

**NFPA®**

**150**

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Fire and Life Safety  
in Animal Housing  
Facilities Code

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**2022**



# NFPA<sup>®</sup> 150

## Fire and Life Safety in Animal Housing Facilities Code

2022 Edition



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## NFPA® 150

# Fire and Life Safety in Animal Housing Facilities Code

## 2022 Edition

This edition of NFPA 150, *Fire and Life Safety in Animal Housing Facilities Code*, was prepared by the Technical Committee on Animal Housing Facilities. It was issued by the Standards Council on March 18, 2021, with an effective date of April 8, 2021, and supersedes all previous editions.

This edition of NFPA 150 was approved as an American National Standard on April 8, 2021.

### Origin and Development of NFPA 150

After a series of disastrous fires in racetrack stables in 1975, NFPA established the Committee on Firesafety in Racetrack Stables. This committee began its work in 1976 with the establishment of three working subcommittees covering construction, occupancy requirements, and fire protection. NFPA 150, *Standard on Firesafety in Racetrack Stables*, was first published in 1979. In the 1985 edition, minor changes were made to the standard that included the printing of Table 3 from NFPA 220, *Standard on Types of Building Construction*, in Appendix A. Changes to both the 1991 and 1995 editions consisted of editorial improvements and clarifications of the existing text.

The 2000 edition added a section on equivalency and revised other portions of the text to reflect the *Manual of Style for NFPA Technical Committee Documents* for use of mandatory language.

In 2004, the scope of NFPA 150 expanded to include life and safety requirements for both humans and animals in all types of animal housing facilities. In July 2004, the Standards Council approved the expansion and changed the name of the document to *Standard on Fire and Life Safety in Animal Housing Facilities*. The expanded NFPA 150 provided better guidance to authorities having jurisdiction by addressing all types of animal housing facilities and made possible the consistent treatment of such facilities from jurisdiction to jurisdiction.

The 2009 edition included several updates to referenced codes and standards and to some of the extracted text. A new provision allowing the use of the room-corner test from NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, was introduced to allow an alternative test protocol to evaluate interior finish materials. These refinements continued and a new chapter on performance-based design approaches was added for the 2013 edition. Other changes for that edition included supplemental provisions for the built-in fire protection systems that are mandated by the standard.

Changes for the 2016 edition included several clarifications and additions, including scoping criteria with regard to how the standard should be applied to existing buildings, classification of all agricultural animals in the Category B scheme for protection purposes, and a provision that extends automatic sprinkler and smoke control systems into all facilities that board or house horses.

For the 2019 edition, the entire document was rewritten and changed from a standard to a code, the format reflecting the layout of NFPA 101®, *Life Safety Code®*, with core and occupancy chapters. Also included were seven new animal categories, some of which were broken down into subcategories, each with specific requirements tailored to the facilities' specific hazards and safety needs. In addition, a new annex was developed that featured a table summarizing fire protection requirements for each animal category.

The 2022 edition includes new requirements for risk management in research facilities. New options for emergency forces notification and requirements for annual inspections have been added to the agricultural chapter. Updates also have been made to the references and extracted text.

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*This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.*

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

**Committee Scope:** This Committee shall have primary responsibility for documents on the loss of animal and human life and property from fire in animal housing facilities, including, but not limited to the following: barns; stables; kennels; animal shelters; animal hospitals; veterinary facilities; zoos, special amusement parks; agricultural facilities; laboratories; and racetrack stable and kennel areas including those stable and kennel areas, barns, and associated buildings at state, county, and local fairgrounds. This Committee does not cover building code or life safety code requirements that are handled by other committees.



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## NFPA 150

# Fire and Life Safety in Animal Housing Facilities Code

2022 Edition

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Information on referenced and extracted publications can be found in Chapter 2 and Annex D.

## Chapter 1 Administration

### 1.1 Scope.

**1.1.1\*** This Code shall provide the minimum requirements for the design, construction, fire protection, and classification of animal housing facilities.

**1.1.2\*** Animal housing facilities shall be designed, constructed, and maintained in accordance with the adopted building, fire, and life safety codes and the requirements herein.

**1.1.3** Where requirements of this Code differ from the adopted fire prevention, life safety, and building codes, the requirements of this Code shall govern the protection of the animal occupants and animal handlers.

**1.2 Purpose.** The purpose of this Code shall be to prevent the loss of animal life, human life, and property from fire or other emergencies by providing the minimum requirements for the design, construction, operation, and maintenance of facilities where animals are housed, including, but not limited to, rest, feed, work, exercise, and production areas.

### 1.3 Application.

**1.3.1\*** This Code shall apply to animal housing facilities that are subject to local, state, or federal licensing or permitting requirements, including, but not limited to, the following:

- (1) Animal hospitals and veterinary facilities
- (2) Barns and stables
- (3) Laboratories
- (4) Animal shelters and adoption centers
- (5) Zoos, special amusement parks, and traveling exhibitions
- (6) General board and care facilities
- (7) Agricultural facilities
- (8) Emergency facilities

**1.3.2** This Code shall apply to new animal housing facilities.

**1.3.3\*** This Code shall also apply to existing facilities where any one of the following conditions applies:

- (1) A change of use or occupancy classification occurs where animals are introduced.
- (2) A change is made in the category of the animals housed.
- (3) A facility undergoes rehabilitation that is classified by Chapter 43 of NFPA 101 as a modification, reconstruction, addition, or change of use or occupancy classification.
- (4) A building or structure with an animal housing facility is relocated.
- (5) A building with an animal housing facility is considered damaged, unsafe, or a fire hazard.
- (6) A property line that affects compliance with any provision of this Code is created or relocated.

**1.3.4\*** This Code shall apply to temporary structures housing animals solely for the purposes of developing a disaster/emergency management program in accordance with 4.3.4.

**1.4 Retroactivity.** The provisions of this Code provide an acceptable degree of protection from the hazards addressed in this Code at the time the Code was issued.

**1.4.1** Unless otherwise specified, the provisions of this Code shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the Code. Where specified, the provisions of this Code shall be retroactive.

**1.4.2** This Code shall apply to existing installations that are determined by the authority having jurisdiction (AHJ) to constitute imminent danger to animal occupant or animal handler safety.

**1.4.3** The retroactive requirements of this Code shall be permitted to be modified if their application would be impractical in the judgment of the AHJ and only where it is evident that a reasonable degree of safety is provided.

**1.5 Equivalency.** Nothing in this Code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this Code.

**1.5.1** Technical documentation shall be submitted to the AHJ to demonstrate equivalency.

**1.5.2** The system, method, or device shall be approved for the intended purpose by the AHJ.

**1.5.3** Alternative systems, methods, or devices approved as equivalent by the AHJ shall be recognized as being in compliance with this *Code*.

## 1.6 Units.

**1.6.1 SI Units.** Metric units in this *Code* are in accordance with the modernized metric system known as the International System of Units (SI).

**1.6.2 Primary and Equivalent Values.** If a value for a measurement as given in this *Code* is followed by an equivalent value in other units, the first stated value shall be regarded as the requirement. A given equivalent value might be approximate.

**1.7 Enforcement.** This *Code* shall be administered and enforced by the AHJ designated by the governing authority. (See *Annex B* for sample wording for enabling legislation.)

## Chapter 2 Referenced Publications

**2.1 General.** The documents or portions thereof listed in this chapter are referenced within this code and shall be considered part of the requirements of this document.

**Δ 2.2 NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 1, *Fire Code*, 2021 edition.

NFPA 10, *Standard for Portable Fire Extinguishers*, 2022 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2022 edition.

NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, 2022 edition.

NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*, 2022 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2020 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2020 edition.

NFPA 54/ANSI Z223.1, *National Fuel Gas Code*, 2021 edition.

NFPA 58, *Liquefied Petroleum Gas Code*, 2020 edition.

NFPA 70®, *National Electrical Code*®, 2020 edition.

NFPA 72®, *National Fire Alarm and Signaling Code*®, 2022 edition.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2022 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2021 edition.

NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, 2021 edition.

NFPA 92, *Standard for Smoke Control Systems*, 2021 edition.

NFPA 99, *Health Care Facilities Code*, 2021 edition.

NFPA 101®, *Life Safety Code*®, 2021 edition.

NFPA 105, *Standard for Smoke Door Assemblies and Other Opening Protectives*, 2022 edition.

NFPA 204, *Standard for Smoke and Heat Venting*, 2021 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2019 edition.

NFPA 220, *Standard on Types of Building Construction*, 2021 edition.

NFPA 221, *Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls*, 2021 edition.

NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, 2017 edition.

NFPA 257, *Standard on Fire Test for Window and Glass Block Assemblies*, 2017 edition.

NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, 2019 edition.

NFPA 288, *Standard Methods of Fire Tests of Horizontal Fire Door Assemblies Installed in Horizontal Fire Resistance-Rated Assemblies*, 2017 edition.

NFPA 780, *Standard for the Installation of Lightning Protection Systems*, 2020 edition.

NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, 2018 edition.

NFPA 1600®, *Standard on Continuity, Emergency, and Crisis Management*, 2019 edition.

NFPA 5000®, *Building Construction and Safety Code*®, 2021 edition.

## 2.3 Other Publications.

**2.3.1 ANSI Publications.** American National Standards Institute, Inc., 25 West 43rd Street, 4th Floor, New York, NY 10036.

ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*, 2017.

**2.3.2 ASCE Publications.** American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA 20191-4400.

ASCE/SEI 7, *Minimum Design Loads for Buildings and Other Structures*, 2016 edition.

**Δ 2.3.3 ASTM Publications.** ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D396, *Standard Specification for Fuel Oils*, 2019a.

ASTM D3699, *Standard Specification for Kerosene*, 2019.

ASTM D6448, *Industrial Burner Fuels from Used Lube Oils*, 2016.

ASTM D6751, *Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuel*, 2019.

ASTM D6823, *Standard Specification for Commercial Boiler Fuels with Used Lubricating Oils*, 2008, reapproved 2013.

ASTM D7666, *Standard Specification for Triglyceride Burner Fuel*, 2012, reapproved 2019.

ASTM E84, *Standard Test Method of Surface Burning Characteristics of Building Materials*, 2020.

ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2019.

ASTM E814, *Standard Test Method for Fire Tests of Penetration Fire Stop Systems*, 2013a, reapproved 2017.

ASTM E1354, *Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*, 2017.

ASTM E1591, *Standard Guide for Obtaining Data for Fire Growth Models*, 2013.

ASTM E1966, *Standard Test Method for Fire-Resistive Joint Systems*, 2015, reapproved 2019.

ASTM E2307, *Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-Story Apparatus*, 2019.

▲ **2.3.4 UL Publications.** Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 9, *Fire Tests of Window Assemblies*, 2015.

UL 10B, *Fire Tests of Door Assemblies*, 2008, revised 2015.

UL 10C, *Positive Pressure Fire Tests of Door Assemblies*, 2016.

UL 217, *Smoke Alarms*, 8th edition, 2015, revised 2016.

UL 263, *Fire Tests of Building Construction and Materials*, 2019.

UL 268, *Smoke Detectors for Smoke Alarm Systems*, 7th edition, 2016.

UL 296A, *Waste Oil-Burning Air-Heating Appliances*, 2018.

UL 555, *Fire Dampers*, 2006, revised 2016.

UL 555S, *Smoke Dampers*, 1999, revised 2016.

UL 647, *Unvented Kerosene-Fired Room Heaters and Portable Heaters*, 1993, revised 2010.

UL 723, *Test for Surface Burning Characteristics of Building Materials*, 2018.

UL 1037, *Antitheft Alarms and Devices*, 2017.

UL 1479, *Fire Tests of Penetration Firestops*, 2015.

UL 2079, *Tests for Fire Resistance of Building Joint Systems*, 2015.

**2.3.5 Other Publications.**

ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators*, 2016.

ASME A17.3, *Safety Code for Existing Elevators and Escalators*, 2017.

*Merriam-Webster's Collegiate Dictionary*, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

**2.4 References for Extracts in Mandatory Sections.**

NFPA 1, *Fire Code*, 2021 edition.

NFPA 72®, *National Fire Alarm and Signaling Code*®, 2022 edition.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2022 edition.

NFPA 96, *Standard for Ventilation and Control and Fire Protection of Commercial Cooking Operations*, 2021 edition.

NFPA 101®, *Life Safety Code*®, 2021 edition.

NFPA 5000®, *Building Construction and Safety Code*®, 2021 edition.

**Chapter 3 Definitions**

**3.1 General.** The definitions contained in this chapter shall apply to the terms used in this code. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

**3.2 NFPA Official Definitions.**

**3.2.1\* Approved.** Acceptable to the authority having jurisdiction.

**3.2.2\* Authority Having Jurisdiction (AHJ).** An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

**3.2.3\* Code.** A standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.

**3.2.4 Labeled.** Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

**3.2.5\* Listed.** Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

**3.2.6 Shall.** Indicates a mandatory requirement.

**3.2.7 Should.** Indicates a recommendation or that which is advised but not required.

**3.3 General Definitions.**

**3.3.1 Addition.** An increase in the building area, aggregate floor area, building height, or number of stories of a structure. [5000, 2021]

**3.3.2 Animal.** For the purposes of this Code, an air-breathing vertebrate.

**3.3.2.1\* Confined Animals.** Animals housed such that human intervention is required for their release and evacuation in case of emergency.

**3.3.3\* Animal Handler.** A person responsible for the handling, grooming, and care of confined animals, or reasonably expected to assist in their handling and evacuation in case of emergency.

**3.3.4\* Animal Housing Facility.** Area of a building or structure, including interior and adjacent exterior spaces, where animals are fed, rested, worked, exercised, treated, exhibited, or used for production.

**3.3.5 Animal Housing Facility Categories.**

**3.3.5.1 Category 1 — Animal Health Care.** Animal housing facilities used for short-term care, maintenance, or medical attention of animals.

**3.3.5.2 Category 1 Class A.** Facilities where animals are observed overnight, not constantly attended, for short-term care, maintenance, or medical attention.



**3.3.5.3 Category 1 Class B.** Facilities where animals are housed temporarily and constantly attended for short-term care, maintenance, or medical attention.

**3.3.5.4 Category 2 — Horse Facilities.** Facilities used for temporary or permanent housing for horses.

**3.3.5.5 Category 2 Class A.** Facilities where horses are housed for general board and care in a commercial or professional facility greater than 5000 ft<sup>2</sup> (465 m<sup>2</sup>).

**3.3.5.6 Category 2 Class B.** Facilities where horses are housed for general board and care in a small commercial or professional facility less than 5000 ft<sup>2</sup> (465 m<sup>2</sup>).

**3.3.5.7 Category 2 Class C.** Facilities where horses are housed in small family stables.

**3.3.5.8 Category 3 — Research.** Facilities used for experimentation, education, or scientific experimentation or production research on animals in a controlled environment.

**3.3.5.9 Category 5 — Exhibition/Public Viewing.** Facilities that allow public access for the purpose of exhibition or public viewing of animals.

**3.3.5.10 Category 5 Class A.** Facilities where public attraction animals are permanently housed.

**3.3.5.11 Category 5 Class B.** Facilities where public attraction animals are temporarily housed.

**3.3.5.12 Category 6 — General Board and Care.** Facilities used for temporary or permanent housing of animals used for providing a service or participating in a sport or for the purposes of providing general board and care.

**3.3.5.13 Category 6 Class A.** Facilities where animals are housed without constant supervision.

**3.3.5.14 Category 6 Class B.** Facilities where animals are housed with constant supervision.

**3.3.5.15 Category 7 — Agriculture.** Animal housing facilities used for housing agricultural animals used for food or commodity production.

**3.3.5.16 Category 7 Class A.** Facilities where agricultural animals are housed for commercial use.

**3.3.5.17 Category 7 Class B.** Facilities where agricultural animals are housed in private residential-type animal housing.

**3.3.5.18 Category 7 Class C.** Facilities where agricultural animals are housed outdoors.

**3.3.5.19 Category 8 — Emergency.** Facilities used for the shelter or care of animals during an emergency event that are either temporary or not typically used for animal occupancy.

**3.3.6 Building Height.** The vertical distance from the grade plane to the average elevation of the highest roof surface. [5000, 2021]

**3.3.7 Cage.** A box or enclosure from which an animal or animals cannot normally escape without human intervention.

**3.3.8 Confined Animals.** See 3.3.2.1.

**3.3.9 Feed Room.** See 3.3.20.

**3.3.10 Fire Resistance Rating.** The time, in minutes or hours, that materials or assemblies have withstood a fire exposure as determined by the tests, or methods based on tests, prescribed by this *Code*. [5000, 2021]

**3.3.11 General Public.** People who do not have an intimate knowledge of the layout of the building or structure, or the general behavior of the animals at the facility, and are not intended personnel.

**3.3.12 Intended Personnel.** People working in the animal housing facility with an intimate knowledge of the layout of the building or structure and the general behavior of the animals at the facility, such as employees or students, who are not considered the general public.

**3.3.13 Mechanical Utility Room.** A room that primarily contains mechanical, electrical, plumbing, ventilation, or other utility equipment.

**3.3.14 Modification.** The reconfiguration of any space, the addition or elimination of any door or window, the addition or elimination of load-bearing elements, the reconfiguration or extension of any system, or the installation of any additional equipment. [5000, 2021]

**3.3.15 Occupancy.** The purpose for which a building or other structure, or part thereof, is used or intended to be used. [ASCE/SEI 7:1.2]

**3.3.16\* Protection.** A device, material, or system that provides a specified level of safety to achieve a desired outcome.

**N 3.3.17 Qualified.** A competent and capable person who has met the requirements and training for a given field acceptable to the AHJ. [96, 2021]

**3.3.18 Reconstruction.** The reconfiguration of a space that affects an exit, or a corridor shared by more than a single tenant; or reconfiguration of space such that the rehabilitation work area is not permitted to be occupied because existing means of egress and fire protection systems, or their equivalent, are not in place or continuously maintained. [5000, 2021]

**3.3.19 Renovation.** The replacement in kind, strengthening, or upgrading of building elements, materials, equipment, or fixtures that does not result in a reconfiguration of the building or spaces within. [5000, 2021]

**3.3.20 Stall.** A room or compartment that normally houses one or more animals.

**3.3.21 Tack.** Stable gear; also harnesses, bridles, saddles, and other accessories used in riding or driving horses.

## Chapter 4 General Requirements

### 4.1\* Goals and Objectives.

**4.1.1\* Goals.** The primary goals of this *Code* shall be safety and facility usability for both human and animal occupants, including property protection as it relates to the primary goals.

**4.1.2\* Objectives.** To achieve the goals stated in 4.1.1, the goals and objectives of 4.1.3 and 4.1.4 shall be satisfied.

**4.1.3 Safety.** The intent of the safety goal of this *Code* shall be to reduce the probability of injury or death to both animal and

human occupants from fire, similar emergencies, and facility use.

#### ▲ 4.1.3.1 Safety from Fire.

**4.1.3.1.1\* Safety-from-Fire Goals.** The fire safety goals of this *Code* shall be as follows:

- (1) To provide a safe environment for human occupants inside an animal housing facility
- (2) To provide a safe environment for animal occupants inside or adjacent to a structure
- (3) To provide a level of safety for fire fighters and emergency responders during search-and-rescue operations for animal and human occupants
- (4) To minimize loss of property and interruption of facility operations from fire and similar emergencies to a level that is as low as reasonably practical

##### 4.1.3.1.2 Safety-from-Fire Objectives.

**4.1.3.1.2.1** Facilities shall be designed and constructed to protect human and animal occupants not intimate with the initial fire development for the time needed to evacuate, relocate, or defend in place.

