber spray booth," and "workstation." The revisions also update Chapter 5 to address the confusion between spray rooms and spray booths. The revisions update figures in Chapter 6 to improve consistency and to clarify electrical classification requirements in the document. The revisions update Chapter 7 to provide clarification on the heating of recirculated air and the manifolding of exhaust ducts.

NFPA 70, National Electrical Code. Changes to the 2020 edition of NFPA 70 include revisions that provide the latest benchmark for safe electrical design, installation, and inspection to protect people and property from electrical hazards. The revisions include technical and editorial revisions.

NFPA 72, National Fire Alarm and Signaling Code. Changes to the 2016 edition of NFPA 72, which are carried into the latest edition, include revisions that make updates related to documentation. The revisions update Chapter 7 to add items to the minimum documentation, documentation for new emergency communications systems, and software documentation requirements, and to address review of electronic documentation media formats. The revisions clarify requirements for documentation of qualifications for the system designer and personnel who program systems while allowing for system design trainees and adds new criteria for plans examiners and inspectors.

In addition, the revisions add Class N, which addresses ethernet infrastructures for alarm and signaling systems, and pathway performance and installation criteria. The revisions update Class A and Class X pathway separation requirements to address emergency control function interface devices controlled by the fire alarm system on those circuits. The revisions also update Level 2 and Level 3 pathway survivability requirements, which provided flexibility of use and addressed other fire-resistive methods. The revisions add language relative to recalled equipment observed during inspection and testing and clarify the intent of periodic visual inspections relative to building or other changes that could affect the performance of the system. With the exception of reference and requirements pertaining to survivability, the revisions relocate requirements for the design, installation, testing, and maintenance of in-building emergency radio communications enhancement systems to NFPA 1221 (Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems). The revisions in

Chapter 17 update the requirements for total coverage and expand its annex language to address general consideration for elevator shafts and enclosed stairways. The revisions update the requirements for placement of smoke detectors used for door release to provide additional flexibility in locating detectors.

Additional revisions restructure Chapter 24, providing greater user friendliness while expanding the section on risk analysis. The revisions emphasize the importance of effective message development. The revisions add Annex G, Guidelines for Emergency Communication Strategies for Buildings and Campuses, based on the National Institute of Standards and Technology and Fire Protection Research Foundation research. The revisions in Chapter 26 update the language to require that when multiple communication paths are used for performance-based technologies, or the two transmission means for a digital alarm communicator transmitter, they should be arranged to avoid a single point of failure. The revisions in Chapter 29 add requirements pertaining to remote resetting and silencing of a fire alarm control unit from other than the protected premises for a minimum of four minutes from the initial activation of the fire alarm signal. Smartphones and internet access to almost any device made remote access to residential equipment possible. The revisions also address the ability to establish remote access to a fire alarm system and create a new requirement that establishes that when a communication or transmission means other than digital alarm communicator transmitter is used, all equipment necessary to transmit an alarm signal must be provided with a minimum of 24 hours of secondary power capacity.

Changes to the 2019 edition of NFPA 72 include the addition of requirements for fire service access elevators and occupant evacuation elevators to coordinate with changes made in ASME A17.1/CSA B44 (Safety Code for Elevators and Escalators). The revisions update requirements for occupant evacuation operation. The revisions add Annex text for clarification, as was Figure A.21.6, Simplified Occupant Evacuation

Operation (elevator system interface with the building fire alarm system based on ASME A17.1, Section 2.27.11; and NFPA 72, Section 21.6). In addition to the requirements for area of refuge (area of rescue assistance), the revisions update Chapter 24 to include requirements for stairway communications systems, elevator landing communications systems, and occupant evacuation elevator lobby communications systems.

The revisions include updates to technical references. For many years, when codes required visual (or visible) notification in addition to audible notification, strobe lights meeting the requirements of Chapter 18 were used. With newer LED products that can be used for fire alarms, the revisions change the terms "strobe," "light," and "visible" to "visual notification appliance." The revisions change the terms "speaker" and "high power speaker array" to "loudspeaker" and "high power loudspeaker array" for consistency. Material from NFPA 720 (Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment) is relocated to various chapters of NFPA 72. The revisions incorporate these requirements into Chapter 17 for carbon monoxide detectors; Chapter 14 for installation, testing, and maintenance; Chapter 29 for carbon monoxide alarms; and new Annex H. The revisions incorporate valve-regulated lead-acid batteries into Chapter 14. The revisions update the inspection and testing requirements in Tables 14.3.1 and 14.4.3.2. The revisions also expand the annex language to address use and testing of these batteries. Finally, the revisions introduce and define several new terms in Chapter 3.

NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems. Changes to the 2015 edition of NFPA 90A, which are carried into the latest edition, include revisions that primarily make editorial updates, reference updates, and clarify existing language. Also, the revisions add a section and test method for air dispersion systems.