**4.1.3.1.2.2\*** Facilities shall be designed and constructed to allow fire fighters and emergency responders the ability to conduct search-and-rescue operations for animal and human occupants without sustaining permanent disabilities if conducted.

**4.1.3.1.2.3** Facilities shall be designed and constructed to provide access to the structure for emergency responders.

##### 4.1.3.2 Safety During Facility Use.

**4.1.3.2.1\* Safety-During-Facility-Use Goal.** The safety-during-facility-use goal of this *Code* shall be to provide an environment for both the human and animal occupants of the facility that minimizes hazards and provides an approved means of egress at all times.

##### 4.1.3.2.2 Safety-During-Facility-Use Objectives.

**4.1.3.2.2.1** Facilities shall be designed and constructed to allow occupants to evacuate or defend in place during emergency or nonemergency operations without sustaining a permanent disability.

**4.1.3.2.2.2** Facilities shall be designed and constructed to allow occupants to recognize the development of an unwanted fire at its incipient stage.

**4.1.3.2.2.3\*** Facilities shall be designed and constructed to allow human occupants to evacuate animal occupants or provide defend-in-place measures depending on the animal category.

**4.1.4 Usability Goal.** The intent of the usability goal of this *Code* shall be to ensure that the facility is capable of functioning at the level for which it was designed.

##### 4.1.4.1 Function.

**4.1.4.1.1\* Function Goal.** The intent of the function goal of this *Code* shall be to ensure that a facility and its systems, features, and construction, throughout its life, provide capability of operation to satisfy the other goals of this *Code*.

**4.1.4.1.2\* Function Objective.** Facilities shall be designed and constructed to provide assurance that its systems, features, and

construction are capable of performing their intended use to satisfy the objectives of this *Code*.

#### 4.2 Fundamental Fire and Life Safety Requirements.

##### 4.2.1 Multiple Safeguards.

**4.2.1.1** The design of every facility intended for animal and human occupancy shall be such that reliance for property protection and safety to life does not depend solely on any single safeguard.

**4.2.1.2** Additional safeguard(s) shall be provided for property protection and life safety in case any single safeguard is ineffective due to inappropriate animal or human actions, building failure, or system failure.

**4.2.2 Appropriateness of Safeguards.** Every facility shall be provided with means of egress and other fire and life safety safeguards of the kinds, numbers, locations, and capacities appropriate to the individual facility, with due regard to the following:

- (1) Character of the occupancy, including fire load
- (2) Characteristics and capabilities of both human and animal occupants and their responses to fire protection safeguards
- (3) Number of animals and persons exposed
- (4) Fire protection available
- (5) Height, size, and type of construction of the facility
- (6) Other factors necessary to provide animal and human occupants with a reasonable degree of safety
- (7) Other factors necessary to protect the facility and contents from unacceptable damage

**4.2.3 Means of Egress.** The minimum number of means of egress for human and animal occupants shall be in accordance with Chapter 8.

**4.2.4\* Occupant Notification.** In every facility of such size, arrangement, or occupancy that a fire itself might not provide adequate occupant warning, fire alarm systems shall be provided where required to warn human occupants of the existence of fire.

**4.2.5 System Design and Installation.** Any fire protection system, building service equipment, feature of protection, or safeguard provided for fire and life safety shall be designed, installed, and approved in accordance with applicable NFPA codes and standards.

##### 4.2.6 Limiting Fire Spread.

**4.2.6.1** The interior surfaces of the facility shall not contribute to an unacceptable rate and magnitude of fire spread and generation of heat and smoke.

**4.2.6.2** Where required by other chapters of this *Code*, every building shall be divided into compartments to limit the spread of fire and restrict the movement of smoke.

**4.2.7 Structural Integrity.** The facility's structural members and assemblies shall be provided with the required degree of fire resistance to limit structural damage, damage to the building and its contents, and damage to adjacent buildings and property.

### 4.3 General Requirements.

#### 4.3.1 Authority Having Jurisdiction (AHJ).

**4.3.1.1** The AHJ shall determine whether the provisions of this *Code* are met.

**4.3.1.2** Where it is evident that a reasonable degree of safety is provided, any requirement shall be permitted to be modified if, in the judgment of the AHJ, its application would be hazardous under normal occupancy conditions.

**4.3.1.3\*** Any requirements that are essential for the safety of building occupants and that are not specifically provided for by this *Code* shall be determined by the AHJ.

**4.3.2 Provisions in Excess of *Code* Requirements.** Nothing in this *Code* shall be construed to prohibit a superior type of building construction, an additional means of egress, or an otherwise safer condition than that specified by the minimum requirements of this *Code*.

#### 4.3.3 Maintenance and Testing.

**4.3.3.1** Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature is required for compliance with the provisions of this *Code*, such device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature shall thereafter be continuously maintained.

**4.3.3.2** Maintenance shall be provided in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the AHJ.

**4.3.3.3** No existing life safety feature shall be removed or reduced where such feature is a requirement in this *Code*.

**4.3.3.4** Existing life safety features obvious to the public, if not required by the code, shall be either maintained or removed.

**4.3.3.5** Any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature requiring periodic testing, inspection, or operation to ensure its maintenance shall be tested, inspected, or operated as specified elsewhere in this *Code* or as directed by the AHJ.

**4.3.3.6** Maintenance, inspection, and testing shall be performed under the supervision of a responsible person who shall ensure that testing, inspection, and maintenance are made at specified intervals in accordance with applicable NFPA standards or as directed by the AHJ.

#### 4.3.4 Disaster/Emergency Management Program.

**4.3.4.1\* General.** Disaster/emergency management programs shall be required in all animal housing facilities to protect and ensure the safety of the animal and human occupants during fire or other similar emergencies.

##### 4.3.4.2 Program Requirements.

**4.3.4.2.1\*** Disaster/emergency management programs shall be developed in accordance with *NFPA 1600* and shall include the procedures for reporting emergencies; the occupant and staff response to emergencies; the design and conduct of disaster/emergency drills; the type and coverage of building fire protection systems; a hazard assessment identifying hazards to

human and animal life; plans to monitor and reduce known hazards; and other items required by the AHJ.

**4.3.4.2.2** Required disaster/emergency management programs shall be submitted to the AHJ for review and approval if required.

**4.3.4.2.3** Disaster/emergency management programs shall be reviewed and updated annually.

**4.3.4.2.4** Revised plans shall be submitted for review and updates shall be provided whenever changes are made in the occupancy or physical arrangement of the building or fire protection systems or features.

**4.3.4.2.5** Floor plans shall be provided to the AHJ, if required.

**4.3.4.2.6** In accordance with the disaster/emergency management program, equipment designated as necessary for the evacuation or relocation of animals shall be accessible at all times.

**4.3.4.2.7** Information regarding the disaster/emergency management program shall be posted for reference.

**4.3.4.2.8** Where animals pose a danger to first responder health or safety, the disaster/emergency management program shall be shared with the AHJ and instructional signage indicating hazards and special procedures shall be posted.

#### 4.3.5\* Disaster/Emergency Drills.

**4.3.5.1 General.** Disaster/emergency drills conforming to the provisions of this *Code* shall be conducted in cooperation with the local authorities and as specified by this *Code* or by the AHJ.

##### 4.3.5.2 Drill Frequency.

**4.3.5.2.1** Where required by this *Code* or the AHJ, disaster/emergency drills shall be held to familiarize occupants with the drill procedure and to establish conduct of the drill as a matter of routine.

**4.3.5.2.2\*** Disaster/emergency drills shall include procedures to ensure that all persons subject to the drill participate.

## Chapter 5 Reserved

## Chapter 6 Animal Housing Categories

### 6.1 General.

#### 6.1.1\* Occupancy Classification.

**6.1.1.1** The general occupancy classification of a facility housing animals shall be determined in accordance with Chapter 6 of *NFPA 5000* or Chapter 6 of *NFPA 101*.

**6.1.1.2** Animal housing facility categories shall be subject to the ruling of the AHJ where there is a question of classification.

**6.1.2 Occupancy Separations.** The separations required between different occupancies shall be in accordance with Chapter 6 of *NFPA 5000* or Chapter 6 of *NFPA 101*.

**6.2 Animal Housing Facility Categories.** The occupancy of a facility housing animals shall be subclassified in accordance with this section.



### 6.2.1 Category 1 — Animal Health Care.

**6.2.1.1 Definition.** Animal housing facilities used for short-term care, maintenance, or medical attention of animals.

**6.2.1.2\* Category 1 Class A.** Facilities where animals are observed overnight, not constantly attended for short-term care, maintenance, or medical attention.

**6.2.1.3\* Category 1 Class B.** Facilities where animals are housed temporarily and constantly attended for short-term care, maintenance, or medical attention.

### 6.2.2 Category 2 — Horse Facilities.

**6.2.2.1\* Definition.** Facilities used for temporary or permanent housing for horses.

**6.2.2.2\* Category 2 Class A.** Facilities where horses are housed for general board and care in a commercial or professional facility greater than 5000 ft<sup>2</sup> (465 m<sup>2</sup>).

**6.2.2.3\* Category 2 Class B.** Facilities where horses are housed for general board and care in a small commercial or professional facility less than 5000 ft<sup>2</sup> (465 m<sup>2</sup>).

**6.2.2.4\* Category 2 Class C.** Facilities where horses are housed in small family stables.

### 6.2.3 Category 3 — Research.

**6.2.3.1\* Definition.** Facilities used for experimentation, education, or scientific experimentation or production research on animals in a controlled environment.

### 6.2.4 Category 4. (Reserved)

### 6.2.5 Category 5 — Exhibition/Public Viewing.

**6.2.5.1 Definition.** Facilities that allow public access for the purpose of exhibition or public viewing of animals.

**6.2.5.2\* Category 5 Class A.** Facilities where public attraction animals are permanently housed.

**6.2.5.3\* Category 5 Class B.** Facilities where public attraction animals are temporarily housed.

### 6.2.6 Category 6 — General Board and Care.

**6.2.6.1\* Definition.** Facilities used for temporary or permanent housing of animals used for providing a service, participating in a sport, or the purposes of providing general board and care.

**6.2.6.2\* Category 6 Class A.** Facilities where animals are housed without constant supervision.

**6.2.6.3\* Category 6 Class B.** Facilities where animals are housed with constant supervision.

### 6.2.7 Category 7 — Agriculture.

**6.2.7.1 Definition.** Animal housing facilities used for housing agricultural animals used for food or commodity production animals.

**6.2.7.2\* Category 7 Class A.** Facilities where agricultural animals are housed for commercial use.

**6.2.7.3\* Category 7 Class B.** Facilities where agricultural animals are housed in private residential-type animal housing.

**6.2.7.4\* Category 7 Class C.** Facilities where agricultural animals are housed outdoors.

### 6.2.8 Category 8 — Emergency.

**6.2.8.1\* Definition.** Facilities used for the shelter or care of animals during an emergency event that are either temporary or not typically used for animal occupancy.

### 6.3 Multiple Categories.

**6.3.1\*** Multiple categories shall comply with the requirements of one of the following:

- (1) Mixed categories (*see* 6.3.3)
- (2) Separated categories (*see* 6.3.4)

#### 6.3.2 Definitions.

**6.3.2.1 Mixed Categories.** A facility in which multiple categories are intermingled.

**6.3.2.2 Multiple Categories.** A facility in which two or more categories of animal housing facilities exist.

**6.3.2.3 Separated Categories.** A facility in which multiple categories are separated by fire-resistance-rated assemblies.

#### 6.3.3 Mixed Categories.

**6.3.3.1** Each portion of the facility shall be categorized as to its use in accordance with Section 6.2.

**6.3.3.2** The building shall comply with the most restrictive requirements of the categories involved, unless separate safeguards are approved.

**6.3.3.3\*** Where incidental to another occupancy, mercantile, business, industrial, or storage usage shall be subject to the predominant occupancy.

#### 6.3.4 Separated Categories.

**6.3.4.1** Where separated categories are provided, each part of the structure comprising a distinct category, as described in this chapter, shall be completely separated from other categories by fire-resistive assemblies in accordance with NFPA 101 or NFPA 5000, as specified in 6.3.4 and Table 6.3.4.1, unless separation is provided by approved existing separations.

**6.3.4.2** Category separations shall be classified as 1-hour fire-resistance-rated and shall meet the requirements of Chapter 8 of NFPA 5000 or Chapter 8 of NFPA 101.

**6.3.4.3** Category separations shall be vertical, horizontal, or both, or, where necessary, of such other form as required to provide complete separation between category divisions in the structure.

**6.3.4.4** Where the category separation is horizontal, structural members supporting the separation shall be protected by an equivalent fire-resistive construction.

**6.3.5 Change in Category.** If there is a change in category, the facility shall meet the requirements for the new category.

**Table 6.3.4.1 Category Separation Fire Rating (hr)**

	1A	1B	2A	2B	2C	3	4	5A	5B	6A	6B	7A	7B	7C	8
<b>1A</b>	X	1	1	NR	NR	1	–	NR	1	NR	NR	NR	NR	NR	NR
<b>1B</b>	1	X	1	1	1	1	–	1	1	1	1	1	1	NR	NR
<b>2A</b>	1	1	X	1	NR	1	–	1	1	1	1	1	1	NR	NR
<b>2B</b>	NR	1	1	X	1	1	–	1	1	NR	1	1	1	NR	NR
<b>2C</b>	NR	1	NR	1	X	1	–	1	NR	NR	NR	NR	NR	NR	NR
<b>3</b>	1	1	1	1	1	X	–	1	1	1	1	1	1	NR	NR
<b>4</b>	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–
<b>5A</b>	1	1	1	1	1	1	–	X	NR	1	NR	1	1	NR	NR
<b>5B</b>	1	1	1	1	1	1	–	NR	X	NR	1	NR	NR	NR	NR
<b>6A</b>	NR	1	1	1	NR	1	–	1	1	X	1	NR	NR	NR	NR
<b>6B</b>	NR	1	NR	1	NR	1	–	NR	1	1	X	NR	NR	NR	NR
<b>7A</b>	NR	1	1	1	NR	1	–	1	NR	NR	NR	X	NR	NR	NR
<b>7B</b>	NR	1	1	1	NR	1	–	1	NR	NR	NR	NR	X	NR	NR
<b>7C</b>	NR	NR	NR	NR	NR	NR	–	NR	NR	NR	NR	NR	NR	X	NR
<b>8</b>	NR	NR	NR	NR	NR	NR	–	NR	NR	NR	NR	NR	NR	NR	X

NR: Not required.

**6.4 Hazard of Contents.****6.4.1 General.**

**6.4.1.1** For the purpose of this *Code*, the hazard of contents shall be the relative danger of the start and spread of fire, the danger of smoke or gases generated, and the danger of explosion or other occurrence potentially endangering the lives and safety of the occupants of the building or structure.

**6.4.1.2** Hazard of contents shall be classified by the registered design professional (RDP) or owner and submitted to the AHJ for review and approval on the basis of the character of the contents and the processes or operations conducted in the building or structure.

**6.4.1.3** For the purpose of the code, where different degrees of hazard of contents exist in different parts of a building or structure, the most hazardous shall govern the classification, unless hazardous areas are separated or protected.

**6.4.2 Classification of Hazard of Contents.**

**6.4.2.1 General.** The hazard of contents of any building or structure shall be classified as low, ordinary, or high in accordance with 6.4.2.2, 6.4.2.3, and 6.4.2.4.

**6.4.2.2 Low Hazard Contents.** Low hazard contents shall be classified as those of such low combustibility that no self-propagating fire therein can occur.

**6.4.2.3 Ordinary Hazard Contents.** Ordinary hazard contents shall be classified as those that are likely to burn with moderate rapidity or to give off a considerable volume of smoke.

**6.4.2.4 High Hazard Contents.** High hazard contents shall be classified as those that are likely to burn with extreme rapidity or from which explosions are likely.

**Chapter 7 Construction and Separation Requirements**

**7.1\* Types of Construction.** The types of construction for animal housing facilities shall be in accordance with NFPA 220 or Section 7.2 of *NFPA 5000*.

**7.2 Height and Area Requirements.**

**7.2.1 General.** The height and area requirements for the category of the animal housing facility shall be in accordance with Section 7.4 of *NFPA 5000*.

**7.2.1.1** Exterior areas such as corrals, paddocks, or other fenced holding areas attached to animal housing facilities shall not be included in the calculated allowable area per story.

**7.2.1.2** If such exterior areas are partially or totally covered by extended roof structures integral with the building, the line of primary structure supporting such roofed areas shall be considered exterior wall lines when determining location on property.

**7.2.2\* Additional Requirements.** In addition to the requirements of 7.2.1, the allowable number of stories above grade where the animal housing facilities are permitted and the allowable area per story of animal housing facilities shall not exceed the limits set forth in Table 7.2.2. The values in Table 7.2.2 for sprinklered facilities shall apply to facilities protected throughout with an approved, electrically supervised automatic sprinkler system in accordance with Section 9.2.

**7.2.2.1** In Table 7.2.2, a one-story building of Type II construction for Categories 3, 5, 7, and 8 shall not be limited in area where the building is surrounded and adjoined by public ways or yards not less than 60 ft (18 m) in width.

**7.2.3 Maximum Facility Area.** The maximum area of the animal housing facilities within a building or structure shall be determined by multiplying the allowable area per story, as determined by Table 7.2.2, by the facility's number of stories up to a maximum of three stories.

**7.2.4 Multiple Categories.** Where an animal housing facility is occupied by animals of two or more categories, the animal housing facility shall comply with 7.2.4.

**7.2.4.1 Mixed Categories.** Animal housing facilities with mixed categories complying with 6.3.3 shall have their required type of construction determined by applying the most restrictive type of construction to the entire animal housing facility.