Changes to the 2018 edition of NFPA 90A, which are carried into the latest edition, include revisions that primarily make editorial updates, reference updates, clarify existing language, and correct terminology. Also, the revisions add an option for testing flame spread of plastic pipe for use in plenums.

Changes to the 2021 edition of 90A include revisions that primarily make editorial updates, reference updates, and clarify existing language. In the referenced publications, the revisions update all UL publications to remove the term *ANSI* for clarification.

NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. Changes to the 2017 edition of NFPA 96, which are carried into the latest edition, include revisions that add a new normative annex on mobile and temporary cooking operations. The normative annex was written in mandatory language but was not intended to be enforced unless specifically adopted by a jurisdiction or applied on a voluntary basis. This new annex includes requirements for clearance, hoods, ducts, terminations, fire extinguishing systems, carbon monoxide detectors, location, training, generators, and LP-gas, as well as procedures for the use, inspection, testing, and maintenance of equipment. The language in the body of the standard clarifies that fixed and mobile cooking equipment is covered by NFPA 96. The revisions use the term "solid fuel" instead of "charcoal" to cover the different types of solid fuel. A device installed in a duct such as a pollution control device now must be protected by its own fire extinguishing system.

Changes to the 2021 edition of NFPA 96 include revisions that add a new chapter on mobile and temporary cooking operations. The revisions move this content, formerly located in normative Annex B, into the body of the standard to provide the minimum fire safety requirements for mobile and temporary cooking operations. The revisions remove duplicate requirements related to this subject and modify language throughout the

standard to clarify the provisions for buildings as well as mobile and temporary cooking operations. Lastly, these changes replace the term "activate" with the proper term "actuate" throughout the standard.

NFPA 101, Life Safety Code. Changes to the 2018 edition of NFPA 101, which are carried into the latest edition, include revisions that expand the code's scope to include hazardous materials emergencies, injuries from falls, and emergency communications. The revisions to Chapter 4 add a reference to NFPA 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations) for construction, alteration, and demolition operations, and new requirements for fire-retardant-treated wood. The changes revise the terms "electrically controlled egress door assemblies," "delayed-egress locking systems," and "access-controlled egress door assemblies" in Chapter 7 to "door hardware release of electrically locked egress door assemblies," "delayed-egress electrical locking systems," and "sensor-release of electrical locking systems," respectively. Further changes in Chapter 7 add criteria that permits occupant loads to be reduced to available egress capacity as was previously permitted only for building rehabilitation.

Chapter 8's revisions add wall marking and identification provisions for fire barriers, smoke barriers, and smoke partitions. The revisions also reorganize opening protective requirements. The changes to Chapter 9 add a reference to NFPA 4 (Standard for Integrated Fire Protection and Life Safety System Testing) for integrated fire protection and life safety system testing and add new provisions for risk analyses for mass notification systems. The revisions to Chapter 10 change the interior finish requirements for expanded vinyl wall coverings, textile wall, and ceiling coverings. They also add new provisions for laminated products and facings or wood veneers. The changes in Chapter 11 revise the provisions for airport traffic control towers and reorganize the emergency lighting and standby power requirements for high-rise buildings. The changes classify

Animal housing facilities as special structures. The changes also add carbon-monoxide detection requirements for new assembly occupancies to Chapter 12.

The revisions to Chapters 14 - 17, 38, and 39 add criteria for door locking to prevent unwanted entry in educational, daycare, and business occupancies. The changes revise the sprinkler requirement threshold for new educational occupancies in Chapter 14. The changes modify health care corridor projection allowances in Chapters 18 and 19 to correlate with accessibility standards and to permit the installation of emergency stair travel devices and self-retracting seats. The changes add new provisions to permit health care and ambulatory health care smoke compartments up to 40,000 square feet (3,720 square meters) in area. The changes also revise the door locking provisions for patient special needs in ambulatory health care occupancies in Chapters 20 and 21.

In Chapter 24, the changes add criteria for bathtub and shower grab bars. The changes also add attic protection requirements to Chapters 28 and 30 for certain new hotels and dormitories and apartment buildings. In Chapter 32, the revisions add carbon-monoxide detection requirements for new residential board and care occupancies were added. The changes also revise mall terminology in Chapters 36 and 37 and add new provisions to differentiate between open and enclosed mall concourses. In Chapters 38 and 39, the revisions add a reference to NFPA 99 for medical gases in business occupancies. The changes also add a new Annex C to provide guidance on several NFPA hazardous materials standards.

Changes to the 2021 edition of NFPA 101 include revisions that allow a second door lock/latch releasing motion on existing educational and daycare occupancy classroom doors to accommodate lockdown events; require mandatory sprinklers in new daycare occupancies with more than 12 clients; and modify sprinkler requirements for existing high-rise buildings containing ambulatory health care, business, industrial, or apartment building occupancies. The revisions also modify construction limits for existing

nursing homes; clarify that non-required fire doors are not subject to the inspection requirements of NFPA 80 (Standard for Fire Doors and Other Opening Protectives); add provisions for temporary barriers to separate areas under construction in health care and ambulatory health care occupancies; and update criteria for special amusement buildings.

Further revisions require mandatory sprinkler requirement for new bars and restaurants with an occupant load of 50 or more; add a minimum requirement for fire department two-way communication signal strength in all new buildings; add a carbon monoxide detection requirement for existing hotels and dormitories; add a requirement for low-frequency fire alarm notification signals in new hotel, dormitory, and apartment building sleeping rooms per NFPA 72; and add provisions for burglar bars/grates on means of escape windows in residential occupancies.

NFPA 214, Standard on Water-Cooling Towers. Changes to the 2016 edition of NFPA 214, which are carried into the latest edition, include revisions that better align the sprinkler requirements within the standard with the types of systems defined in NFPA 13.

Changes to the 2021 edition of NFPA 214 include revisions that update the references in the document. Two notable exceptions are the updated definition for "fire-resistant partition" and the requirement to evaluate certain factors when determining proper fire protections in Chapter 4. Previously, the definition of "fire-resistant partition" directed the user to a mandatory requirement, which is not allowed by the *Manual of Style for NFPA Technical Committee Documents*. This provides clearer requirements for the authority having jurisdiction.

NFPA 307, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves. Changes to the 2016 edition of NFPA 307, which are carried into the latest edition, include revisions that make references to NFPA 5000 (Building Construction

and Safety Code®), wherever possible, particularly for requirements related to the design, materials, and workmanship of pier and wharf construction and other structures within the facility. The standard lets the authority having jurisdiction consider other codes or standards when approving marine terminal construction plans. Previous editions of the standard addressed only cargo-handling facilities. The revisions also include construction requirements that apply to marine terminals designed for passenger vessels.

Changes to the 2021 edition of NFPA 307 include revisions that add a new annex to inform municipal and industrial firefighters about marine firefighting (MFF) requirements that vessel owners or operators (plan holders) must meet in their respective vessel response plans. The annex also provides details on specific responsibilities of plan holders and their contracted MFF service providers. The revisions direct users to NFPA 14, for requirements relating to standpipes and hose systems for marine terminals. NFPA 307 now requires that fire protection water supplies be inspected, tested, and maintained in accordance with NFPA 25, to ensure that water supply systems are operational when needed in the event of a fire or other emergency. Because marine terminal structures have specific fire safety challenges, a fire risk assessment should be performed in the design phase of construction, and it now provides a list of resources to facilitate this assessment process.

NFPA 409, Standard on Aircraft Hangars. Changes to the 2016 edition of NFPA 409 include revisions that relax the requirements for divided water reservoirs, redundant fire pumps, and reserve supplies of foam concentrate, among others. In addition, the revisions change the requirements for the zoning of low-level foam systems to permit Group I and Group II hangars and simplify Chapter 8 for Group III hangars.

NFPA 750, Standard on Water Mist Fire Protection Systems. Changes to the 2015 edition of NFPA 750, which are carried into the latest edition, include updates that provide additional information on design water mist systems for various defined occupancies. The revisions add two chapters to address the dynamics of occupancy classification in designing a water mist system: Chapter 5, Classification of Occupancies, and Chapter 10, Occupancy Protection Systems. In addition, the revisions remove the inspection, testing, and maintenance sections for water mist systems, other than those installed in one- and two-family dwellings and now reference NFPA 25.

Changes to the 2019 edition of NFPA 750 include revisions that clarify the definitions of a "gridded water mist system" and "twin-fluid system," which devices can be used as automatic means, which components can be used as provisions for cleaning, and the requirements for pressure-indicating devices used on a common manifold system. The revisions also clarify a listed system requirement that any mixed components or systems have been tested together and expand requirements to include configurations allowed in current listed solutions.

In addition, the revisions added new sections specifying design, testing, and installation of pre-action water mist systems. The revisions added another section to prevent debris and contaminants from entering a water mist system by requiring a strainer or filter after the FDC. The revisions also clarify the location of the FDC on a low-pressure water mist system. Throughout the standard, the revisions replace the terms "pressure container" and "pressurized container" with the newly defined term "pressure vessel," and replace the phrase "safety device to release excess pressure" with "pressure relief device" to maintain consistency with industry practices and terminology. Finally, the revisions also update referenced documents, extracts, and formatting to comply with the *Manual of Style for NFPA Technical Committee Documents*.