**Table 7.2.2 Allowable Area Factor in ft<sup>2</sup> per Story**

Occupancy Classification	See Footnotes	Type of Construction								
		Type I		Type II*		Type III		Type IV	Type V	
		A	B	A	B	A	B	A	A	B
Category 1-A	NS	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP
Category 1-B	NS	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000
	SM	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500
Category 2-A	NS	UL	UL	24,400	16,000	24,000	16,000	20,500	12,000	7,000
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
Category 2-B	NS	UL	UL	24,400	16,000	24,000	16,000	20,500	12,000	7,000
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
Category 2-C	NS	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	S1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	SM	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Category 3	NS	UL	UL	24,400	16,000	24,000	16,000	20,500	12,000	7,000
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
Category 4		(Reserved)								
Category 5-A R-2 (A-3)	NS	UL	UL	24,400 (15,000)	16,000 (9,500)	24,000 (14,000)	16,000 (9,500)	20,500 (15,000)	12,000 (11,500)	7,000 (6,000)
	S1	UL	UL	96,000 (62,000)	64,000 (38,000)	96,000 (56,000)	64,000 (38,000)	82,000 (60,000)	48,000 (46,000)	28,000 (24,000)
	SM	UL	UL	72,000 (46,500)	48,000 (28,500)	72,000 (42,000)	48,000 (28,500)	61,500 (45,000)	36,000 (34,500)	21,000 (18,000)
Category 5-B	NS	UL	UL	24,400 (15,000)	16,000 (9,500)	24,000 (14,000)	16,000 (9,500)	20,500 (15,000)	12,000 (11,500)	7,000 (6,000)
	S1	UL	UL	96,000 (62,000)	64,000 (38,000)	96,000 (56,000)	64,000 (38,000)	82,000 (60,000)	48,000 (46,000)	28,000 (24,000)
	SM	UL	UL	72,000 (46,500)	48,000 (28,500)	72,000 (42,000)	48,000 (28,500)	61,500 (45,000)	36,000 (34,500)	21,000 (18,000)
Category 6-A	NS	UL	UL	24,400	16,000	24,000	16,000	20,500	12,000	7,000
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
Category 6-B	NS	UL	UL	24,400	16,000	24,000	16,000	20,500	12,000	7,000
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
Category 7-A	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1	UL	UL	UL	UL	UL	UL	UL	UL	UL
	SM	UL	UL	UL	UL	UL	UL	UL	UL	UL

(continues)

**Table 7.2.2** *Continued*

Occupancy Classification	See Footnotes	Type of Construction								
		Type I		Type II*		Type III		Type IV	Type V	
		A	B	A	B	A	B	A	A	B
Category 7-B	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1	UL	UL	UL	UL	UL	UL	UL	UL	UL
	SM	UL	UL	UL	UL	UL	UL	UL	UL	UL
Category 7-C	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1	UL	UL	UL	UL	UL	UL	UL	UL	UL
	SM	UL								
Category 8	NS	UL	UL	24,400	16,000	24,000	16,000	20,500	12,000	7,000
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000

For SI units, 1 ft = 0.3048 m, 1 ft<sup>2</sup> = 0.093 m<sup>2</sup>.

UL: Unlimited. NP: Not permitted.

S1: Sprinklered one-story. Allowable facility height in feet and allowable number of stories above grade in facilities protected with an automatic sprinkler system as specified in 7.2.2.

SM: Sprinklered multistory. Allowable facility height in feet and allowable number of stories above grade in facilities protected with an automatic sprinkler system as specified in 7.2.2.

NS: Nonsprinklered. Allowable facility height in feet and allowable number of stories above grade in facilities not protected with an automatic sprinkler system as specified in 7.2.2.

Note: Within each category, "Stories" refers to the allowable number of stories above grade where the animal housing facilities are permitted to be located; "Area" refers to the allowable area per story.

\*See 7.2.2.1.

**7.2.4.2 Separated Categories.** Animal housing facilities with separated occupancies complying with 6.2.4 shall have their required type of construction determined in accordance with 7.2.4.2.1 and 7.2.4.2.2.

**7.2.4.2.1** The location of each separated category in the animal housing facility shall comply with the story requirements of 7.2.2.

**7.2.4.2.2** For each story in the animal housing facility, the sum of the ratios of the per story area of each separated category divided by the allowable area per story as determined by Table 7.2.2 shall not exceed 1.0.

### 7.3 Stall, Cage, and Enclosure Requirements.

**7.3.1** Stalls, cages, and enclosure requirements shall be based on established standards for the specific animal and facility type.

**7.3.2\*** Animal enclosures shall not interfere with egress or extrication from the enclosure.

**7.3.3\*** Modifications to 7.3.1 and 7.3.2 shall be permitted for temporary holding areas with the approval of the AHJ.

**7.4 Exposure Protection.** Adjacent buildings shall be separated in accordance with Chapter 7 of *NFPA 5000*.

### 7.5 Structural Design.

**7.5.1** Structural design shall be subject to the requirements of Chapter 35 of *NFPA 5000* and this section.

**7.5.2\*** Structural design criteria for walls and fence assemblies providing animal containment shall be designed to withstand the horizontal forces exerted by the animal occupants.

### 7.6 Fire-Rated Separations Between Animal Housing Facilities and Hazardous Areas.

**7.6.1** Where required by the occupancy chapters, animal housing facilities shall be separated with a 2-hour fire-resistance-rated enclosure from hazardous areas, including, but not limited to, the following:

- (1) Feed rooms over 100 ft<sup>2</sup> (9.3 m<sup>2</sup>)
- (2) Tack rooms over 100 ft<sup>2</sup> (9.3 m<sup>2</sup>)
- (3) Vehicle or equipment storage rooms over 100 ft<sup>2</sup> (9.3 m<sup>2</sup>)
- (4) Blacksmith shops using open flames
- (5) Kitchens with commercial cooking equipment
- (6) Mechanical equipment rooms with fuel-fired equipment
- (7) Laundry rooms
- (8) Hot water power washer rooms
- (9) Electrical rooms
- (10) Generator rooms
- (11) Similar areas

**7.6.2** In buildings protected throughout with an approved, supervised automatic sprinkler system in accordance with NFPA 13, animal housing facilities shall be permitted to be separated with a 1-hour fire-resistance-rated enclosure from the hazardous areas identified in 7.6.1.

**7.7 Wildland/Urban Interface or Wildland/Urban Intermix.** Animal housing facilities located in a wildland/urban interface



or wildland/urban intermix shall comply with this *Code* and the construction requirements of NFPA 1144.

## 7.8 Additions.

**7.8.1** Additions to existing buildings shall conform to the building rehabilitation requirements.

**7.8.2** Existing parts of the structure shall not be required to be modified, provided that the new construction has not diminished the fire safety features of the facility.

## Chapter 8 Means of Egress Requirements

**8.1 General.** The means of egress shall be in accordance with the applicable chapters of NFPA 101, NFPA 5000, and this chapter, unless modified by the applicable animal category chapter.

## 8.2 Means of Egress Components.

### 8.2.1 Doors.

**8.2.1.1 Minimum Width of Doors.** The clear width of any door opening in a means of egress shall not be less than the following:

- (1) 32 in. (815 mm)
- (2)\* One-and-one-half times the largest average width of the following:
  - (a) Largest animal using the door
  - (b) Any associated equipment necessary for egress

**8.2.1.2 Door Headroom.** The minimum door headroom in a means of egress shall accommodate the animal, a human, and any associated equipment.

### 8.3 Number of Means of Egress.

**8.3.1** The number of means of egress from any story or portion thereof shall be two.

**8.3.1.1** One exit shall be acceptable if the travel distance to the exit is less than 100 ft (30 m) in a sprinklered building and 75 ft (23 m) in an unsprinklered building.

**8.3.2** Where two means of egress are required, they shall be remote.

### 8.4 Illumination and Emergency Lighting. (Reserved)

### 8.5 Marking of Means of Egress. (Reserved)

### 8.6 Special Means of Egress Features. (Reserved)

**8.7\* Travel Distance.** Travel distance shall comply with this section unless modified by the animal occupancy chapters (*see Chapters 11 through 18*).

**8.7.1** In animal housing facilities sprinklered in accordance with Section 9.2, travel distance to an exit shall not exceed 100 ft (30 m).

**8.7.2** In animal housing facilities, other than those complying with 8.7.1, travel distance shall not exceed 75 ft (23 m).

## Chapter 9 Fire Protection

### 9.1 General.

**9.1.1** Requirements for protection from fire and special hazards shall be in accordance with NFPA 1, NFPA 101, or

NFPA 5000, and this chapter, unless modified by the animal category chapter.

**9.1.2** Where a change in category occurs and the installed fire protection systems are no longer necessary or no longer required, the facility owner shall either maintain the systems in full operation or completely remove them.

### 9.2 Sprinkler Protection.

**9.2.1** Where automatic sprinklers are required by this *Code* throughout the animal housing facility, the system shall be installed in accordance with the requirements of Section 9.2.

**9.2.2** Required automatic sprinkler systems shall be in accordance with NFPA 13.

**9.2.3** Quick-response sprinklers shall be utilized in animal housing facilities.

**9.2.4** Sprinkler systems shall be supervised.

**9.2.4.1** Alarms shall be transmitted to an approved, proprietary alarm-receiving facility, a remote station, a central station, or the fire department.

**9.2.4.2** Where a fire alarm system is not required by another section of this *Code*, a single manual pull station shall be provided in accordance with NFPA 72 at a location approved by the AHJ.

**9.2.5** Sprinklers shall be inspected, tested, and maintained in accordance with NFPA 25.

**9.2.6** A sprinkler system impairment program shall be implemented in accordance with NFPA 25.

**9.2.7** In areas protected by automatic sprinklers, automatic heat-detection devices required by other sections of this *Code* shall not be required.

**9.2.8** Automatic sprinkler systems installed to make use of an alternative permitted by this *Code* shall be considered required systems and shall meet the provisions of this *Code* that apply to required systems. [101:9.7.1.5]

**9.2.9** Sprinkler piping serving not more than six sprinklers for any hazardous area shall be permitted to be connected directly to a domestic water supply system having a capacity sufficient to provide 0.15 gpm/ft<sup>2</sup> (6.1 mm/min) throughout the entire enclosed area. [101:9.7.1.2]

**9.2.10** Sprinkler piping serving hazardous areas as described in 9.2.9 shall be provided with an indicating shutoff valve, supervised in accordance with NFPA 13, and installed in an accessible, visible location between the sprinklers and the connection to the domestic water supply. [101:9.7.1.3]

### 9.3 Fire Detection, Alarm, and Communication Systems.

#### 9.3.1 General.

**9.3.1.1** The provisions of Section 9.3 shall apply only where specifically required by another section of this *Code*.

**9.3.1.2** Fire detection, alarm, and communications systems installed to make use of an alternative permitted by this *Code* shall be considered required systems and shall meet the provisions of this *Code* applicable to required systems. [101:9.6.1.2]

**9.3.1.3** Fire alarm systems required by this *Code* shall be **installed**, tested, and maintained in accordance with the applicable

requirements of *NFPA 70* and *NFPA 72* unless otherwise permitted by 9.3.1.4. [101:9.6.1.3].

**N 9.3.1.4** An approved existing installation shall be permitted to be continued in use and shall comply with 9.3.1.5. [101:9.6.1.4]

**9.3.1.5** To ensure operational integrity, the fire alarm system shall have an approved maintenance and testing program complying with the applicable requirements of *NFPA 70* and *NFPA 72*. [101:9.6.1.5]

**9.3.1.6** Fire alarm system impairment procedures shall comply with *NFPA 72*. [101:9.6.1.6]

**9.3.1.7\*** Modifications to Section 9.3 shall be permitted to accommodate the needs of the animal occupants with approval of the AHJ.

### 9.3.2 Signal Initiation.

**9.3.2.1** Where required by other sections of this *Code*, actuation of the fire alarm system shall occur by any or all of the following means of initiation but shall not be limited to such means:

- (1) Manual fire alarm initiation
  - (2) Automatic detection
  - (3) Extinguishing system operation
- [101:9.6.2.1]

**9.3.2.2** Manual fire alarm boxes shall be used only for fire-protective signaling purposes.

**9.3.2.3** A manual fire alarm box shall be located within 60 in. (1525 mm) of exit doorways.

**9.3.2.4** Manual fire alarm boxes shall be mounted on both sides of grouped openings over 40 ft (12.2 m) in width, and within 60 in. (1525 mm) of each side of the opening. [101:9.6.2.4]

**9.3.2.5** Additional manual fire alarm boxes shall be located so that, on any given floor in any part of the building, no horizontal distance on that floor exceeding 200 ft (61 m) shall need to be traversed to reach a manual fire alarm box. [101:9.6.2.5]

**9.3.2.6** Manual fire alarm boxes shall be accessible, unobstructed, and visible. [101:9.6.2.7]

**9.3.2.7** Where a sprinkler system provides automatic detection and alarm system initiation, it shall be provided with an approved alarm initiation device that operates when the flow of water is equal to or greater than that from a single automatic sprinkler. [101:9.6.2.8]

**9.3.2.8** Where a total (complete) coverage smoke detection system is required by another section of this *Code*, automatic detection of smoke in accordance with *NFPA 72* shall be provided in all occupiable areas in environments that are suitable for proper smoke detector operation. [101:9.6.2.9]

### 9.3.3 Smoke Alarms.

**9.3.3.1** Where required by another section of this *Code*, single-station and multiple-station smoke alarms shall be in accordance with *NFPA 72*.

**9.3.3.2** Where automatic smoke detection is required, smoke alarms shall not be used as a substitute.

**Δ 9.3.3.3** Smoke alarms and smoke detectors shall not be installed between 10 ft (3.0 m) and 20 ft (6.1 m) along a horizontal

flow path from a stationary or fixed cooking appliance unless the devices comply with the following:

- (1) Prior to May 1, 2022, smoke alarms and smoke detectors shall be equipped with an alarm-silencing means, use photoelectric detection, or be listed for resistance to common nuisance sources from cooking in accordance with the 8<sup>th</sup> edition of UL 217, *Smoke Alarms*, the 7<sup>th</sup> edition of UL 268, *Smoke Detectors for Fire Alarm Systems*, or subsequent editions.
- (2) Effective May 1, 2022, smoke alarms and smoke detectors shall be listed for resistance to common nuisance sources from cooking in accordance with the 8<sup>th</sup> edition of UL 217, the 7<sup>th</sup> edition of UL 268, or subsequent editions. [72:29.11.3.4(4)]

**Δ 9.3.3.4** Smoke alarms and smoke detectors shall not be installed within an area of exclusion determined by a 10 ft (3.0 m) radial distance along a horizontal flow path from a stationary or fixed cooking appliance. When the 10 ft (3.0 m) area of exclusion would prohibit the placement of a smoke alarm or smoke detector required by other sections of this *Code*, and when the kitchen or cooking area and adjacent spaces have no clear interior partitions or headers, smoke alarms or smoke detectors shall be permitted for installation at a radial distance between 6 ft (1.8 m) and 10 ft (3.0 m) from any stationary or fixed cooking appliance unless the devices comply with the following:

- (1) Prior to May 1, 2022, the devices shall use photoelectric detection or be listed for resistance to common nuisance sources from cooking in accordance with the 8<sup>th</sup> edition of UL 217, the 7<sup>th</sup> edition of UL 268, or subsequent editions.
- (2) Effective May 1, 2022, the devices shall be listed for resistance to common nuisance sources from cooking nuisance alarms in accordance with the 8<sup>th</sup> edition of UL 217, the 7<sup>th</sup> edition of UL 268, or subsequent editions. [72:29.11.3.4(5)]

**9.3.3.5** Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from a door to a bathroom containing a shower or tub unless listed for installation in close proximity to such locations. [101:9.6.2.10.7]

**9.3.3.6** System smoke detectors in accordance with *NFPA 72* and arranged to function in the same manner as single-station or multiple-station smoke alarms shall be permitted in lieu of smoke alarms. [101:9.6.2.10.8]

**9.3.3.7** Smoke alarms, other than battery-operated smoke alarms as permitted by other sections of this *Code*, shall be powered in accordance with the requirements of *NFPA 72*. [101:9.6.2.10.9]

**Δ 9.3.3.8** Where two or more smoke alarms are required within a suite of rooms, or similar area, they shall be arranged so that operation of any smoke alarm shall cause the alarm in all smoke alarms within the suite of rooms, or similar area to sound, unless otherwise permitted by 9.3.3.8.1 or 9.3.3.8.2.

**9.3.3.8.1** The requirement of 9.3.3.8 shall not apply to configurations that provide equivalent distribution of the alarm signal.

**9.3.3.8.2** The alarms described in 9.3.3.8 shall sound only within a suite of rooms, or similar area, and shall not actuate the building fire alarm system, unless otherwise permitted by the AHJ.



**9.3.3.9** Smoke alarms shall be permitted to be connected to the building fire alarm system for the purpose of annunciation in accordance with *NFPA 72*. [101:9.6.2.10.12]

#### **9.4 Occupant Notification.**

**9.4.1** Occupant notification shall be provided to alert occupants of a fire or other emergency where required by other sections of this *Code*. [101:9.6.3.1]

**9.4.2** Occupant notification shall be in accordance with 9.4.3 through 9.4.6.8, unless otherwise provided in 9.4.2.1 through 9.4.2.3.

**9.4.2.1** Elevator lobby, hoistway, and associated machine room smoke detectors used solely for elevator recall, and heat detectors used solely for elevator power shutdown, shall not be required to activate the building evacuation alarm if the power supply and installation wiring to such detectors are monitored by the building fire alarm system, and if the activation of such detectors initiates a supervisory signal at a constantly attended location. [101:9.6.3.2.1]

**9.4.2.2** Smoke detectors used solely for closing dampers or heating, ventilating, and air-conditioning system shutdown shall not be required to activate the building evacuation alarm, provided that the power supply and installation wiring to the detectors are monitored by the building fire alarm system, and the activation of the detectors initiates a supervisory signal at a constantly attended location. [101:9.6.3.2.2]

**9.4.2.3** Smoke detectors located at doors for the exclusive operation of automatic door release shall not be required to activate the building evacuation alarm, provided that the power supply and installation wiring to the detectors are monitored by the building fire alarm system, and the activation of the detectors initiates a supervisory signal at a constantly attended location. [101:9.6.3.2.3]

**9.4.3** Where permitted by Chapters 11 through 18, a presignal system shall be permitted where the initial fire alarm signal is automatically transmitted without delay to a municipal fire department, to a fire brigade (if provided), and to an on-site staff person trained to respond to a fire emergency. [101:9.6.3.4]

**9.4.4** A positive alarm sequence shall be permitted, provided that it is in accordance with *NFPA 72*.

**Δ 9.4.5** Unless otherwise provided in 9.4.5.1 through 9.4.5.5, notification signals for occupants to evacuate shall be by audible and visible signals in accordance with *NFPA 72* and ICC A117.1, *Accessible and Usable Buildings and Facilities*, or other means of notification acceptable to the authority having jurisdiction. [101:9.6.3.6]

**9.4.5.1** Areas not subject to occupancy by persons who are hearing impaired shall not be required to comply with the provisions for visible signals. [101:9.6.3.6.1]

**9.4.5.2** Visible-only signals shall be provided to accommodate the needs of the animals and occupants with the approval of the AHJ.

**9.4.5.3** Visible signals shall not be required in exit stair enclosures. [101:9.6.3.6.5]

**9.4.5.4** Visible signals shall not be required in elevator cars. [101:9.6.3.6.6]

**9.4.5.5** Where visible signals are not required, as permitted by 9.4.5.3 or 9.4.5.4, documentation of such omission shall be maintained.

**9.4.6** The general evacuation alarm signal shall operate in accordance with one of the methods prescribed by 9.4.6.1 through 9.4.6.2. [101:9.6.3.7]

**9.4.6.1** The general evacuation alarm signal shall operate throughout the entire building other than the locations described in 9.4.6.3 and 9.4.6.4. [101:9.6.3.7.1]

**Δ 9.4.6.2** Where the evacuation of animals is not practical, all of the following shall apply:

- (1) The private operating mode, as described in *NFPA 72* shall be permitted to be used.
- (2) Only the attendants and other personnel required to evacuate animals from a zone, area, floor, or building shall be required to be notified.
- (3) Notification of personnel as specified in 9.4.6.2(2) shall include means to readily identify the zone, area, floor, or building in need of evacuation.