NFPA 2001, Standard on Clean Agent Fire Extinguisher Systems. The revisions to the 2015 edition of NFPA 2001, which are carried into the latest edition, add new content regarding recycling and disposal of clean agents and new system design criteria for 200-bar and 300-bar IG-01 systems. The revisions also add a sample system acceptance report to aid in conformance with commissioning practices. The revisions made by the committee include a completed update of all references and a review of the pipe design criteria against the referenced piping code. The revisions to this edition also revise the requirements for cylinder location, enclosure integrity, and unoccupied spaces.

Changes to the 2018 edition of NFPA 2001 include revisions that reorganize the chapter on inspection, testing, maintenance, and training to improve usability of the standard and to comply with the *Manual of Style for NFPA Technical Committee Documents*. These revisions are split into two distinct chapters: Chapter 7, Approval of Installations, and Chapter 8, Inspection, Servicing, Testing, Maintenance, and Training. The revisions also add definitions for "inspection," "maintenance," and "service," and add a requirement for integrated fire protection and life safety systems to be tested in accordance with NFPA 4. In addition, the revisions to the standard require an egress-time study for all clean agent systems, not just those where the design concentration is greater than the No Observed Adverse Effect Level. The revisions also add a definition of "abort switch" and revise the definition of "clean agent." The revisions also update the requirements for pipe and fittings in accordance with the latest reference standards. Lastly, the revisions add a new section on pipe hangers and supports.

NFPA 2010, Standard for Fixed Aerosol Fire Extinguishing Systems. Changes to the 2015 edition of NFPA 2010, which are carried into the latest edition, include revisions that revise the frequency of system inspections and add references to third-party approval standards.

Changes to the 2020 edition of NFPA 2010 include revisions that remove dispersed aerosol systems from the document scope and delete all requirements that are not relevant to condensed aerosol systems. New requirements address the use of aerosol extinguishing systems in normally occupied spaces. Revised text clarifies that an enclosure integrity test is not required and addresses compensation for leakage and enclosure ceiling height when determining the aerosol agent quantity. Lastly, the revisions made general improvements of readability and clarity throughout.

UL 827, Standard for Central Station Alarm Services. The revised standard for UL 827 makes technical and editorial revisions.

FISCAL NOTE AND LOCAL EMPLOYMENT IMPACT STATEMENT. Texas State Fire Marshal Orlando Hernandez has determined that during each year of the first five years the proposed amendments are in effect, there may be measurable fiscal impact on state and local governments as a result of enforcing or administering the sections. The cost analysis in the Public Benefit and Cost Note part of this proposal is applicable to these local and state governments should the state fire marshal conduct an examination and order the correction of a dangerous condition identified as a result of enforcing the proposed NFPA standards. Mr. Hernandez does not anticipate any measurable effect on local employment or the local economy as a result of this proposal.

PUBLIC BENEFIT AND COST NOTE. For each year of the first five years the proposed amendments are in effect, Mr. Hernandez expects that administering the rules will have the public benefit of ensuring that TDI's rules are up to date and better protect the public from fire because the state fire marshal will be able to apply the most recent standards and recommendations for the inspection of buildings.

Mr. Hernandez expects that the proposed amendments will impose an economic cost on persons required to comply with the amendments. Because of revisions in the updated codes, building owners and licensees may be required to meet more stringent or altered code requirements, and building owners and licensees may have higher costs to comply with the more recent version of the standards. However, these costs will be individualized and based on the existing condition of the building, the number of buildings affected by the updated standards, and the work processes of licensees.

The NFPA offers instant digital access to NFPA codes and standards through its online service called NFPA LiNK. With NFPA LiNK, interested persons and entities can access a digital library of the most recent and the five previous editions of NFPA codes and standards for approximately \$9.99 a month for individual access or \$40.49 a month for up to 10 users. However, a free read-only version of the updated NFPA standards exists through the NFPA website, therefore TDI has not ascribed a cost to accessing the updated codes.

Because of revisions in the updated codes, building owners and licensees may be required to meet more stringent or altered code requirements, and building owners and licensees may have higher costs to comply with the more recent version of the standards. However, these costs will be individualized and based on the existing condition of the building, the number of buildings affected by the updated standards, and the work processes of licensees.

ECONOMIC IMPACT STATEMENT AND REGULATORY FLEXIBILITY ANALYSIS. TDI has determined that the proposed amendments may have an adverse economic effect on small or micro businesses and rural communities. The cost analysis in the Public Benefit and Cost Note section of this proposal also applies to these small and micro businesses and rural communities. TDI estimates that the proposed sections may affect approximately 20,000 small or micro businesses and potentially any rural community that owns a building subject to the revised code requirements. The primary objective

of this proposal is to adopt revised NFPA standards. The updated standards are necessary to better protect the health and safety of the public. TDI has determined, in accord with Government Code §2006.002(c-1), that the proposal substantially contributes to the health and safety of Texas citizens by incorporating more current NFPA standards. There are no regulatory alternatives to the adoption of the updated standards in this proposal that will sufficiently protect the health and safety of Texas citizens affected by the rules.

EXAMINATION OF COSTS UNDER GOVERNMENT CODE §2001.0045. TDI has determined that this proposal does impose a possible cost on regulated persons. However, no additional rule amendments are required under Government Code §2001.0045 because the proposed amendments are necessary to protect the health, safety, and welfare of the residents of this state. The proposed amendments will better protect the public from fire because they will allow the state fire marshal to apply the most recent standards and recommendations for the inspection of buildings. This means that examinations conducted by the state fire marshal using these updated standards will result in better protection of individual citizens, fire fighters, buildings, and structures. In order to properly protect life and property, it is necessary that the current nationally recognized standards for inspection of buildings and premises be used.

GOVERNMENT GROWTH IMPACT STATEMENT. TDI has determined that for each year of the first five years that the proposed amendments are in effect, the proposed amendments:

- will not create or eliminate a government program;
- will not require the creation of new employee positions or the elimination of existing employee positions;

- will not require an increase or decrease in future legislative appropriations to the agency;
- will not require an increase or decrease in fees paid to the agency;
- will create a new regulation;
- will not expand, limit, or repeal an existing regulation;
- will increase or decrease the number of individuals subject to the rule's applicability; and
- will not positively or adversely affect the Texas economy.

TAKINGS IMPACT ASSESSMENT. TDI has determined that no private real property interests are affected by this proposal and that this proposal does not restrict or limit an owner's right to property that would otherwise exist in the absence of government action. As a result, this proposal does not constitute a taking or require a takings impact assessment under Government Code §2007.043.

REQUEST FOR PUBLIC COMMENT. TDI will consider any written comments on the proposal that are received by TDI no later than 5:00 p.m., central time, on January 23, 2023. Send your comments to ChiefClerk@tdi.texas.gov or to the Office of the Chief Clerk, MC: GC-CCO, Texas Department of Insurance, PO Box 12030, Austin, Texas 78711-2030.

To request a public hearing on the proposal, submit a request before the end of the comment period to ChiefClerk@tdi.texas.gov or to the Office of the Chief Clerk, MC: GC-CCO, Texas Department of Insurance, PO Box 12030, Austin, Texas 78711-2030. The request for public hearing must be separate from any comments and received by TDI no later than 5:00 p.m., central time, on January 23, 2023. If TDI holds a public hearing, TDI will consider written and oral comments presented at the hearing.

**SUBCHAPTER C. STANDARDS AND FEES FOR STATE FIRE MARSHAL INSPECTIONS.
28 TAC §34.303**

STATUTORY AUTHORITY. TDI proposes amendments to §34.303 under Government Code §§417.005, 417.008(e), and 417.0081 and Insurance Code §36.001.

Government Code §417.005 states that the Commissioner, after consulting with the state fire marshal, may adopt rules necessary to guide the state fire marshal in the performance of other duties for the Commissioner.

Government Code §417.008(e) provides that the Commissioner may adopt by rule any appropriate standard related to fire danger developed by a nationally recognized standards-making association.

Government Code §417.0081 provides that the Commissioner by rule shall adopt guidelines for assigning potential fire safety risk to state-owned and state-leased buildings and providing for the inspection of each building to which this section applies.

Insurance Code §36.001 provides that the Commissioner may adopt any rules necessary and appropriate to implement the powers and duties of TDI under the Insurance Code and other laws of this state.

CROSS-REFERENCE TO STATUTE. Section 34.303 implements Government Code Chapter 417.

TEXT.

§34.303. Adopted Standards.

(a)The Commissioner [~~commissioner~~] adopts by reference:

(1) NFPA 1-2021 [~~1-2015~~] Fire Code, except for:

(A) Chapter 1 Administration, to the extent that subsections 1.6 Enforcement, 1.7 Authority, 1.8 Duties and Powers of the Incident Commander, 1.9

Liability, 1.10 Fire Code Board of Appeals, 1.11 Records and Reports, 1.12 Permits and Approvals, 1.13 Certificates of Fitness, 1.14 Plan Review, and 1.16 Notice of Violations and Penalties do not apply to state fire marshal [~~State Fire Marshal~~] inspections;

(B) Chapter 30 Motor Fuel Dispensing Facilities and Repair Garages, to the extent it conflicts with standards adopted in Subchapter A of this chapter and Health and Safety Code Chapter 753;

(C) Chapter 60 Hazardous Materials, to the extent it will not be applied to university laboratories and laboratories in health care occupancies; and