**9.4.6.3** The general evacuation signal shall not be required in exit stair enclosures. [101:9.6.3.7.4]

**9.4.6.4** The general evacuation signal shall not be required in elevator cars. [101:9.6.3.7.5]

**9.4.6.5** Audible alarm notification appliances shall be of such character and so distributed as to be effectively heard above the average ambient sound level that exists under normal conditions of occupancy. [101:9.6.3.8]

**9.4.6.6** Audible alarm notification appliances shall produce signals that are distinctive from audible signals used for other purposes in a given building. [101:9.6.3.9]

**9.4.6.7** Automatically transmitted or live voice evacuation or relocation instructions shall be permitted to be used to notify occupants and shall comply with either 9.4.6.7.1 or 9.4.6.7.2. [101:9.6.3.10]

**9.4.6.7.1** Automatically transmitted or live voice evacuation or relocation instructions shall be in accordance with *NFPA 72*. [101:9.6.3.10.1]

**9.4.6.7.2** Where permitted by Chapters 11 through 18, automatically transmitted or live voice announcements shall be permitted to be made via a voice communication or public address system that complies with all of the following:

- (1) Occupant notification, either live or recorded, shall be initiated at a constantly attended receiving station by personnel trained to respond to an emergency.
- (2) An approved secondary power supply shall be provided for other than existing, previously approved systems.
- (3) The system shall be audible above the expected ambient noise level.
- (4) Emergency announcements shall take precedence over any other use.

[101:9.6.3.10.2]

**9.4.6.8** Unless otherwise permitted by another section of this *Code*, audible and visible fire alarm notification appliances shall comply with either 9.4.6.8.1 or 9.4.6.8.2. [101:9.6.3.11]

**9.4.6.8.1** Audible and visible fire alarm notification appliances shall be used only for fire alarm system or other emergency purposes. [101:9.6.3.11.1]

**9.4.6.8.2** Emergency voice/alarm communication systems shall be permitted to be used for other purposes in accordance with *NFPA 72*. [101:9.6.3.11.2]

## 9.5 Emergency Forces Notification.

**9.5.1** Where required by another section of this *Code*, emergency forces notification shall be provided to alert the municipal fire department and fire brigade (if provided) of fire or other emergency. [101:9.6.4.1]

**9.5.2** Where emergency forces notification is required by another section of this *Code*, the fire alarm system shall be arranged to transmit the alarm automatically via any of the following means acceptable to the authority having jurisdiction and shall be in accordance with *NFPA 72*:

- (1) Auxiliary fire alarm system
  - (2) Central station fire alarm system
  - (3) Proprietary supervision station fire alarm system
  - (4) Remote supervising station fire alarm system
- [101:9.6.4.2]

**9.5.3** Where fire alarm systems are required to provide emergency forces notification, supervisory signals and trouble signals shall sound and be visibly displayed either at an approved, remotely located receiving facility or at a location within the protected building that is constantly attended by qualified personnel.

## 9.6 Fire Safety Functions.

**9.6.1** Emergency control functions shall be installed in accordance with the requirements of *NFPA 72*. [101:9.6.6.1]

**9.6.2** Where required by another section of this *Code*, the following functions shall be actuated:

- (1) Release of hold-open devices for doors or other opening protectives
  - (2) Stairwell or elevator shaft pressurization
  - (3) Smoke management or smoke control systems
  - (4) Unlocking of doors
  - (5) Elevator recall and shutdown
  - (6) HVAC shutdown
- [101:9.6.6.2]

**9.6.3 Location of Controls.** Operator controls, alarm indicators, and manual communications capability shall be installed at a convenient location acceptable to the authority having jurisdiction. [101:9.6.7]

## 9.7 Annunciation.

**9.7.1** Where alarm annunciation is required by another section of this *Code*, it shall comply with 9.7.1.1 through 9.7.7. [101:9.6.8.1]

**9.7.1.1** Alarm annunciation at the control center shall be by means of audible and visible indicators. [101:9.6.8.2]

**9.7.1.2** For the purposes of alarm annunciation, each floor of the building, other than floors of existing buildings, shall be considered as not less than one zone, unless otherwise permitted by 9.7.1.3.3, or another section of this *Code*. [101:9.6.8.3]

**9.7.1.3** Where a floor area exceeds 22,500 ft<sup>2</sup> (2090 m<sup>2</sup>), additional fire alarm zoning shall be provided, and the length of any single fire alarm zone shall not exceed 300 ft (91 m) in any direction, except as provided in 9.7.1.3.1 through 9.7.1.3.3, or

as otherwise modified by another section of this *Code*. [101:9.6.8.4]

**9.7.1.3.1** Where permitted by another section of this *Code*, fire alarm zones shall be permitted to exceed 22,500 ft<sup>2</sup> (2090 m<sup>2</sup>), and the length of a zone shall be permitted to exceed 300 ft (91 m) in any direction. [101:9.6.8.4.1]

**9.7.1.3.2** Where the building is protected by an automatic sprinkler system, the area of the fire alarm zone shall be permitted to coincide with the allowable area of the sprinkler system.

**9.7.1.3.3** Where a building not exceeding four stories in height is protected by an automatic sprinkler, the sprinkler system shall be permitted to be annunciated on the fire alarm system as a single zone.

**9.7.2** A system trouble signal shall be annunciated by means of audible and visible indicators in accordance with *NFPA 72*. [101:9.6.8.5]

**9.7.3** A system supervisory signal shall be annunciated by means of audible and visible indicators in accordance with *NFPA 72*. [101:9.6.8.6]

**9.7.4** Where the system serves more than one building, each building shall be annunciated separately. [101:9.6.8.7]

**9.7.5** Where permitted by another section of this *Code*, the alarm zone shall be permitted to coincide with the permitted area for smoke compartments. [101:9.6.8.8]

**9.7.6** Where a graphic annunciation panel is required by another section of this *Code*, the graphic annunciation panel shall identify animal housing areas within the building.

**9.7.7** Where the locations of animal facilities are sensitive, the specific locations of animal housing shall be provided to the fire department but shall not be subject to the graphic annunciator panel requirement in 9.7.6.

## 9.8 Fire Barriers.

### 9.8.1 General.

**9.8.1.1** Fire barriers used to provide enclosure, subdivision, or protection under this *Code* shall be classified in accordance with one of the following fire resistance ratings:

- (1) 3-hour fire resistance rating
  - (2) 2-hour fire resistance rating
  - (3) 1-hour fire resistance rating
  - (4) ½-hour fire resistance rating
- [101:8.3.1.1]

**9.8.1.2** Fire barriers shall comply with one of the following:

- (1) The fire barriers are continuous from outside wall to outside wall or from one fire barrier to another, or a combination thereof, including continuity through all concealed spaces, such as those found above a ceiling, including interstitial spaces.
- (2) The fire barriers are continuous from outside wall to outside wall or from one fire barrier to another, and from the floor to the bottom of the interstitial space, provided that the construction assembly forming the bottom of the interstitial space has a fire resistance rating not less than that of the fire barrier.

[101:8.3.1.2]

**9.8.1.3** Walls used as fire barriers shall comply with the requirements of NFPA 221 applicable to fire barrier walls. [101:8.3.1.3]

**N 9.8.1.4** The NFPA 221 limitation on percentage width of openings shall not apply.

## 9.8.2 Walls.

**9.8.2.1** The fire-resistive materials, assemblies, and systems used shall be limited to those permitted in this Code and this chapter. [101:8.3.2.1]

**Δ 9.8.2.1.1** Fire resistance glazing tested in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*, shall be permitted. [101:8.3.2.1.1]

**Δ 9.8.2.1.2** Fire resistance glazing shall bear the identifier “W-XXX” where “XXX” is the fire resistance rating in minutes. Such identification shall be permanently affixed.

**9.8.2.2** The construction materials and details for fire-resistive assemblies and systems for walls described shall comply with all other provisions of this Code, except as modified herein. [101:8.3.2.2]

**Δ 9.8.2.3** Interior walls and partitions of nonsymmetrical construction shall be evaluated from both directions and assigned a fire resistance rating based on the shorter duration obtained in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*. When the wall is tested with the least fire-resistive side exposed to the furnace, the wall shall not be required to be subjected to tests from the opposite side. [101:8.3.2.3]

## 9.8.3 Fire Doors and Windows.

**9.8.3.1** Openings required to have a fire protection rating by Table 9.8.4.2 shall be protected by approved, listed, and labeled fire door assemblies and fire window assemblies and their accompanying hardware, including all frames, closing devices, anchorage, and sills in accordance with the requirements of NFPA 80 except as otherwise specified in this Code. [101:8.3.3.2.6]

**Δ 9.8.3.1.1** Fire resistance glazing tested in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*, shall be permitted in fire door assemblies and fire window assemblies where tested and installed in accordance with their listings. [101:8.3.3.6.8]

**Δ 9.8.3.1.2** Fire resistance glazing shall be marked in accordance with 9.8.3.12 and Table 9.8.4.2. Such marking shall be permanently affixed.

**Δ 9.8.3.2** Fire protection ratings for products required to comply with 9.8.3 shall be as determined and reported by a nationally recognized testing agency in accordance with NFPA 252; NFPA 257; UL 10B, *Fire Tests of Door Assemblies*; UL 10C, *Positive Pressure Fire Tests of Door Assemblies*; or UL 9, *Fire Tests of Window Assemblies*. [101:8.3.3.2.1]

**Δ 9.8.3.2.1** Fire protection glazing shall be evaluated under positive pressure in accordance with NFPA 257.

**9.8.3.2.2** All products required to comply with 9.8.3.2 shall bear an approved label.

**9.8.3.2.3 Labels.** Labels on fire door assemblies shall be maintained in a legible condition. [101:8.3.3.3.3]

**9.8.3.3** Unless otherwise specified, fire doors shall be self-closing or automatic-closing. [101:8.3.3.3.5]

**9.8.3.4** Floor fire door assemblies shall be tested in accordance with NFPA 288 and shall achieve a fire resistance rating not less than the assembly being penetrated. Floor fire door assemblies shall be listed and labeled.

**Δ 9.8.3.5** Fire protection glazing shall be permitted in fire barriers having a required fire resistance rating of 1 hour or less and shall be of an approved type with the appropriate fire protection rating for the location in which the barriers are installed. [101:8.3.3.6.5]

**Δ 9.8.3.6** Glazing in fire window assemblies, other than in existing fire window installations of wired glass and other fire-rated glazing material, shall be of a design that has been tested to meet the conditions of acceptance of NFPA 257 or UL 9, *Fire Tests of Window Assemblies*. [101:8.3.3.6.6]

**Δ 9.8.3.7** Fire protection glazing in fire door assemblies, other than in existing fire-rated door assemblies, shall be of a design that has been tested to meet the conditions of acceptance of NFPA 252, UL 10B, *Fire Tests of Door Assemblies*, or UL 10C, *Positive Pressure Fire Tests of Door Assemblies*. [101:8.3.3.6.7]

**Δ 9.8.3.8** Fire resistance glazing complying with 9.8.2.1.1 shall be permitted in fire doors and fire window assemblies in accordance with their listings.

**9.8.3.9** Glazing materials that have been listed and labeled to indicate the type of opening to be protected for fire protection purposes shall be permitted to be used in approved opening protectives in accordance with Table 9.8.4.2 and NFPA 80. [101:8.3.3.6.1]

**Δ 9.8.3.10** Nonsymmetrical fire protection glazing systems shall be tested with each face exposed to the furnace, and the assigned fire protection rating shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 or UL 9, *Fire Tests of Window Assemblies*. [101:8.3.3.6.9]

**Δ 9.8.3.11** The total combined area of fire protection glazing in fire window assemblies and fire door assemblies used in fire barriers shall not exceed 25 percent of the area of the fire barrier that is common with any room, unless the installation is an existing fire window of wired glass or other fire protection glazing in approved frames. [101:8.3.3.6.10]

**Δ 9.8.3.12** New fire protection glazing shall be marked in accordance with Table 9.8.3.12 and Table 9.8.4.2, and such marking shall be permanently affixed. [101:8.3.3.6.3]

**9.8.3.13** Fire-rated door assemblies shall be inspected and tested in accordance with NFPA 80.

## 9.8.4 Opening Protectives.

**9.8.4.1** Every opening in a fire barrier shall be protected to limit the spread of fire and restrict the movement of smoke from one side of the fire barrier to the other.

**9.8.4.2** The minimum fire rating for opening protectives in fire barriers, fire-rated smoke barriers, and fire-rated smoke partitions shall be in accordance with Table 9.8.4.2. [101:8.3.3.2.2]



**Table 9.8.3.12 Marking Fire-Rated Glazing Assemblies**

Fire Test Standard	Marking	Definition of Marking
ASTM E119 or UL 263	W	Meets wall assembly criteria
NFPA 257 or UL 9	OH	Meets fire window assembly criteria, including the hose stream test
NFPA 252, UL 10B, or UL 10C	D	Meets fire door assembly criteria
	H	Meets fire door assembly hose stream test
	T	Meets 450°F (232°C) temperature rise criteria for 30 minutes
	XXX	The time, in minutes, of fire resistance or fire protection rating of the glazing assembly

[101:8.3.3.6.3]

**9.8.4.2.1** Fire-rated glazing assemblies marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements. Fire-rated glazing assemblies marked as complying with temperature rise requirements (T) shall be permitted in applications that do not require compliance with temperature rise requirements. Fire-rated glazing assemblies marked with ratings that exceed the ratings required by this *Code* shall be permitted.

### 9.8.5 Penetrations.

#### 9.8.5.1 General.

**9.8.5.1.1** The provisions of 9.8.5 shall govern the materials and methods of construction used to protect through-penetrations and membrane penetrations in fire walls, fire barrier walls, and fire-resistance-rated horizontal assemblies. [101:8.3.4.1.1]

**9.8.5.1.2** The provisions of 9.8.5 shall not apply to approved existing materials and methods of construction used to protect existing through-penetrations and existing membrane penetrations in fire walls, fire barrier walls, or fire-resistance-rated horizontal assemblies, unless otherwise required by this *Code*. [101:8.3.4.1.2]

#### 9.8.5.2 Firestop Systems and Devices Required.

**9.8.5.2.1** Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device. [101:8.3.4.2.1]

**9.8.5.2.2** The firestop system or device shall be tested in accordance with ASTM E814, *Standard Test Method for Fire Tests of Penetration Fire Stop Systems*, or UL 1479, *Fire Tests of Penetration Firestops*, at a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) between the exposed and the unexposed surface of the test assembly. [101:8.3.4.2.2]

**9.8.5.2.3** The requirements of 9.8.5.2 shall not apply where otherwise permitted by any one of the following:

- (1) Where penetrations are tested and installed as part of an assembly tested and rated in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*

- (2) Where penetrations through floors are enclosed in a shaft enclosure designed as a fire barrier
- (3) Where concrete, grout, or mortar has been used to fill the annular spaces around cast-iron, copper, or steel piping, conduit, or tubing that penetrates one or more concrete or masonry fire-resistance-rated assemblies and all of the following applies:
  - (a) The nominal diameter of each penetrating item does not exceed 6 in. (150 mm).
  - (b) The opening size does not exceed 1 ft<sup>2</sup> (0.09 m<sup>2</sup>).
  - (c) The thickness of the concrete, grout, or mortar is the full thickness of the assembly.
- (4) Where penetration is limited to one floor, the firestopping material is capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste when subjected to the time-temperature fire conditions of ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*, under a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) at the location of the penetration for the time period equivalent to the required fire resistance rating of the assembly penetrated, and the firestopping materials are used with the following penetrating items:
  - (a) Steel, ferrous, or copper cables
  - (b) Cable or wire with steel jackets
  - (c) Cast-iron, steel, or copper pipes
  - (d) Steel conduit or tubing

[101:8.3.4.2.5.1]

**9.8.5.2.4** The maximum nominal diameter of the penetrating item, as indicated in 9.8.5.2.3(4)(a) through 9.8.5.2.3(4)(d), shall not be greater than 4 in. (100 mm) and shall not exceed an aggregate 100 in.<sup>2</sup> (64,520 mm<sup>2</sup>) opening in any 100 ft<sup>2</sup> (9.3 m<sup>2</sup>) of floor or wall area. [101:8.3.4.2.5.2]

**9.8.5.2.5** Firestop systems and devices shall have a minimum 1-hour F rating but not less than the required fire resistance rating of the fire barrier penetrated.

#### 9.8.5.2.6 T Ratings.

**9.8.5.2.6.1** Penetrations in fire-resistance-rated horizontal assemblies shall have a T rating of not less than 1 hour, and not less than the fire resistance rating of the horizontal assembly. [101:8.3.4.2.4.1]

**Table 9.8.4.2 Minimum Fire Ratings for Opening Protectives in Fire-Resistance-Rated Assemblies and Fire-Rated Glazing Markings**

Component	Walls and Partitions (hr)	Fire Door Assemblies (hr)	Door Vision Panel Maximum Size (in. <sup>2</sup> )	Fire-Rated Glazing Marking Door Vision Panel	Minimum Side Light/Transom Assembly Rating (hr)		Fire-Rated Glazing Marking Side Light/Transom Panel		Minimum Fire-Rated Windows Rating <sup>a,b</sup> (hr)		Fire-Rated Window Marking	
					Fire Protection	Fire Resistance	Fire Protection	Fire Resistance	Fire Protection	Fire Resistance	Fire Protection	Fire Resistance
Elevator hoistways	2	1½	155 in. <sup>2 c</sup>	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-120	NP	2	NP	W-120
	1	1	155 in. <sup>2 c</sup>	D-H-60 or D-H-W-60	NP	1	NP	D-H-W-60	NP	1	NP	W-60
	½	⅓	85 in. <sup>2 d</sup>	D-20 or D-W-20	⅓	⅓	D-H-20	D-W-20	⅓	⅓	OH-20	W-30
Elevator lobby	1	1	100 in. <sup>2 a</sup>	≤100 in. <sup>2</sup> , D-H-T-60 or D-H-W-60 >100 in. <sup>2</sup> , D-H-W-60	NP	1	NP	D-H-W-60	NP	1	NP	W-60
Vertical shafts (including stairways, exits, and refuse chutes)	2	1½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-120	NP	2	NP	W-120
	1	1	Maximum size tested	D-H-60 or D-H-W-60	NP	1	NP	D-H-W-60	NP	1	NP	W-60
Replacement panels in existing vertical shafts	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-W-20	⅓	⅓	OH-20	W-30
Horizontal exits	2	1½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-120	NP	2	NP	W-120
Horizontal exits served by bridges between buildings	2	¾	Maximum size tested <sup>c</sup>	D-H-45 or D-H-W-45	¾ <sup>e</sup>	¾ <sup>e</sup>	D-H-45	D-H-W-45	¾	¾	OH-45	W-120
Exit access corridors <sup>f</sup>	1	⅓	Maximum size tested	D-20 or D-W-20	¾	¾	D-H-45	D-H-W-45	¾	¾	OH-45	W-60
	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-H-W-20	⅓	⅓	OH-20	W-30
Other fire barriers	3	3	100 in. <sup>2 a</sup>	≤100 in. <sup>2</sup> , D-H-180 or D-H-W-180 >100 in. <sup>2</sup> , D-H-W-180	NP	3	NP	D-H-W-180	NP	3	NP	W-180
	2	1½	Maximum size tested	D-H-90 or D-H-W-90	NP	2	NP	D-H-W-120	NP	2	NP	W-120
	1	¾	Maximum size tested <sup>c</sup>	D-H-45 or D-H-W-45	¾ <sup>e</sup>	¾ <sup>e</sup>	D-H-45	D-H-W-45	¾	¾	OH-45	W-60
	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-H-W-20	⅓	⅓	OH-20	W-30
Smoke barriers <sup>f</sup>	1	⅓	Maximum size tested	D-20 or D-W-20	¾	¾	D-H-45	D-H-W-45	¾	¾	OH-45	W-60
	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-H-W-20	⅓	⅓	OH-20	W-30
Smoke partitions <sup>f,g</sup>	1	⅓	Maximum size tested	D-20 or D-W-20	¾	¾	D-H-45	D-H-W-45	¾	¾	OH-45	W-60
	½	⅓	Maximum size tested	D-20 or D-W-20	⅓	⅓	D-H-20	D-H-W-20	⅓	⅓	OH-20	W-30

For SI units, 1 in.<sup>2</sup> = 0.00064516 m<sup>2</sup>.