(D) Chapter 65 Explosives, Fireworks, and Model Rocketry, to the extent it conflicts with Subchapter [~~subchapter~~] H of this chapter and Occupations Code Chapter 2154;

(2) NFPA Life Safety Code 101-2021 [~~101-2015~~];

(b) These copyrighted standards and recommendations are adopted in their entirety for inspections performed under Government Code §417.008, except to the extent they are in conflict with sections of this chapter or any Texas statutes or federal law. The standards are published by and are available from the National Fire Protection Association Inc. (NFPA) on the NFPA website at www.nfpa.org. [~~Batterymarch Park, Quincy, Massachusetts 02269, or by calling 1-800-344-3555. A copy of the standards is available for public inspection in the State Fire Marshal's Office.~~]

SUBCHAPTER E. FIRE EXTINGUISHER RULES. 28 TAC §34.507

STATUTORY AUTHORITY. TDI proposes amendments to §34.507 under Government Code §417.004 and §417.005, and Insurance Code §§6001.051(a), (b); 6001.052(a) - (c); and 36.001.

Government Code §417.004 provides that the Commissioner performs the rulemaking functions previously performed by the Texas Commission on Fire Protection.

Government Code §417.005 provides that the Commissioner may, after consulting with the state fire marshal, adopt necessary rules to guide the state fire marshal in the investigation of arson, fire, and suspected arson and in the performance of other duties for the Commissioner.

Insurance Code §6001.051(a) provides that TDI administer Insurance Code Chapter 6001. Insurance Code §6001.051(b) provides that the Commissioner may issue rules the Commissioner considers necessary to administer Chapter 6001 through the state fire marshal.

Insurance Code §6001.052(a) provides that in adopting necessary rules, the Commissioner may use recognized standards, including standards published by the National Fire Protection Association. Insurance Code §6001.052(b) provides that the Commissioner adopt and administer rules determined essentially necessary for the protection and preservation of life and property regarding (1) registration of firms engaged in the business of installing or servicing portable fire extinguishers or planning, certifying, installing, or servicing fixed fire extinguisher systems, or hydrostatic testing of fire extinguisher cylinders; (2) the examination and licensing of individuals to install or service portable fire extinguishers and plan, certify, install, or service fixed fire extinguisher systems; and (3) requirements for installing or servicing portable fire extinguishers and planning, certifying, installing, or servicing fixed fire extinguisher systems. Insurance Code §6001.052(c) provides that the Commissioner by rule prescribe requirements for applications and qualifications for licenses, permits, and certificates issued under this chapter.

Insurance Code §36.001 provides that the Commissioner may adopt any rules necessary and appropriate to implement the powers and duties of TDI under the Insurance Code and other laws of this state.

CROSS-REFERENCE TO STATUTE. Section 34.507 implements Insurance Code §§6001.051, 6001.052, and 6001.157.

TEXT.

§34.507. Adopted Standards.

The Commissioner [~~commissioner~~] adopts by reference in their entirety, except as noted, the following copyrighted standards and recommendations in this subchapter. If a standard refers to a provision in a specific edition of another standard, the provision is applicable only if it does not conflict with the adopted standard shown in this section. The standards are published by and available from the National Fire Protection Association [~~]~~ Inc. (NFPA) on the NFPA website at www.nfpa.org. [~~(NFPA), Batterymarch Park, Quincy, Massachusetts 02269. A copy of the standards will be available for public inspection in the State Fire Marshal's Office.~~]

(1) NFPA 10-2018 [~~10-2013~~], Standard for Portable Fire Extinguishers.

(2) NFPA 11-2016 [~~11-2010~~], Standard for Low-, Medium-, and High-Expansion Foam and Combined Agent Systems.

(3) NFPA 12-2018 [~~12-2011~~], Standard on Carbon Dioxide Extinguishing Systems.

(4) NFPA 12A-2018 [~~12A-2009~~], Standard on Halon 1301 Fire Extinguishing Systems.

(5) NFPA 15-2017 [~~15-2012~~], Standard for Water Spray Fixed Systems for Fire Protection.

(6) NFPA 16-2019 [~~16-2011~~], Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.

(7) NFPA 17-2021 [~~17-2013~~], Standard for Dry Chemical Extinguishing Systems.

(8) NFPA 17A-2021 [~~17A-2013~~], Standard for Wet Chemical Extinguishing Systems.

(9) NFPA 18-2021 [~~18-2011~~], Standard on Wetting Agents.

(10) NFPA 25-2020 [~~25-2014~~], Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

(11) NFPA 33-2018 [~~33-2011~~], Standard for Spray Application Using Flammable or Combustible Materials.

(12) NFPA 96-2021 [~~96-2014~~], Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

(13) NFPA 2001-2018 [~~2001-2012~~], Standard on Clean Agent Fire Extinguishing Systems.