NP: Not permitted.

<sup>a</sup>Fire resistance glazing tested to ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*, shall be permitted in the maximum size tested (see 9.8.3.1.1).<sup>b</sup>Fire-rated glazing in exterior windows shall be marked in accordance with Table 9.8.3.12.<sup>c</sup>See ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators*, for additional information.<sup>d</sup>See ASME A17.3, *Safety Code for Existing Elevators and Escalators*, for additional information.<sup>e</sup>Maximum area of individual exposed lights shall be 1296 in.<sup>2</sup> (0.84 m<sup>2</sup>), with no dimension exceeding 54 in. (1.37 m) unless otherwise tested. [80:Table 4.4.5 Note b and 80:4.4.5.1].<sup>f</sup>Fire doors are not required to have a hose stream test per UL 10B, *Fire Tests of Door Assemblies*, or UL 10C, *Positive Pressure Fire Tests of Door Assemblies*.<sup>g</sup>For residential board and care, see NFPA 101, Chapters 32 and 33.

[101:8.3.3.2.2]

**9.8.5.2.6.2** A T rating shall not be required for either of the following:

- (1) Floor penetrations contained within the cavity of a wall assembly
- (2) Penetrations through floors or floor assemblies where the penetration is not in direct contact with combustible material

[101:8.3.4.2.4.2]

**9.8.5.3 Sleeves.** Where the penetrating item uses a sleeve to penetrate the wall or floor, the sleeve shall be securely set in the wall or floor, and the space between the item and the sleeve shall be filled with a material that complies with 9.8.5.1. [101:8.3.4.3]

**9.8.5.4** Insulation and coverings for penetrating items shall not pass through the wall or floor unless the insulation or covering has been tested as part of the firestop system or device. [101:8.3.4.4]

**9.8.5.5** Where designs take transmission of vibrations into consideration, any vibration isolation shall meet one of the following conditions:

- (1) It shall be provided on either side of the wall or floor.
- (2) It shall be designed for the specific purpose.

#### **9.8.5.6 Transitions.**

**Δ 9.8.5.6.1** Where piping penetrates a fire-resistance-rated wall or floor assembly, combustible piping shall not connect to noncombustible piping unless it can be demonstrated that the transition will not reduce the fire resistance rating, except in the case of previously approved installations. [101:8.3.4.6.1]

**9.8.5.6.2** Unshielded couplings shall not be used to connect noncombustible piping to combustible piping unless it can be demonstrated that the transition complies with the fire-resistive requirements of 9.8.5.1. [101:8.3.4.6.2]

#### **9.8.5.7 Membrane Penetrations.**

**Δ 9.8.5.7.1** Membrane penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents, exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a membrane of a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device and shall comply with 9.8.5.1 through 9.8.5.2. [101:8.3.4.7.1]

**Δ 9.8.5.7.2** The firestop system or device shall be tested in accordance with ASTM E814, *Standard Test Method for Fire Tests of Penetration Fire Stop Systems*, or UL 1479, *Fire Tests of Penetration Firestops*, at a minimum positive pressure differential of 0.01 in. water column (2.5 Pa) between the exposed and the unexposed surface of the test assembly, unless one of the following applies:

- (1) Membrane penetrations of ceilings that are not an integral part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly
- (2) Membrane penetrations of steel, ferrous, or copper conduit, piping, or tubing, and steel electrical outlet boxes and wires, or combustion vents or exhaust vents where the annular space is protected with an approved material and the aggregate area of the openings does not exceed 100 in.<sup>2</sup> (64,520 mm<sup>2</sup>) in any 100 ft<sup>2</sup> (9.3 m<sup>2</sup>) of ceiling area

- (3) Electrical outlet boxes and fittings provided that such devices are listed for use in fire-resistance-rated assemblies and are installed in accordance with their listing
- (4) The annular space created by the membrane penetration of a fire sprinkler shall be permitted, provided that the space is covered by a metal escutcheon plate

[101:8.3.4.7.2]

**9.8.5.7.3** Where walls or partitions are required to have a minimum 1-hour fire resistance rating, recessed fixtures shall be installed in the wall or partition in such a manner that the required fire resistance is not reduced, unless one of the following criteria is met:

- (1) Any steel electrical box not exceeding 16 in.<sup>2</sup> (10,300 mm<sup>2</sup>) in area shall be permitted where the aggregate area of the openings provided for the boxes does not exceed 100 in.<sup>2</sup> (64,520 mm<sup>2</sup>) in any 100 ft<sup>2</sup> (9.3 m<sup>2</sup>) of wall area, and, where outlet boxes are installed on opposite sides of the wall, the boxes shall be separated by one of the following means:
  - (a) Horizontal distance of not less than 24 in. (610 mm)
  - (b) Horizontal distance of not less than the depth of the wall cavity, where the wall cavity is filled with cellulose loose-fill, rock wool, or slag wool insulation
  - (c) Solid fireblocking
  - (d) Other listed materials and methods
- (2) Membrane penetrations for any listed electrical outlet box made of any material shall be permitted, provided that such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.
- (3) The annular space created by the membrane penetration of a fire sprinkler shall be permitted, provided that the space is covered by a metal escutcheon plate.
- (4) Membrane penetrations by electrical boxes of any size or type, which have been listed as part of a wall opening protective material system for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing, shall be permitted.

[101:8.3.4.7.3]

#### **9.8.6 Joints.**

**9.8.6.1** The provisions of 9.8.6 shall govern the materials and methods of construction used to protect joints in fire barriers, in between fire barriers, and at the perimeter of fire barriers where fire barriers meet other fire barriers, the floor or roof deck above, or the outside walls. [101:8.3.5.1.1]

**9.8.6.2** Joints made within, between, or at the perimeter of fire barriers shall be protected with a joint system that is capable of limiting the transfer of smoke.

**9.8.6.3** Testing of the joint system in a fire barrier shall be representative of the actual installation suitable for the required engineering demand without compromising the fire resistance rating of the assembly or the structural integrity of the assembly. [101:8.3.5.2.4]

**9.8.6.4** Joints made within or at the perimeter of fire barriers, between fire-resistance-rated assemblies, or where fire barriers meet other fire barriers, the floor or roof deck above, or the outside walls shall be protected with a joint system that is designed and tested to prevent the spread of fire for a time



period equal to that of the assembly in which the joint is located. [101:8.3.5.2.1]

▲ **9.8.6.5** Such materials, systems, or devices shall be tested as part of the assembly in accordance with the requirements of ASTM E1966, *Standard Test Method for Fire-Resistive Joint Systems*, or UL 2079, *Tests for Fire Resistance of Building Joint Systems*. [101:8.3.5.2.5]

▲ **9.8.6.6** All joint systems shall be tested at their maximum joint width in accordance with the requirements of ASTM E1966, *Standard Test Method for Fire-Resistive Joint Systems*, or UL 2079, *Tests for Fire Resistance of Building Joint Systems*, under a minimum positive pressure differential of 0.01 in. water column (2.5 N/m<sup>2</sup>) for a time period equal to that of the assembly. [101:8.3.5.2.6]

**9.8.6.7** All test specimens shall comply with the minimum height or length required by the standard. [101:8.3.5.2.7]

▲ **9.8.6.8** Wall assemblies shall be subjected to a hose stream test in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*. [101:8.3.5.2.8]

#### **9.8.6.9 Exterior Curtain Walls and Perimeter Joints.**

**9.8.6.9.1** Voids created between the fire resistance-rated floor assembly and the exterior curtain wall shall be protected with a perimeter joint system that is designed and tested in accordance with ASTM E2307, *Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-Story Apparatus*. [101:8.3.5.4.1]

**9.8.6.9.2** The perimeter joint system shall have an F rating equal to the fire resistance rating of the floor assembly. [101:8.3.5.4.2]

### **9.9 Smoke Barriers.**

**9.9.1 General.** Where required, smoke barriers shall be provided to subdivide building spaces for the purpose of restricting the movement of smoke.

#### **9.9.2 Continuity.**

**9.9.2.1** Smoke barriers required by this *Code* shall be continuous from an outside wall to an outside wall, from a floor to a floor, or from a smoke barrier to a smoke barrier, or by use of a combination thereof. [101:8.5.2.1]

**9.9.2.2** Smoke barriers required by this *Code* shall be continuous through all concealed spaces, such as those found above a ceiling, including interstitial spaces. [101:8.5.2.2]

**9.9.2.3** A smoke barrier required for an occupied space below an interstitial space shall not be required to extend through the interstitial space, provided that the construction assembly forming the bottom of the interstitial space provides resistance to the passage of smoke equal to that provided by the smoke barrier. [101:8.5.2.3]

▲ **9.9.3 Fire Barrier Used as Smoke Barrier.** A fire barrier shall be permitted to be used as a smoke barrier, provided that it meets the requirements of Section 9.9. [101:8.5.3]

#### **9.9.4 Opening Protectives.**

**9.9.4.1** Doors in smoke barriers shall close the opening, leaving only the minimum clearance necessary for proper operation, and shall be without louvers or grilles. For other than

previously approved existing doors, the clearance under the bottom of the doors shall be a maximum of ¾ in. (19 mm). [101:8.5.4.1]

**9.9.4.2** Latching hardware shall be required on doors in smoke barriers, unless specifically exempted by Chapters 11 through 18. [101:8.5.4.3]

**9.9.4.3** Doors in smoke barriers shall be self-closing or automatic-closing.

**9.9.4.4** Fire window assemblies shall comply with NFPA 80.

### **9.9.5 Ducts and Air-Transfer Openings.**

**9.9.5.1 General.** The provisions of 9.9.5 shall govern the materials and methods of construction used to protect ducts and air-transfer openings in smoke barriers. [101:8.5.5.1]

#### **9.9.5.2 Smoke Dampers.**

▲ **9.9.5.2.1** Where a smoke barrier is penetrated by a duct or air-transfer opening, a smoke damper designed and tested in accordance with the requirements of UL 555S, *Smoke Dampers*, shall be installed. [101:8.5.5.2.1]

▲ **9.9.5.2.2** Where a smoke barrier is also constructed as a fire barrier, a combination fire/smoke damper designed and tested in accordance with the requirements of UL 555, *Fire Dampers*, and UL 555S, *Smoke Dampers*, shall be installed. [101:8.5.5.2.2]

**9.9.5.3 Smoke Damper Exemptions.** Smoke dampers shall not be required under any of the following conditions:

- (1) Where ducts or air-transfer openings are part of an engineered smoke control system and the smoke damper will interfere with the operation of a smoke control system
- (2) Where the air in ducts continues to move and the air handling system installed is arranged to prevent recirculation of exhaust or return air under fire emergency conditions
- (3) Where the air inlet or outlet openings in ducts are limited to a single smoke compartment
- (4) Where ducts penetrate floors that serve as smoke barriers
- (5) Where ducts penetrate communicating spaces that do not connect more than three contiguous floors, the lowest or next-to-lowest story within the communicating space is a street floor, the entire floor area of the communicating space is open and unobstructed, such that a fire in any part of the space will be readily obvious to the occupants of the space prior to the time it becomes an occupant hazard, and the building is fully sprinkler protected

#### **9.9.5.4 Installation, Testing, and Maintenance.**

**9.9.5.4.1** Air-conditioning, heating, ventilating ductwork, and related equipment, including smoke dampers and combination fire and smoke dampers, shall be installed in accordance with NFPA 90A, NFPA 90B, NFPA 105, or NFPA 80, as applicable. [101:8.5.5.4.1]

**9.9.5.4.2** Smoke dampers and combination fire and smoke dampers required by this *Code* shall be inspected, tested, and maintained in accordance with NFPA 105. [101:8.5.5.4.2]

**9.9.5.4.3** The equipment specified in 9.9.5.4.1 shall be installed in accordance with the requirements of 9.9.5, the manufacturer's installation instructions, and the equipment listing. [101:8.5.5.4.3]

### 9.9.5.5 Access and Identification.

**9.9.5.5.1** Access to the dampers shall be provided for inspection, testing, and maintenance. [101:8.5.5.5.1]

**9.9.5.5.2** Smoke and combination fire and smoke dampers in new construction shall be provided with an approved means of access, as follows:

- (1) The means of access shall be large enough to allow inspection and maintenance of the damper and its operating parts.
- (2) The access shall not affect the integrity of fire-resistance-rated assemblies or smoke barrier continuity.
- (3) The access openings shall not reduce the fire resistance rating of the assembly.
- (4) Access doors in ducts shall be tight-fitting and suitable for the required duct construction.
- (5) Access and maintenance shall comply with the requirements of the mechanical code.

[101:8.5.5.5.2]

**9.9.5.5.3 Identification.** Access points to fire and smoke dampers shall be permanently identified by one of the following:

- (1) A label having letters not less than ½ in. (13 mm) in height and reading as one of the following:
  - (a) FIRE/SMOKE DAMPER
  - (b) SMOKE DAMPER
  - (c) FIRE DAMPER
- (2) Symbols as approved by the authority having jurisdiction

**9.9.5.6 Smoke Damper Ratings.** Smoke damper leakage ratings shall be not less than Class II. Elevated temperature ratings shall be not less than 250°F (140°C). [101:8.5.5.6]

### 9.9.5.7 Smoke Detectors.

**9.9.5.7.1** Required smoke dampers in ducts penetrating smoke barriers shall close upon detection of smoke by approved smoke detectors in accordance with *NFPA 72* unless one of the following conditions exists:

- (1) The ducts penetrate smoke barriers above the smoke barrier doors, and the door release detector actuates the damper.
- (2) Approved smoke detector installations are located within the ducts in existing installations.

[101:8.5.5.7.1]

**9.9.5.7.2** Where a duct is provided on one side of the smoke barrier, the smoke detectors on the duct side shall be in accordance with 9.9.5.7.1. [101:8.5.5.7.2]

**9.9.5.7.3** Required smoke dampers in air-transfer openings shall close upon detection of smoke by approved smoke detectors in accordance with *NFPA 72*. [101:8.5.5.7.3]

### 9.9.6 Penetrations.

**9.9.6.1** The provisions of 9.9.6 shall govern the materials and methods of construction used to protect through-penetrations and membrane penetrations of smoke barriers. [101:8.5.6]

**9.9.6.2** Penetrations for cables, cable trays, conduits, pipes, tubes, vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a smoke barrier, or through the ceiling membrane of the

roof/ceiling of a smoke barrier assembly, shall be protected by a system or material capable of restricting the transfer of smoke. [101:8.5.6.2]

**9.9.6.3** Where a smoke barrier is also constructed as a fire barrier, the penetrations shall be protected in accordance with the requirements of fire barriers.

**9.9.6.4** Where sprinklers penetrate a single membrane of a fire-resistance-rated assembly in buildings equipped throughout with an approved automatic fire sprinkler system, noncombustible escutcheon plates shall be permitted, provided that the space around each sprinkler penetration does not exceed ½ in. (13 mm), measured between the edge of the membrane and the sprinkler. [101:8.5.6.4]

**9.9.6.5** Where the penetrating item uses a sleeve to penetrate the smoke barrier, the sleeve shall be securely set in the smoke barrier, and the space between the item and the sleeve shall be filled with a listed system or a material capable of restricting the transfer of smoke. [101:8.5.6.6]

**9.9.6.6** Where designs take transmission of vibrations into consideration, any vibration isolation shall meet one of the following conditions:

- (1) It shall be provided on either side of the smoke barrier.
- (2) It shall be designed for the specific purpose.

### 9.9.7 Joints.

**9.9.7.1** The provisions of 9.9.7 shall govern the materials and methods of construction used to protect joints in between and at the perimeter of smoke barriers or, where smoke barriers meet other smoke barriers, the floor or roof deck above, or the outside walls. The provisions of 9.9.7.1 shall not apply to approved existing materials and methods of construction used to protect existing joints in smoke barriers, unless otherwise required by this *Code*. [101:8.5.7.1]

**9.9.7.2** Joints made within, between, or at the perimeter of smoke barriers shall be protected with a joint system that is capable of limiting the transfer of smoke.

**9.9.7.3** Smoke barriers that are also constructed as fire barriers shall be protected with a joint system that is designed and tested to resist the spread of fire for a time period equal to the required fire resistance rating of the assembly and restrict the transfer of smoke in accordance with 9.9.7.2. [101:8.5.7.3]

**9.9.7.4** Testing of the joint system in a smoke barrier that also serves as fire barrier shall be representative of the actual installation. [101:8.5.7.4]

### 9.10 Fire Extinguishers.

**9.10.1** Where required by another section of this *Code*, portable fire extinguishers shall be selected, installed, inspected, and maintained in accordance with *NFPA 10*. [101:9.9]

**9.10.2** Fire extinguishers in accordance with 9.10.1 shall have a minimum 2-A:10-B:C rating.

**9.10.3** Fire extinguishers shall be located so that the minimum travel distance does not exceed 50 ft (15.2 m), unless permitted by 9.10.5.

**9.10.4** Livestock areas not typically occupied by humans shall have a minimum 2-A:10-B:C rated fire extinguisher located at each entrance.

▲ **9.10.5\*** Alternative placement or physical protection of fire extinguishers shall be permitted with the approval of the AHJ in areas where necessary to prevent injury to the animal occupants or damage to the fire extinguishers.

**9.11 Lightning Protection.** Where lightning protection is required by the local building code, lightning protection shall be in accordance with NFPA 780.

## **9.12 Special Hazards.**

### **9.12.1 Open Flame, Candles, Open Fires, Portable Cooking, and Incinerators.**

**9.12.1.1\*** Open flame, candles, open fires, and incinerators shall not be permitted except as provided in 9.12.1.2.

**9.12.1.2** Open flame heating devices that comply with the following shall be permitted:

- (1) NFPA 31
- (2) NFPA 54/ANSI Z223.1
- (3) NFPA 58
- (4) NFPA 70
- (5) NFPA 90A
- (6) NFPA 90B
- (7) NFPA 211

**9.12.1.3** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with NFPA 72.

**9.12.1.4** Portable cooking equipment shall be used only in spaces designated for such use and separated from the animal housing facility.

### **9.12.2 Smoking.**

**9.12.2.1** Smoking shall be prohibited in animal housing facilities.

**9.12.2.2** "No Smoking" signs shall be posted in conspicuous, designated locations where smoking is prohibited.

### **9.12.3 Waste Removal and Housekeeping.**

**9.12.3.1** Approved containers for rubbish and other trash materials shall be provided.

**9.12.3.2** Rubbish, trash, and other waste material shall be disposed of at regular intervals.

**9.12.3.3** Combustible waste or refuse shall be properly stored or disposed of to prevent unsafe conditions.

**9.12.3.4** Persons owning or having control of any property shall not allow any combustible waste material to accumulate in any area or in any manner that creates a fire hazard to life or property.