(14) NFPA 2010-2020 [~~2010-2010~~], Standard for Fixed Aerosol Fire-Extinguishing Systems.

SUBCHAPTER F. FIRE ALARM RULES.

28 TAC §34.607

STATUTORY AUTHORITY. TDI proposes amendments to §34.607 under Government Code §417.004 and §417.005, and Insurance Code §§6002.051(a), (b); 6002.052(a)-(c); 6002.054(a); and 36.001.

Government Code §417.004 provides that the Commissioner performs the rulemaking functions previously performed by the Texas Commission on Fire Protection.

Government Code §417.005 provides that the Commissioner may, after consulting with the state fire marshal, adopt necessary rules to guide the state fire marshal in the

investigation of arson, fire, and suspected arson, and in the performance of other duties for the Commissioner.

Insurance Code §6002.051(a) provides that TDI administer Insurance Code Chapter 6002. Insurance Code §6002.051(b) provides that the Commissioner may issue rules necessary to administer Chapter 6002 through the state fire marshal.

Insurance Code §6002.052(a) provides that in adopting necessary rules, the Commissioner may use recognized standards, including standards adopted by the NFPA.

Insurance Code §6002.052(b) specifies that rules adopted under §6002.051 may create specialized licenses or registration certificates for an organization or individual engaged in the business of planning, certifying, leasing, selling, servicing, installing, monitoring, or maintaining fire alarm or fire detection devices or systems and that the rules must establish appropriate training and qualification standards for each kind of license and certificate. Insurance Code §6002.052(c) specifies that the Commissioner must also adopt standards applicable to fire alarm devices, equipment, or systems regulated under this chapter and that in adopting these standards, the Commissioner may allow the operation of a fire alarm monitoring station that relies on fire alarm devices or equipment approved or listed by a nationally-recognized testing laboratory without regard to whether the monitoring station is approved or listed by a nationally-recognized testing laboratory if the operator of the station demonstrates that the station operating standards are substantially equivalent to those required to be approved or listed.

Insurance Code §36.001 provides that the Commissioner may adopt any rules necessary and appropriate to implement the powers and duties of TDI under the Insurance Code and other laws of this state.

CROSS-REFERENCE TO STATUTE. Section 34.607 implements Insurance Code §§6002.051, 6002.052, and 6002.156.

TEXT.

§34.607. Adopted Standards.

(a) The Commissioner [~~commissioner~~] adopts by reference those sections of the following copyrighted minimum standards, recommendations, and appendices concerning fire alarm, fire detection, or supervisory services or systems, except to the extent they are at variance with sections of this subchapter, Insurance Code Chapter 6002, or other state statutes. The standards are published by and are available from the National Fire Protection Association Inc. (NFPA) on the NFPA website at www.nfpa.org. [~~7 Battery March Park, Quincy, Massachusetts 02269. A copy of the standards will be available for public inspection at the State Fire Marshal's Office.~~]

(1) NFPA 11-2016 [~~11-2010~~], Standard for Low-, Medium-, and High-Expansion Foam.

(2) NFPA 12-2018 [~~12-2011~~], Standard on Carbon Dioxide Extinguishing Systems.

(3) NFPA 12A-2018 [~~12A-2009~~], Standard on Halon 1301 Fire Extinguishing Systems.

(4) NFPA 13-2019 [~~13-2013~~], Standard for the Installation of Sprinkler Systems.

(5) NFPA 13D-2019 [~~13D-2013~~], Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes.

(6) NFPA 13R-2019 [~~13R-2013~~], Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies.

(7) NFPA 15-2017 [~~15-2012~~], Standard for Water Spray Fixed Systems for Fire Protection.

(8) NFPA 16-2019 [~~16-2011~~], Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.

(9) NFPA 17-2021 [~~17-2013~~], Standard for Dry Chemical Extinguishing Systems.

(10) NFPA 17A-2021 [~~17A-2013~~], Standard for Wet Chemical Extinguishing Systems.

(11) NFPA 25-2020 [~~25-2014~~], Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

(12) NFPA 70-2020 [~~70-2014~~], National Electrical Code.

(13) NFPA 72-2019 [~~72-2013~~], National Fire Alarm Code.

(14) NFPA 90A-2021 [~~90A-2012~~], Standard for the Installation of Air Conditioning and Ventilating Systems.

(15) NFPA 101-2021, Life Safety Code [~~101(r)-2012, or later editions, Code for Safety to Life from Fire in Buildings and Structures (Life Safety Code)®~~], or a local jurisdiction may adopt one set of the model codes listed in subsection (b) of this section instead of NFPA 101.

(16) UL 827 December 3, 2021 [~~October 1, 2008~~], Standard for Central Station Alarm Services.