### **9.12.4 Rubbish Containers.**

**9.12.4.1 General.** Rubbish containers kept outside of rooms or vaults shall not exceed 40.5 ft<sup>3</sup> (1.15 m<sup>3</sup>) capacity.

**9.12.4.1.1** Containers exceeding a capacity of 5½ ft<sup>3</sup> [40 gal (0.15 m<sup>3</sup>)] shall be provided with lids.

**9.12.4.1.2** Rubbish containers and lids shall be constructed of noncombustible materials or nonmetallic materials complying with 9.12.4.2.

### **9.12.4.2 Nonmetallic Containers.**

**9.12.4.2.1** Nonmetallic rubbish containers exceeding a capacity of 5½ ft<sup>3</sup> [40 gal (0.15 m<sup>3</sup>)] shall be manufactured of materials having a peak rate of heat release not exceeding 300 kW/m<sup>2</sup> at a flux of 50 kW/m<sup>2</sup> when tested in the horizontal orientation, at a thickness as used in the container but not less than 0.25 in. (6 mm), in accordance with ASTM E1354, *Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*.

**9.12.4.2.2** Such containers shall be permanently labeled indicating capacity and peak rate of heat release.

**9.12.4.3 Removal.** Combustible rubbish stored in containers outside of noncombustible vaults or rooms shall be removed from buildings at least once each working day.

### **9.12.4.4 Rubbish Within Dumpsters.**

**9.12.4.4.1** Dumpsters and containers with an individual capacity of 1.5 yd<sup>3</sup> [40.5 ft<sup>3</sup> (1.15 m<sup>3</sup>)] or more shall not be stored in buildings or placed within 10 ft (3 m) of combustible walls, openings, or combustible roof eave lines.

**9.12.4.4.2** Areas containing dumpsters or containers shall be protected by an approved automatic sprinkler system and enclosed with a fire resistance rating of 1 hour.

**9.12.4.5** Approved metal receptacles with self-closing covers shall be provided for the storage or disposal of oil-soaked waste or cloths.

**9.12.5 Storage.** Aisles, hallways, or other types of corridors of animal housing facilities shall not be used in any form for permanent storage.

### **9.12.6 Electrical Fire Safety.**

**9.12.6.1 General.** Subsection 9.12.6 shall apply to permanent and temporary electrical appliances, equipment, fixtures, and wiring. [1:11.1.1]

#### **9.12.6.2 Permanent Wiring, Fixtures, and Equipment.**

**9.12.6.2.1\*** All new electrical wiring, fixtures, appliances and equipment shall be installed in accordance with NFPA 70. [1:11.1.2.1]

#### **9.12.6.3 Multiplug Adapters.**

**9.12.6.3.1** Multiplug adapters, such as multiplug extension cords, cube adapters, strip plugs, and other devices, shall be listed and used in accordance with their listing. [1:11.1.3.1]

**9.12.6.3.2** Multiplug adapters shall not be used as a substitute for permanent wiring or receptacles. [1:11.1.3.2]

#### **9.12.6.4 Relocatable Power Taps.**

**9.12.6.4.1** Relocatable power taps shall be of the polarized or grounded type with overcurrent protection and shall be listed.

**9.12.6.4.2** The relocatable power taps shall be directly connected to a permanently installed receptacle. [1:11.1.4.2]

**9.12.6.4.3** Relocatable power tap cords shall not extend through walls, ceilings, or floors; under doors or floor coverings; or be subject to environmental or physical damage. [1:11.1.4.3]



### 9.12.6.5 Extension Cords.

**9.12.6.5.1** Extension cords shall be plugged directly into an approved receptacle, power tap, or multiplug adapter and shall, except for approved multiplug extension cords, serve only one portable appliance. [1:11.1.5.1]

**9.12.6.5.2** The ampacity of the extension cords shall not be less than the rated capacity of the portable appliance supplied by the cord. [1:11.1.5.2]

**9.12.6.5.3** The extension cords shall be maintained in good condition without splices, deterioration, or damage. [1:11.1.5.3]

**9.12.6.5.4** Extension cords shall be grounded when servicing grounded portable appliances. [1:11.1.5.4]

**9.12.6.5.5** Extension cords and flexible cords shall not be affixed to structures; extend through walls, ceilings, or floors, or under doors or floor coverings; or be subject to environmental or physical damage. [1:11.1.5.5]

▲ **9.12.6.5.6** Extension cords shall not be used as a substitute for permanent wiring.

### 9.12.7 Utilities.

#### 9.12.7.1 General.

**9.12.7.1.1** The installation of stationary liquid fuel-burning appliances, including but not limited to industrial-, commercial-, and residential-type steam, hot water, or warm air heating appliances; domestic-type range burners; space heaters; and portable liquid fuel-burning equipment shall comply with 9.12.7 and NFPA 31. [1:11.5.1.1]

**9.12.7.1.2** Subsection 9.12.7 shall also apply to all accessories and control systems, whether electric, thermostatic, or mechanical, and all electrical wiring connected to liquid fuel-burning appliances and shall comply with 9.12.7 and NFPA 31.

**9.12.7.1.3** Subsection 9.12.7 shall also apply to the installation of liquid fuel storage and supply systems connected to liquid fuel-burning appliances and shall comply with 9.12.7 and NFPA 31.

**9.12.7.1.4** Subsection 9.12.7 shall also apply to those multifueled appliances in which a liquid fuel is one of the standard or optional fuels. [1:11.5.1.4]

**9.12.7.1.5** Subsection 9.12.7 shall not apply to internal combustion engines, oil lamps, or portable devices not specifically covered in NFPA 31. (See Chapter 11 of NFPA 31 for portable devices that are covered in NFPA 31.) [1:11.5.1.5]

▲ **9.12.7.1.6** The installation of gas-fired heating appliances shall comply with 9.12.7 and NFPA 54. (See Chapter 69 of NFPA 1 for LP-Gas fuel supply and storage installations.) [1:11.5.1.6]

**9.12.7.1.7** All heating appliances shall be approved or listed. [1:11.5.1.7]

**9.12.7.1.8** Electrical wiring and utilization equipment used in connection with oil-burning appliances or equipment shall be installed in accordance with NFPA 70.

#### 9.12.7.1.9 Acceptable Liquid Fuels.

▲ **9.12.7.1.9.1** The type and grade of liquid fuel used in a liquid fuel-burning appliance shall be that type and grade for which the appliance is listed and approved or is stipulated by the

manufacturer. Liquid fuels shall meet one of the following specifications and shall not contain gasoline or any other flammable liquid:

- (1) ASTM D396, *Standard Specification for Fuel Oils*
- (2) ASTM D3699, *Standard Specification for Kerosine*
- (3) ASTM D6448, *Industrial Burner Fuels from Used Lube Oils*
- (4) ASTM D6751, *Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuel*
- (5) ASTM D6823, *Standard Specification for Commercial Boiler Fuels with Used Lubricating Oils*
- (6) ASTM D7666, *Standard Specification for Triglyceride Burner Fuel*

[1:11.5.1.10.1]

**9.12.7.1.9.2** Appliances that burn crankcase oil or used oil shall not be used in a residential occupancy. Such appliances shall only be used if all of the following conditions are met:

- (1) The installation is in a commercial or industrial occupancy.
- (2) The oil-burning appliance is designed to burn crankcase oil or used oil and is listed for such use.
- (3) The appliance is installed in accordance with the manufacturer's instructions and with the terms of its listing.
- (4) The installation meets the applicable requirements of Section 4.6 of NFPA 31 and Chapter 12 of NFPA 31.

[1:11.5.1.10.2]

▲ **9.12.7.1.9.3** Where heavy oils are used, the following shall be required:

- (1) The oil-burning appliance shall be designed to burn such fuels.
- (2) Means shall be provided to maintain the oil at its proper atomizing temperature.
- (3) Automatically operated burners that require preheating of oil shall be arranged so that no oil can be delivered for combustion until the oil is at the proper atomizing temperature.
- (4) Use of an oil-fired appliance that is listed in accordance with UL 296A, *Waste Oil-Burning Air-Heating Appliances*, shall be deemed as meeting the intent of 9.12.7.1.9.3(1) through 9.12.7.1.9.3(3).

[1:11.5.1.10.3]

**9.12.7.1.9.4** A properly sized and rated oil filter or strainer shall be installed in the oil supply line to an oil burner. [1:11.5.1.10.4]

### 9.12.8 Clothes Dryers.

**9.12.8.1** Clothes dryers shall be cleaned to maintain the lint trap and keep the mechanical and heating components free from excessive accumulations of lint. [1:11.5.1.11.1]

### 9.12.9 Kerosene Burners and Oil Stoves.

**9.12.9.1** Kerosene burners and oil stoves shall be equipped with a primary safety control furnished as an integral part of the appliance by the manufacturer to stop the flow of oil in the event of flame failure. Barometric oil feed shall not be considered a primary safety control. [1:11.5.2.1]

**9.12.9.2** A conversion range oil burner shall be equipped with a thermal (heat-actuated) valve in the oil supply line, located in the burner compartment of the stove. [1:11.5.2.2]

▲ **9.12.9.3** Kerosene heaters shall be listed and labeled in accordance with UL 647, *Unvented Kerosene-Fired Room Heaters*

and *Portable Heaters*, and their use shall meet all of the following:

- (1) Adequate ventilation shall be provided.
  - (2) Kerosene heaters shall not be placed on carpeting.
  - (3) Kerosene heaters shall be located not less than 3 ft (0.9 m) from combustible furnishings and drapes.
  - (4) Only approved Type 1-K water clear kerosene shall be used.
  - (5) Kerosene heaters shall be allowed to cool before refueling.
- [1:11.5.2.3]

#### 9.12.10 Portable Electric Heater.

**9.12.10.1** Portable heating appliances shall be used only in spaces designated for such use and separated from the animal housing facility.

**9.12.10.2** Portable electric heaters shall be designed and located so that they cannot be easily overturned. [1:11.5.3.2]

**9.12.10.3** All portable electric heaters shall be listed. [1:11.5.3.3]

**9.12.11** All chimneys, smokestacks, or similar devices for conveying smoke or hot gases to the outer air and the stoves, furnaces, incinerators, boilers, or any other heat-producing devices or appliances shall be installed and maintained in accordance with NFPA 54 and NFPA 211. [1:11.5.4]

**9.12.12 Lighting.** Permanently installed lighting shall be provided throughout the animal housing facility.

#### 9.12.13 Flammable and Combustible Liquids.

**9.12.13.1** Flammable and combustible liquids shall be stored in hazardous materials storage cabinets.

**9.12.13.2 Hazardous Materials Storage Cabinets.** When storage cabinets are used to increase maximum allowable quantities per control area or to otherwise comply with a specific provision in Section 60.5 of NFPA 1, such cabinets shall be in accordance with the following:

- (1) Cabinets shall be constructed of metal.
- (2) The interior of cabinets shall be treated, coated, or constructed of materials that are nonreactive with the hazardous material stored, and such treatment, coating, or construction shall include the entire interior of the cabinet.
- (3) Cabinets shall be either listed as suitable for the intended storage or constructed in accordance with the following:
  - (a) Cabinets shall be of steel having a thickness of not less than 0.044 in. (1.12 mm) (18 gauge).
  - (b) The cabinet, including the door, shall be double-walled with 1½ in. (38.1 mm) airspace between the walls.
  - (c) Joints shall be riveted or welded and shall be tight-fitting.
  - (d) Doors shall be well fitted, self-closing, and equipped with a self-latching device.
  - (e) The bottoms of cabinets utilized for the storage of liquids shall be liquidtight to a minimum height of 2 in. (51 mm).
  - (f) For requirements regarding electrical equipment and devices within cabinets used for the storage of hazardous liquids, compressed gases, or cryogenic fluids, see NFPA 70.

- (4) Cabinets shall be marked in conspicuous lettering that reads as follows: HAZARDOUS — KEEP FIRE AWAY [1:60.5.1.18]

#### 9.13 Fire Department Access.

**9.13.1 General.** Fire department access and fire department access roads shall be provided and maintained in accordance with Section 9.13. [1:18.2.1]

##### 9.13.2 Access to Structures or Areas.

**9.13.2.1** The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security. The access box(es) shall be of an approved type listed in accordance with UL 1037. [1:18.2.2.1]

**9.13.2.2** The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system. [1:18.2.2.2]

**9.13.2.3** The owner or occupant of a structure or area, with required fire department access as specified in 9.13.2.1 or 9.13.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access. [1:18.2.2.3]

#### 9.13.3 Fire Department Access Roads.

##### 9.13.3.1 Required Access.

**9.13.3.1.1** Approved fire apparatus access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated. [1:18.2.3.1.1]

**9.13.3.1.2** Fire apparatus access roads shall consist of roadways, fire lanes, parking lot lanes, or a combination thereof. [1:18.2.3.1.2]

**9.13.3.1.3** The provisions of 9.13.3.1 through 9.13.4.2.1 shall be permitted to be modified by the AHJ where any of the following conditions exists:

- (1) Agricultural buildings having an area not exceeding 400 ft<sup>2</sup> (37.2 m<sup>2</sup>)
- (2) Sheds and other detached buildings having an area not exceeding 400 ft<sup>2</sup> (37.2 m<sup>2</sup>)

**9.13.3.1.4** When fire apparatus access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features. [1:18.2.3.1.4]

##### 9.13.4 Access to Building.

**9.13.4.1** A fire apparatus access road shall extend to within 50 ft (15 m) of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. [1:18.2.3.2.1]

**9.13.4.2 Fire Department Access Roads.** Fire apparatus access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire apparatus access roads as measured by an approved route around the exterior of the building or facility. [1:18.2.3.2.2]

**9.13.4.2.1** When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13R, or NFPA 13D, the distance in

9.13.4.2 shall be permitted to be increased to 450 ft (137 m). [1:18.2.3.2.2.1]

**9.13.4.3 Multiple Access Roads.** More than one fire apparatus access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climate conditions, or other factors that could limit access. [1:18.2.3.3]

**9.14 Utilities.** Equipment using fuel gas and related gas piping shall be in accordance with NFPA 54 or NFPA 58. (See Chapter 69 of NFPA 1 for LP-Gas fuel supply and storage installations.) [1:11.4]

**9.15 Protection from Vehicle Damage.** Aboveground gas meters, regulators, and piping exposed to vehicular damage shall be protected.

**9.16\* Additional Safeguards.** In animal housing facilities with animals that are difficult to move, the AHJ shall be permitted to require additional safeguards necessary to protect animal occupants that cannot be safely evacuated.

**9.17 Smoke Control.** Where required by another section of this Code, smoke control systems shall be designed, installed, inspected, tested, and maintained in accordance with NFPA 92, NFPA 204, or recommended best practices, as approved by the AHJ.

## Chapter 10 Interior Finishes, Contents, Furnishings, and Storage

**10.1\* General.** Interior finishes, contents, furnishings, and storage shall be in accordance with Section 10.2 of NFPA 101 or Sections 10.2 and 10.3 of NFPA 5000, and this chapter.

▲ **10.1.1** Interior wall and ceiling finish materials shall be Class A or Class B in accordance with ASTM E84, *Standard Test Method of Surface Burning Characteristics of Building Materials*, or UL 723, *Test for Surface Burning Characteristics of Building Materials*, in exits and in exit access corridors.

▲ **10.1.2** Interior wall and ceiling finish materials shall be Class A, Class B, or Class C in accordance with ASTM E84, *Standard Test Method of Surface Burning Characteristics of Building Materials*, or UL 723, *Test for Surface Burning Characteristics of Building Materials*, in all other areas.

▲ **10.1.3** Interior wall and ceiling finish materials tested in accordance with NFPA 286 and complying with the requirements in Section 10.2 of NFPA 101 or Sections 10.2 and 10.3 of NFPA 5000 shall be permitted to be used in all areas where a Class A, Class B, or Class C finish material is used in accordance with ASTM E84, *Standard Test Method of Surface Burning Characteristics of Building Materials*, or UL 723, *Test for Surface Burning Characteristics of Building Materials*.

### 10.2\* Storage of Combustibles.

**10.2.1 Protection Plan.** A risk management assessment shall be performed to determine the appropriate protection plan for combustible storage, where required by the AHJ.

### 10.2.2 Storage of Hay, Straw, and Other Similar Agricultural Products.

**10.2.2.1** Hay, straw, and other similar agricultural products shall not be stored adjacent to buildings or combustible material unless a cleared horizontal distance equal to the height of

the pile is maintained between such storage and combustible material and buildings. [1:45.7.1]

**10.2.2.2** Storage shall be limited to stacks of 100 tons (90,720 kg) each. [1:45.7.2]

**10.2.2.3** Either an approved 1-hour fire wall installed in accordance with NFPA 221 or a clear space of 20 ft (6.1 m) shall be maintained between such stacks. [1:45.7.3]

## Chapter 11 Category 1 — Animal Health Care

### 11.1 General.

#### 11.1.1 Application.

**11.1.1.1** The requirements of this chapter shall apply to new Category 1 animal housing facilities or portions thereof.

**11.1.1.2** Category 1 animal housing facilities shall be in accordance with Chapter 38 of NFPA 101 Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building codes, at a minimum, and this chapter.

**11.1.2 General.** The requirements in Chapter 1 and Chapter 4 shall apply.

#### 11.1.3 Special Definitions.

**11.1.3.1 Category 1 — Animal Health Care.** Animal housing facilities used for short-term care, maintenance, or medical attention of animals.

**11.1.3.2\* Category 1 Class A.** Facilities where animals are observed overnight, not constantly attended, for short-term care, maintenance, or medical attention.

**11.1.3.3\* Category 1 Class B.** Facilities where animals are housed temporarily and constantly attended for short-term care, maintenance, or medical attention.

**11.1.4 Minimum Construction Requirements.** Category 1 animal housing facilities shall be constructed in accordance with Chapter 7.

#### 11.1.5 Multiple Occupancies.

**11.1.5.1** All multiple occupancies shall be in accordance with Section 6.3.

**11.1.5.2** Where there are differences in the specific requirements of this chapter and the requirements for mixed or separated occupancies, the requirements of this chapter shall apply.

**11.1.6 Hazard of Contents.** The contents of Category 1 facilities shall be classified as ordinary hazard in accordance with Section 6.4.

**11.1.7 Occupant Load.** In Category 1 facilities, the occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined in accordance with Chapter 38 of NFPA 101, Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building codes, at a minimum.

**11.2 Means of Egress Requirements.** Each required means of egress shall be in accordance with Chapter 8.



### 11.3 Fire Protection.

**11.3.1 Vertical Openings.** Vertical openings shall be in accordance with Chapter 38 of NFPA 101, Chapter 28 of NFPA 5000, or business occupancy requirements in the locally adopted building codes, at a minimum.

#### 11.3.2 Special Hazards.

**11.3.2.1 General.** Facilities shall be protected from special hazards in accordance with Section 7.6.

##### 11.3.2.2 Hyperbaric Chambers.

**11.3.2.2.1** Hyperbaric chambers used in Category 1 facilities shall meet the requirements for Class A or Class B chambers in accordance with NFPA 99.

**11.3.2.2.2** Hyperbaric chambers classified by the manufacturer for animal use, not capable of accommodating a human, shall meet the requirements for Class C chambers in NFPA 99.