(17) NFPA 2001-2018 [~~2001-2012~~], Standard on Clean Agent Fire Extinguisher Systems.

(b) The acceptable alternative model code sets are:

(1) the International Building Code®-2003 or later editions, and the International Fire Code-2003 or later editions; or

(2) the International Residential Code® for One- and Two-Family Dwellings-2003 or later editions.

SUBCHAPTER G. FIRE SPRINKLER RULES.

28 TAC §34.707

STATUTORY AUTHORITY. TDI proposes amendments to §34.707 under Government Code §417.004 and §417.005, and Insurance Code §§6003.051(a), (b); 6003.052(a); 6003.054(a); and 36.001.

Government Code §417.004 provides that the Commissioner perform the rulemaking functions previously performed by the Texas Commission on Fire Protection.

Government Code §417.005 provides that the Commissioner may, after consulting with the state fire marshal, adopt necessary rules to guide the state fire marshal in the investigation of arson, fire, and suspected arson, and in the performance of other duties for the Commissioner.

Insurance Code §6003.051(a) provides that TDI administer Chapter 6003. Insurance Code §6003.051(b) provides that the Commissioner may issue rules necessary to administer Chapter 6003 through the state fire marshal.

Insurance Code §6003.052(a) provides that in adopting necessary rules, the Commissioner may use recognized standards, including standards adopted by the NFPA.

Insurance Code §6003.054(a) provides that the state fire marshal must implement the rules adopted by the Commissioner for the protection and preservation of life and property in controlling (1) the registration of an individual or an organization engaged in the business of planning, selling, installing, maintaining, or servicing fire protection sprinkler systems; and (2) the requirements for the plan, sale, installation, maintenance, or servicing of fire protection sprinkler systems by determining the criteria and qualifications for registration certificate and license holders; evaluating the qualifications of an applicant for a registration certificate to engage in the business of planning, selling, installing, maintaining, or servicing fire protection sprinkler systems; conducting examinations and evaluating the qualifications of a license applicant; and issuing registration certificates and licenses to qualified applicants.

Insurance Code §36.001 provides that the Commissioner may adopt any rules necessary and appropriate to implement the powers and duties of TDI under the Insurance Code and other laws of this state.

CROSS-REFERENCE TO STATUTE. Section 34.707 implements Insurance Code §§6003.051, 6003.052, 6003.054, and 6003.156.

TEXT.

§34.707. Adopted Standards.

~~[(a)]~~ The Commissioner ~~[commissioner]~~ adopts by reference in their entirety the following copyrighted standards and recommended practices published by and available from the National Fire Protection Association ~~[,]~~ Inc. (NFPA) on the NFPA website at www.nfpa.org. ~~[, Battery March Park, Quincy, Massachusetts 02269. A copy of the standards will be available for public inspection in the State Fire Marshal's Office.]~~

(1) NFPA 13-2019 ~~[13-2013]~~, Standard for the Installation of Sprinkler Systems;

(2) NFPA 25-2020 ~~[25-2014]~~, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems;

(3) NFPA 13D-2019 ~~[13D-2013]~~, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes;

(4) NFPA 13R-2019 ~~[13R-2013]~~, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies;

(5) NFPA 14-2019 ~~[14-2013]~~, Standard for the Installation of Standpipe and Hose Systems;

(6) NFPA 15-2017 ~~[15-2012]~~, Standard for Water Spray Fixed Systems for Fire Protection;

(7) NFPA 16-2019 [~~16-2011~~], Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems;

(8) NFPA 20-2019 [~~20-2013~~], Standard for the Installation of Stationary Pumps for Fire Protection;

(9) NFPA 22-2018 [~~22-2013~~], Standard for Water Tanks for Private Fire Protection;

(10) NFPA 24-2019 [~~24-2013~~], Standard for the Installation [~~installation~~] of Private Fire Service Mains and Their Appurtenances;

(11) NFPA 30-2021 [~~30-2012~~], Flammable and Combustible Liquids Code;

(12) NFPA 30B-2019 [~~30B-2011~~], Code for the Manufacture and Storage of Aerosol Products;

(13) NFPA 307-2021 [~~307-2011~~], Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves;

(14) NFPA 214-2021 [~~214-2011~~], Standard on Water-Cooling Towers;

(15) NFPA 409-2016 [~~409-2011~~], Standard on Aircraft Hangars; and

(16) NFPA 750-2019 [~~750-2010~~], Standard on Water Mist Fire Protection Systems.

CERTIFICATION. This agency certifies that legal counsel has reviewed the proposal and found it to be within the agency's authority to adopt.

Issued in Austin, Texas, on December 8, 2022.

DocuSigned by:

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Allison Eberhart, Deputy General Counsel
Texas Department of Insurance