**11.3.3 Interior Finishes, Contents, and Furnishings.** Interior finishes, contents, and furnishings shall be in accordance with Chapter 10.

#### 11.3.4 Detection, Alarm, and Communication Systems.

**11.3.4.1 Fire Alarm.** A supervised fire alarm system in accordance with Section 9.3 shall be provided.

**11.3.4.2 Initiation.** The required fire alarm system shall be initiated by any of the following where provided:

- (1) Manual means in accordance with 9.3.2
- (2) Required automatic sprinkler system
- (3) Required detection system

**11.3.4.3 Occupant Notification.** The required fire alarm shall activate a general alarm in accordance with Section 9.4.

**11.3.4.4 Emergency Forces Notification.** Emergency forces notification shall be provided in accordance with Section 9.5.

**11.3.4.5\* Detection.** An automatic detection system shall be installed throughout in accordance with 9.3.3.

**11.3.4.6 Carbon Monoxide Detection Systems.** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with 9.12.1.3.

**11.3.4.7 Fire Safety Functions.** Fire safety functions shall be provided in accordance with Section 9.6.

**11.3.4.8 Annunciation.** Annunciation shall be provided in accordance with Section 9.7.

#### 11.3.5 Extinguishment.

##### 11.3.5.1 Automatic Fire Sprinklers.

▲ **11.3.5.1.1** In Category 1 Class A facilities, automatic fire sprinklers shall be installed in accordance with Section 9.2.

▲ **11.3.5.1.2** In Category 1 Class B facilities, which are greater than 10,000 ft<sup>2</sup> (930 m<sup>2</sup>), an automatic fire sprinkler system shall be installed in accordance with Section 9.2.

**11.3.5.2 Fire Extinguishers.** Fire extinguishers shall be provided in accordance with Section 9.10.

**11.3.6 Fuel-Burning Utilities.** Utilities shall be provided in accordance with Section 9.14.

#### 11.3.7 Lightning Protection. (Reserved)

### 11.4 Operating Features.

**11.4.1 Disaster/Emergency Management Program.** A disaster/emergency management program complying with 4.3.4 shall be provided.

**11.4.2 Drills.** Animal handlers, designated employees, designated volunteers, and supervisory personnel shall be trained and hold disaster/emergency drills once annually in accordance with 4.3.5.

**11.4.3 Extinguisher Training.** All designated employees shall be annually instructed in the use of portable fire extinguishers.

**11.5 Fire Barriers.** Where fire barriers are required, they shall be installed in accordance with Section 9.8.

**11.6 Fire Department Access.** Fire department access shall be provided in accordance with Section 9.13.

## Chapter 12 Category 2 — Horse Facilities

### 12.1 General.

#### 12.1.1 Application.

**12.1.1.1** The requirements of this chapter shall apply to new Category 2 animal housing facilities or portions thereof.

**12.1.1.2** Category 2 animal housing facilities shall be in accordance with Chapter 42 of NFPA 101, Chapter 30 of NFPA 5000, or the storage occupancy requirements in the locally adopted building code, at a minimum, and this chapter.

**12.1.2 General.** The requirements in Chapter 1 and Chapter 4 shall apply.

#### 12.1.3 Special Definitions.

**12.1.3.1\* Category 2 — Horse Facilities.** Facilities used for temporary or permanent housing for horses.

**12.1.3.2 Category 2 Class A.** Facilities where horses are housed for general board and care in a commercial or professional facility greater than 5000 ft<sup>2</sup> (465 m<sup>2</sup>).

**12.1.3.3 Category 2 Class B.** Facilities where horses are housed for general board and care in a small commercial or professional facility less than 5000 ft<sup>2</sup> (465 m<sup>2</sup>).

**12.1.3.4\* Category 2 Class C.** Facilities where horses are housed in small family stables.

**12.1.4 Minimum Construction Requirements.** Category 2 animal housing facilities shall be constructed in accordance with Chapter 7.

**12.1.4.1** A 2-hour fire/smoke separation shall be provided between human living quarters and stable areas.

**12.1.4.2** A 30 ft (9 m) separation distance shall be provided between any buildings.

#### 12.1.5 Multiple Occupancies.

**12.1.5.1** All multiple occupancies shall be in accordance with Section 6.3.

**12.1.5.2** Where there are differences in the specific requirements of this chapter and the requirements for mixed or separated occupancies, the requirements of this chapter shall apply.

**12.1.6 Hazard of Contents.** The contents of Category 2 facilities shall be classified as ordinary hazard in accordance with Section 6.4.

**12.1.7 Occupant Load.** In Category 2 facilities, the occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined in accordance with Chapter 42 of NFPA 101 or Chapter 30 of NFPA 5000, or the storage occupancy requirements in the locally adopted building code, at a minimum.

## **12.2 Means of Egress Requirements.**

**12.2.1 General.** Each required means of egress shall be in accordance with Section 12.2 and Chapter 8.

**12.2.2 Means of Egress Components.** Each means of egress intended for animal relocation shall have a minimum clear width of two-and-a-half times the width of the largest animal.

### **12.2.3 Arrangement.**

**12.2.3.1** The travel distance limits in all Category 2 facilities shall be determined by using the high-hazard storage occupancy limits from Table 42.2.5 of NFPA 101.

**12.2.3.2** Each stall that is located on an exterior wall shall have a means of escape directly to an outside area that is one-and-half times the width of the animal.

## **12.3 Fire Protection.**

**12.3.1 Vertical Openings.** Vertical openings shall be in accordance with Chapter 42 of NFPA 101 or Chapter 30 of NFPA 5000, or storage occupancy requirements in the locally adopted building code, at a minimum.

**12.3.2 Special Hazards.** Facilities shall be protected from special hazards in accordance with Section 7.6.

**12.3.3 Interior Finishes, Contents, and Furnishings.** Interior finishes, contents, and furnishings shall be in accordance with Chapter 10.

### **12.3.4 Detection, Alarm, and Communication Systems.**

**12.3.4.1 Fire Alarm.** A supervised fire alarm system in accordance with Section 9.3 shall be installed in accordance with the following:

- (1) In all Class A facilities
- (2) In Class B facilities with sleeping quarters

**12.3.4.2 Initiation.** Where required, the fire alarm system shall be initiated by any of the following where provided:

- (1) Manual means in accordance with 9.3.2
- (2) Required automatic sprinkler system
- (3) Required detection system

**12.3.4.3 Occupant Notification.** Where a fire alarm is required, the fire alarm shall activate a general alarm in accordance with Section 9.4.

**12.3.4.4 Emergency Forces Notification.** Where a fire alarm is required, emergency forces shall be provided in accordance with Section 9.5.

**12.3.4.5\* Detection.** An automatic detection system shall be installed throughout in accordance with 9.3.3 in the following locations:

- (1) Human sleeping areas
- (2) Storage areas greater than 100 ft<sup>2</sup> (9.3 m<sup>2</sup>) in area
- (3) Areas with conditioned air

**12.3.4.6 Carbon Monoxide Detection Systems.** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with 9.12.1.3.

**12.3.4.7 Fire Safety Functions.** Fire safety functions shall be provided in accordance with Section 9.6.

**12.3.4.8 Annunciation.** Annunciation shall be provided in accordance with Section 9.7.

### **12.3.5 Extinguishment.**

**12.3.5.1 Automatic Fire Sprinklers.** Automatic fire sprinklers shall be installed in accordance with Section 9.2 in any of the following Category 2 facilities:

- (1) All Class A facilities
- (2) Class B facilities with sleeping quarters

**12.3.5.2 Fire Extinguishers.** Fire extinguishers shall be provided in accordance with Section 9.10.

**12.3.6 Fuel-Burning Utilities.** Utilities shall be provided in accordance with Section 9.14.

### **12.3.7 Lightning Protection. (Reserved)**

## **12.4 Operating Features.**

### **12.4.1 Disaster/Emergency Management Program.**

**12.4.1.1** A disaster/emergency management program complying with 4.3.4 shall be provided.

**12.4.1.2** Animal handlers, designated employees, and supervisory personnel shall be trained and hold disaster/emergency drills once annually in accordance with 4.3.5.

**12.4.2\* Extinguisher Training.** All designated employees shall be annually instructed in the use of portable fire extinguishers.

**12.5 Fire Barriers.** Where fire barriers are required, they shall be installed in accordance with Section 9.8.

**12.6 Fire Department Access.** Fire department access shall be provided in accordance with Section 9.13.

## **Chapter 13 Category 3 — Research**

### **13.1 General.**

#### **13.1.1 Application.**

**13.1.1.1** The requirements of this chapter shall apply to new Category 3 animal housing facilities or portions thereof.

**13.1.1.2** Category 3 animal housing facilities shall be in accordance with Chapter 38 of NFPA 101, Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building code, at a minimum, and this chapter.

**13.1.2 General.** The requirements in Chapter 1 and Chapter 4 shall apply.

### 13.1.3 Special Definitions.

**13.1.3.1\* Category 3 — Research.** Facilities used for experimentation, education, or scientific experimentation or production research on animals in a controlled environment.

**13.1.4 Minimum Construction Requirements.** Category 3 animal housing facilities shall be constructed in accordance with Chapter 7.

### 13.1.5 Multiple Occupancies.

**13.1.5.1** All multiple occupancies shall be in accordance with Section 6.3.

**13.1.5.2** Where there are differences in the specific requirements of this chapter and the requirements for mixed or separated occupancies, the requirements of this chapter shall apply.

**13.1.6 Hazard of Contents.** The contents of Category 3 facilities shall be classified as ordinary hazard in accordance with Section 6.4.

**13.1.7 Occupant Load.** In Category 3 facilities, the occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined in accordance with Chapter 38 of NFPA 101, Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building code, at a minimum.

**13.2 Means of Egress Requirements.** Each required means of egress shall be in accordance with the applicable sections of Chapter 8.

### 13.3 Fire Protection.

**13.3.1 Vertical Openings.** Vertical openings shall be in accordance with Chapter 38 of NFPA 101, Chapter 28 of NFPA 5000, or business occupancy requirements in the locally adopted building codes, at a minimum.

**13.3.2 Special Hazards.** Facilities shall be protected from special hazards in accordance with Section 7.6.

**13.3.3 Interior Finishes, Contents, and Furnishings.** Interior finishes, contents, and furnishings shall be in accordance with Chapter 10.

### 13.3.4 Detection, Alarm, and Communication Systems.

#### 13.3.4.1 Fire Alarm.

**13.3.4.1.1** A supervised fire alarm system in accordance with Section 9.3 shall be required in Category 3 facilities 3000 ft<sup>2</sup> (280 m<sup>2</sup>) or greater.

**13.3.4.1.2** Where a fire alarm system is not required, residential-type smoke alarms shall be installed.

**13.3.4.2 Initiation.** The required fire alarm system shall be initiated by any of the following where provided:

- (1) Manual means in accordance with 9.3.2
- (2) Required automatic sprinkler system
- (3) Required detection system

#### 13.3.4.3 Occupant Notification.

**13.3.4.3.1** The required fire alarm shall activate a general alarm in accordance with Section 9.4.

**Δ 13.3.4.3.2\*** Where fire alarm system notification devices could impact the animal's well-being, alternative notification methods approved by the AHJ shall be used in the animal areas.

**13.3.4.4 Emergency Forces Notification.** Emergency forces notification shall be provided in accordance with Section 9.5.

**13.3.4.5\* Detection.** An automatic detection system shall be installed in accordance with Section 9.3 in facilities 3000 ft<sup>2</sup> (280 m<sup>2</sup>) or greater.

**13.3.4.6 Carbon Monoxide Detection Systems.** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with 9.12.1.3.

**13.3.4.7 Fire Safety Functions.** Fire safety functions shall be provided in accordance with Section 9.6.

**13.3.4.8 Annunciation.** Annunciation shall be provided in accordance with Section 9.7.

### 13.3.5 Extinguishment.

**13.3.5.1 Automatic Fire Sprinklers.** In Category 3 buildings of Type III, IV, or V construction exceeding 3000 ft<sup>2</sup> (280 m<sup>2</sup>) per story, automatic fire sprinkler protection in accordance with Section 9.2 shall be required.

**13.3.5.2 Fire Extinguishers.** Fire extinguishers shall be provided in accordance with Section 9.10.

**13.3.6 Fuel-Burning Utilities.** Utilities shall be provided in accordance with Section 9.14.

**13.3.7 Lightning Protection.** Lightning protection shall be required in accordance with Section 9.11.

**N 13.3.8 Smoke Control System.** An approved smoke control system shall be installed in accordance with Section 9.17 where required by the risk management assessment in Section 13.4.

**N 13.4 Risk Management.** A risk management assessment shall be conducted to determine if additional fire protection features are needed based on the animals' needs.

### 13.5 Operating Features.

**13.5.1 Disaster/Emergency Management Program.** A disaster/emergency management program complying with 4.3.4 shall be provided.

#### 13.5.2 Drills.

**13.5.2.1** Animal handlers, designated employees, and supervisory personnel shall hold disaster/emergency drills once annually in accordance with 4.3.5.

• **13.5.3 Training.** All designated employees shall be annually instructed in the emergency management program and special procedures, including the use of portable fire extinguishers.

## Chapter 14 Reserved

## Chapter 15 Category 5 — Exhibition/Public Viewing

### 15.1 General.

#### 15.1.1 Application.

**15.1.1.1** The requirements of this chapter shall apply to new Category 5 animal housing facilities or portions thereof.

**15.1.1.2** Category 5 animal housing facilities shall be in accordance with this chapter and the following, at a minimum:

- (1) Assembly use areas shall be in accordance with Chapter 12 of NFPA 101, or Chapter 16 of NFPA 5000, or the assembly occupancy requirements in the locally adopted building code.
- (2) Business use areas shall be in accordance with Chapter 38 of NFPA 101, or Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building code.

**15.1.2 General.** The requirements in Chapter 1 and Chapter 4 shall apply.

#### 15.1.3 Special Definitions.

**15.1.3.1 Category 5 — Exhibition/Public Viewing.** Facilities that allow public access for the purpose of exhibition or public viewing of animals.

**15.1.3.2\* Category 5 Class A.** Facilities where public attraction animals are permanently housed.

**15.1.3.3\* Category 5 Class B.** Facilities where public attraction animals are temporarily housed.

**15.1.4 Minimum Construction Requirements.** Category 5 animal housing facilities shall be constructed in accordance with Chapter 7.

#### 15.1.5 Multiple Occupancies.

**15.1.5.1** All multiple occupancies shall be in accordance with Section 6.3.

**15.1.5.2** Where there are differences in the specific requirements of this chapter and the requirements for mixed or separated occupancies, the requirements of this chapter shall apply.

**15.1.6 Hazard of Contents.** The contents of Category 5 facilities shall be classified as ordinary hazard in accordance with Section 6.4.

**15.1.7 Occupant Load.** In Category 5 facilities, the occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined in accordance with the following:

- (1) Assembly use areas shall be in accordance with Chapter 12 of NFPA 101, or Chapter 16 of NFPA 5000, or the assembly occupancy requirements in the locally adopted building code.
- (2) Business use areas shall be in accordance with Chapter 38 of NFPA 101, or Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building code.

### 15.2 Means of Egress Requirements.

**15.2.1 General.** Each required means of egress shall be in accordance with Section 15.2 and the applicable sections of Chapter 8.

**15.2.2\* Illumination of Means of Egress.** Illumination shall be designed to accommodate animal needs.

### 15.3 Fire Protection.

**15.3.1 Vertical Openings.** Where required by the AHJ, vertical openings shall be in accordance with Section 9.8 for applicable business or assembly occupancies.

**15.3.2 Special Hazards.** Facilities shall be protected from special hazards in accordance with Section 7.6.

**15.3.3 Interior Finishes, Contents, and Furnishings.** Interior finishes, contents, and furnishings shall be in accordance with Chapter 10.

#### 15.3.4 Detection, Alarm, and Communication Systems.

**15.3.4.1\* Fire Alarm.** A fire alarm system in accordance with Section 9.3 shall be provided in Class A facilities.

**15.3.4.1.1** A fire alarm system notification shall be designed based on animal program requirements.

**15.3.4.1.2\*** A 24-hour fire watch shall be provided in all animal areas of Class B facilities.

**15.3.4.2 Initiation.** The required fire alarm system shall be initiated by any of the following where provided:

- (1) Manual means in accordance with 9.3.2
- (2) Required automatic sprinkler system
- (3) Required detection system

#### 15.3.4.3 Occupant Notification.

**15.3.4.3.1** The required fire alarm shall activate a general alarm in accordance with Section 9.4.

**15.3.4.3.2\*** Where fire alarm notification devices could impact the animal's well-being, alternative notification methods approved by the AHJ shall be used in the animal areas.

**15.3.4.4 Emergency Forces Notification.** Emergency forces notification shall be provided in Class A facilities in accordance with Section 9.5.

**15.3.4.5\* Detection.** An automatic detection system shall be installed throughout in accordance with 9.3.3 where required by the risk management assessment in Section 15.4.

**15.3.4.6 Carbon Monoxide Detection Systems.** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with 9.12.1.3.

**15.3.4.7 Fire Safety Functions.** Fire safety functions shall be provided in accordance with Section 9.6.

**15.3.4.8 Annunciation.** Annunciation shall be provided in accordance with Section 9.7.

#### 15.3.5 Extinguishment.

**15.3.5.1** In all Class A facilities, automatic fire sprinklers shall be installed in accordance with Section 9.2.

**15.3.5.2** Systems shall be designed based on animal program needs.

**15.3.5.3 Fire Extinguishers.** Fire extinguishers shall be provided in accordance with Section 9.10.



**15.3.6 Fuel-Burning Utilities.** Utilities shall be provided in accordance with Section 9.14.

**15.3.7 Lightning Protection. (Reserved)**

**15.3.8\* Smoke Control System.** An approved smoke control system shall be installed in accordance with Section 9.17 where required by the risk management assessment in Section 15.4.

**15.3.9 Operating Features.**

**15.3.9.1 Disaster/Emergency Management Program.**

**15.3.9.1.1** A disaster/emergency management program complying with 4.3.4 shall be provided.

**15.3.9.2 Drills.** Animal handlers, designated employees, designated volunteers, and supervisory personnel shall hold disaster/emergency drills once annually in accordance with 4.3.5.

**15.3.9.3 Extinguisher Training.** All designated employees shall be annually instructed in the use of portable fire extinguishers.

**15.3.10 Fire Barriers.** Where fire barriers are required, they shall be installed in accordance with Section 9.8.

**15.3.11 Fire Department Access.** Fire department access shall be provided in accordance with Section 9.13.

**15.4 Risk Management.** A risk management assessment shall be conducted to determine if additional fire protection features are needed based on the animals' needs.

## Chapter 16 Category 6 — General Board and Care

### 16.1 General.

#### 16.1.1 Application.

**16.1.1.1** The requirements of this chapter shall apply to new Category 6 animal housing facilities or portions thereof.

**16.1.1.2** Category 6 animal housing facilities shall be in accordance with Chapter 38 of NFPA 101, or Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building code, at a minimum, and this chapter.

**16.1.2 General.** The requirements in Chapter 1 and Chapter 4 shall apply.

#### 16.1.3 Special Definitions.

**16.1.3.1\* Category 6 — General Board and Care.** Facilities used for the temporary or permanent housing of animals used for providing a service or participating in a sport or for the purposes of providing general board and care.

**16.1.3.2\* Category 6 Class A.** Facilities where animals are housed without constant supervision.

**16.1.3.3\* Category 6 Class B.** Facilities where animals are housed with constant supervision.

**16.1.4 Minimum Construction Requirements.** Category 6 animal housing facilities shall be constructed in accordance with Chapter 7.

#### 16.1.5 Multiple Occupancies.

**16.1.5.1** All multiple occupancies shall be in accordance with Section 6.3.

**16.1.5.2** Where there are differences in the specific requirements of this chapter and the requirements for mixed or separated occupancies, the requirements of this chapter shall apply.

**16.1.6 Hazard of Contents.** The contents of Category 6 facilities shall be classified as ordinary hazard in accordance with Section 6.4.

**16.1.7 Occupant Load.** In Category 6 facilities, the occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined in accordance with one of the following, at a minimum:

- (1) Where the facility is arranged for training of animals and their handlers and trainers, Chapter 38 of NFPA 101 or Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building codes shall apply.
- (2) Where the facility is arranged for 50 or more people to gather to watch animals perform, Chapter 12 of NFPA 101 or Chapter 16 of NFPA 5000, or the assembly occupancy requirements in the locally adopted building codes shall apply.
- (3) Where the facility is arranged for board and care of animals with limited public access, Chapter 42 of NFPA 101 or Chapter 30 of NFPA 5000, or the storage occupancy requirements in the locally adopted building codes shall apply.
- (4) Where more than one of 16.1.7(1) through 16.1.7(3) apply, the most restrictive shall apply.

**16.2 Means of Egress Requirements.** Each required means of egress shall be in accordance with the applicable sections of Chapter 8.

### 16.3 Fire Protection.

**16.3.1 Vertical Openings.** Vertical openings shall be in accordance with Chapter 38 of NFPA 101, Chapter 28 of NFPA 5000, or the business occupancy requirements in the locally adopted building codes, at a minimum.

**16.3.2 Special Hazards.** Facilities shall be protected from special hazards in accordance with Section 7.6.

**16.3.3 Interior Finishes, Contents, and Furnishings.** Interior finishes, contents, and furnishings shall be in accordance with Chapter 10.

#### 16.3.4 Detection, Alarm, and Communication Systems.

**16.3.4.1 Fire Alarm.** A supervised fire alarm system in accordance with Section 9.3 shall be required in all Category 6 facilities.

**16.3.4.2 Initiation.** The required fire alarm system shall be initiated by any of the following where provided:

- (1) Manual means in accordance with 9.3.2
- (2) Required automatic sprinkler system
- (3) Required detection system

**16.3.4.3 Occupant Notification.** The required fire alarm shall activate a general alarm in accordance with Section 9.4.

**16.3.4.4 Emergency Forces Notification.** Emergency forces notification shall be provided in accordance with Section 9.5.

**16.3.4.5\* Detection.** An automatic detection system shall be installed throughout in accordance with 9.3.3 in the following facilities:

- (1) Class A facilities
- (2) Class B facilities with overnight animal accommodations

**16.3.4.6 Carbon Monoxide Detection Systems.** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with 9.12.1.3.

**16.3.4.7 Fire Safety Functions.** Fire safety functions shall be provided in accordance with Section 9.6.

**16.3.4.8 Annunciation.** Annunciation shall be provided in accordance with Section 9.7.

### 16.3.5 Extinguishment.

#### 16.3.5.1 Automatic Fire Sprinklers.

**16.3.5.1.1** An automatic sprinkler system in accordance with Section 9.2 shall be installed throughout all buildings containing a Class A facility.

**16.3.5.1.2** Where the Class A facility is separated from the remainder of the building by a 2-hour rated smoke barrier in accordance with Section 9.9, the requirements of 16.3.5.1 shall only apply to the Class A facility.

**16.3.5.1.3** Where the dedicated animal sleeping area is separated from the remainder of the building by a 2-hour rated smoke barrier in accordance with Section 9.9, the requirements of 16.3.5.1 shall only apply to the dedicated animal sleeping area.

**16.3.5.2 Fire Extinguishers.** Fire extinguishers shall be provided in accordance with Section 9.10.

**16.3.6 Fuel-Burning Utilities.** Utilities shall be provided in accordance with Section 9.14.

### 16.3.7 Lightning Protection. (Reserved)

### 16.4 Operating Features.

**16.4.1 Disaster/Emergency Management Program.** A disaster/emergency management program complying with 4.3.4 shall be provided.

**16.4.2 Drills.** Animal handlers, designated employees, and supervisory personnel shall hold disaster/emergency drills once annually in accordance with 4.3.5.

**16.4.3 Extinguisher Training.** All designated employees shall be annually instructed in the use of portable fire extinguishers.

**16.5 Fire Barriers.** Where fire barriers are required, they shall be installed in accordance with Section 9.8.

**16.6 Fire Department Access.** Fire department access shall be provided in accordance with Section 9.13.

**17.1.1.2** Category 7 animal housing facilities shall be in accordance with Chapter 42 of NFPA 101 or Chapter 30 of NFPA 5000, or the utility occupancy requirements in the locally adopted building code, at a minimum, and this chapter.

**17.1.1.3\*** Category 7 Class B and Class C facilities shall be exempt from the requirements of this *Code*.

**17.1.2 General.** The requirements in Chapter 1 and Chapter 4 shall apply.

### 17.1.3 Special Definitions.

**17.1.3.1 Category 7 — Agriculture.** Animal housing facilities used for housing agricultural animals used for food or commodity production.

**17.1.3.2\* Category 7 Class A.** Facilities where agricultural animals are housed for commercial use.

**17.1.3.3\* Category 7 Class B.** Facilities where agricultural animals are housed in private residential-type animal housing.

**17.1.3.4\* Category 7 Class C.** Facilities where agricultural animals are housed outdoors.

**17.1.4 Minimum Construction Requirements.** Category 7 animal housing facilities shall be constructed in accordance with Chapter 7.

**17.1.4.1\* Fire Resistance Rating of Exterior Walls.** Where two or more buildings are located on the same lot, the facing exterior walls of Class A buildings to the facing exterior walls of the adjacent building shall be separated by a minimum distance of 60 ft (18.3 m).

**17.1.4.2** Nonanimal housing accessory structures shall be separated per Table 17.1.4.2.

### 17.1.5 Multiple Occupancies.

**17.1.5.1** All multiple occupancies shall be in accordance with Section 6.3.

**17.1.5.2** Where there are differences in the specific requirements of this chapter and the requirements for mixed or separated occupancies, the requirements of this chapter shall apply.

**17.1.6 Hazard of Contents.** The contents of Category 7 facilities shall be classified as ordinary hazard in accordance with Section 6.4.

**17.1.7 Occupant Load.** In Category 7 facilities, the occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined in accordance with Chapter 42 of NFPA 101, Chapter 30 of NFPA 5000, or the utility occupancy requirements in the locally adopted building code, at a minimum.

**Table 17.1.4.2 Fire Resistance Rating of Exterior Walls**

Horizontal Separation		Fire Resistance Rating (hr)
ft	m	
0–20	0–6.1	2 hours
>20–<60	>6.1–<18.3	1 hour
>60	>18.3	0

## Chapter 17 Category 7 — Agriculture

### 17.1 General.

#### 17.1.1 Application.

**17.1.1.1** The requirements of this chapter shall apply to new Category 7 animal housing facilities and portions thereof.

## 17.2 Means of Egress Requirements.

**17.2.1\* General.** Each required means of egress shall be in accordance with Section 17.2 and the applicable sections of Chapter 8.

### 17.2.2\* Arrangement of Means of Egress.

**17.2.2.1** The maximum travel distance to an exit shall not exceed 300 ft (91 m).

**17.2.2.2** Where the calculated human occupant load is less than 30, the common path of travel shall not exceed 100 ft (30 m).

**17.2.2.3** Dead-end corridors shall not exceed 50 ft (15 m).

**17.2.2.4** The common path of travel shall not exceed 75 ft (22.8 m).

## 17.3 Fire Protection.

**17.3.1 Vertical Openings.** Vertical openings shall be in accordance with Chapter 42 of NFPA 101, Chapter 30 of NFPA 5000, or the utility occupancy requirements in the locally adopted building codes, at a minimum.

**17.3.2 Special Hazards.** Facilities shall be protected from special hazards in accordance with Section 7.6.

**17.3.3 Interior Finishes, Contents, and Furnishings.** Interior finishes, contents, and furnishings shall be in accordance with Chapter 10.

### 17.3.4 Detection, Alarm, and Communication Systems.

**17.3.4.1 Fire Alarm.** A fire alarm system in accordance with Section 9.3 shall be required in Class A facilities.

**17.3.4.2\* Initiation.** The required fire alarm system shall be initiated by any of the following where provided:

- (1) Manual means in accordance with 9.3.2
- (2) Required automatic sprinkler system
- (3) Required detection system

**17.3.4.3 Occupant Notification.** The required fire alarm shall activate a general alarm in accordance with Section 9.4.

**Δ 17.3.4.4\* Emergency Forces Notification.** Emergency forces notification shall be provided in accordance with 9.5 or the fire alarm signal shall be received at a location approved by the AHJ.

**17.3.4.5 Detection.** An automatic detection system shall be installed in accordance with Section 9.3 in hazardous areas including, but not limited to, the following:

- (1) Laundry areas
- (2) Electrical rooms
- (3) Kitchens
- (4) Utility rooms
- (5) Power washing rooms
- (6) Storage areas greater than 50 ft<sup>2</sup> (4.7 m<sup>2</sup>) or containing flammable and combustible liquids

**17.3.4.6 Carbon Monoxide Detection Systems.** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with 9.12.1.3.

**17.3.4.7 Fire Safety Functions.** Fire safety functions shall be provided in accordance with Section 9.6.

**17.3.4.8 Annunciation.** Annunciation shall be provided in accordance with Section 9.7.

### 17.3.5 Extinguishment.

#### 17.3.5.1 Automatic Fire Sprinklers. (Reserved)

**17.3.5.2 Fire Extinguishers.** Fire extinguishers shall be provided in accordance with Section 9.10.

**17.3.6 Fuel-Burning Utilities.** Utilities shall be provided in accordance with Section 9.14.

#### 17.3.7 Lightning Protection. (Reserved)

## 17.4 Operating Features.

**17.4.1 Disaster/Emergency Management Program.** A disaster/emergency management program complying with 4.3.4 shall be provided.

**17.4.2 Drills.** Animal handlers, designated employees, and supervisory personnel shall hold disaster/emergency drills once annually in accordance with 4.3.5.

### 17.4.3 Extinguisher Training.

**17.4.3.1** All designated employees shall be annually instructed in the use of portable fire extinguishers, emergency egress methods, and other site safety issues.

**17.4.3.2** In addition to annual training, new employees shall receive initial training within 30 days of hire.

**17.4.4\*** In accordance with industry standards, adequate ventilation shall run continuously at all times.

**17.5 Fire Barriers.** Where fire barriers are required, they shall be installed in accordance with Section 9.8.

**17.6 Fire Department Access.** Fire department access shall be provided in accordance with Section 9.13.

## 17.7 Risk Management.

**17.7.1** In all Class A facilities, a risk management assessment shall be completed when requested by the AHJ.

**17.7.1.1** Where requested, the risk management assessment shall be submitted to the AHJ.

**17.7.1.2** Hazards to be identified shall include storage of flammable and combustible materials, electrical systems and wiring, buildup of flammable and combustible gases, and hazardous materials.

**17.7.1.3** Appropriate protection methods shall include one or more of the following:

- (1) Fire-rated separation
- (2) Air circulation plans
- (3) Electrical inspection plans
- (4)\* Fire suppression systems

## N 17.8 Annual Inspection.

**N 17.8.1** All Category 7 facilities shall be inspected annually to identify electrical, structural, and housekeeping hazards.

**N 17.8.2** Inspections shall be performed by qualified personnel.

**N 17.8.3** Inspection documentation shall be made available to the AHJ upon request.

## Chapter 18 Category 8 — Emergency

### 18.1 General.

#### 18.1.1 Application.

**18.1.1.1** The requirements of this chapter shall apply to new Category 8 animal housing facilities or portions thereof.

**18.1.1.2** Category 8 animal housing facilities shall be in accordance with the occupancy requirements for the current use of the building in NFPA 101, NFPA 5000, or the locally adopted building codes.

**18.1.1.3** Selection of emergency facilities shall be approved by the AHJ.

**18.1.2 General.** The requirements in Chapter 1 and Chapter 4 shall apply.

#### 18.1.3 Special Definitions.

**18.1.3.1\* Category 8 — Emergency.** Facilities used for the shelter or care of animals during an emergency event that are either temporary or not typically used for animal occupancy.

**18.1.4 Minimum Construction Requirements.** Category 8 facilities shall be constructed in accordance with the current use of the building.

#### 18.1.5 Multiple Occupancies.

**18.1.5.1** All multiple occupancies shall be in accordance with Section 6.3.

**18.1.5.2** Where there are differences in the specific requirements of this chapter and the requirements for mixed or separated occupancies, the requirements of this chapter shall apply.

**18.1.6 Hazard of Contents.** The contents of Category 8 facilities shall be classified in accordance with the current use of the building.

**18.1.7 Occupant Load.** In Category 8 facilities, the occupant load, in number of persons for whom means of egress and other provisions are required, shall be based on the approved occupant load for the building in its current use.

### 18.2 Means of Egress Requirements.

**18.2.1 General.** Each required means of egress shall be in accordance with Section 18.2 and the applicable sections of Chapter 8.

**18.2.2 Means of Egress Components.** Aisles created as part of the emergency use of the building shall comply with Chapter 8.

**18.2.3 Number of Means of Egress.** The number and arrangement of means of egress shall be in accordance with the current use of the building and the applicable portions of Chapter 8.

### 18.3 Fire Protection.

#### 18.3.1 Vertical Openings. (Reserved)

**18.3.2 Special Hazards.** Facilities shall be protected from special hazards in accordance with Section 7.6.

**18.3.3 Interior Finishes, Contents, and Furnishings.** Interior finishes, contents, and furnishings shall be in accordance with Chapter 10.

### 18.3.4 Detection, Alarm, and Communication Systems.

**18.3.4.1 Fire Alarm.** Existing buildings with fire alarms or smoke detection systems shall be the preferred locations for emergency facilities.

#### 18.3.4.2 Initiation. (Reserved)

#### 18.3.4.3 Occupant Notification. (Reserved)

#### 18.3.4.4 Emergency Forces Notification. (Reserved)

**18.3.4.5 Detection.** Existing buildings with fire alarms or smoke detectors shall be the preferred locations for emergency facilities.

**18.3.4.6\* Carbon Monoxide Detection Systems.** For animal housing facilities with fuel-burning appliances or equipment, carbon monoxide detection shall be installed in accordance with 9.12.1.3.

**18.3.4.7 Fire Safety Functions.** Fire safety functions shall be provided in accordance with Section 9.6.

**18.3.4.8 Annunciation.** Annunciation shall be provided in accordance with Section 9.7.

**18.3.5 Extinguishment.** Fire extinguishers shall be provided in accordance with Section 9.10.

**18.3.6 Fuel Burning Utilities.** Utilities shall be provided in accordance with Section 9.14.

#### 18.3.7 Lightning Protection. (Reserved)

### 18.4 Operating Features.

**18.4.1 Disaster/Emergency Management Program.** A disaster/emergency management program shall be required in accordance with 4.3.4.

**18.4.2\* Drills.** Animal handlers, designated employees, and supervisory personnel shall hold disaster/emergency drills once annually in accordance with 4.3.5.

**18.4.3 Extinguisher Training.** All designated employees shall be annually instructed in the use of portable fire extinguishers.

### 18.5 Fire Barriers. (Reserved)

**18.6 Fire Department Access.** Fire department access shall be provided in accordance with Section 9.13.

## Chapter 19 Reserved

## Chapter 20 Performance-Based Design Option

### 20.1\* General.

**20.1.1 Application.** The requirements of this chapter shall apply to buildings or structures, portions of buildings or structures, or building systems designed in accordance with the performance-based option permitted by Section 4.3.

**20.1.2 Goals and Objectives.** The performance-based design shall meet the goals and objectives of Section 4.1.

**20.1.3\* Independent Review.** The AHJ shall be permitted to require an approved, independent third party to review the proposed design and provide an evaluation of the design to the AHJ at the expense of the owner.



**20.1.4\* Sources of Data.** Data sources shall be identified and documented for each input data requirement that must be met using a source other than a design scenario, an assumption, or a building design specification.

**20.1.4.1** The degree of conservatism reflected in such data resources shall be specified.

**20.1.4.2** A justification for the source of the data shall be provided.

**20.1.5\* Final Determination.** The AHJ shall make the final determination as to whether the performance objectives have been met.

**20.1.6\* Maintenance of Design Features.**

**20.1.6.1** The design features required for the building to continue to meet the performance goals and objectives of this *Code* shall be maintained for the life of the building.

**20.1.6.1.1** Performance goals and objectives shall include complying with all documented assumptions and design specifications.

**20.1.6.1.2** Any variations in the performance goals and objectives shall require the approval of the AHJ prior to the actual change.

**20.1.6.2** Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, or other feature is required to meet the goals, objectives, or performance criteria of this *Code*, approved procedures for the operation and maintenance of such device, equipment, system, condition, arrangement, level of protection, or other feature shall be prepared, and an approved system of inspection, maintenance, and testing shall be included in an operations and maintenance manual developed as part of the performance-based design.

**20.1.7 Special Definitions.** See Section 3.3.

**20.2 Safety-from-Fire Goals.**

**20.2.1** The fire safety goals of this *Code* shall be as follows:

- (1) To provide a safe environment for human occupants inside an animal housing facility
- (2) To provide a safe environment for animal occupants inside or adjacent to a structure
- (3) To provide a level of safety for fire fighters and emergency responders during search-and-rescue operations for animal and human occupants
- (4) To minimize loss of property and interruption of facility operations from fire and similar emergencies to a level that is as low as reasonably practical

**20.2.2 Safety-from-Fire Objectives.**

**20.2.2.1** Facilities shall be designed and constructed to protect human and animal occupants not intimate with the initial fire development for the time needed to evacuate, relocate, or defend in place.

**20.2.2.2\*** Facilities shall be designed and constructed to provide reasonable safety for fire fighters and emergency responders during search and rescue operations for animal and human occupants.

**20.2.2.3** Facilities shall be designed and constructed to provide reasonable access to the structure for emergency responders.

**20.2.2.4** Facilities shall be designed and constructed to reasonably protect adjacent persons, animals, and structures from injury, death, or substantial damage as a result of a fire.

**20.2.3 Safety During Facility Use.**

**20.2.3.1\* Safety-During-Facility-Use Goal.** The safety-during-facility-use goal of this *Code* shall be to provide an environment for both the human and animal occupants of the facility that is reasonably safe during the normal use of the facility.

**20.2.3.2 Safety-During-Facility-Use Objectives.**

**20.2.3.2.1** Facilities shall be designed and constructed to provide for reasonably safe animal and crowd movement during emergency and nonemergency conditions.

**20.2.3.2.2** Facilities shall be designed and constructed to provide reasonable safety for animal and human occupants and workers during construction and demolition.

**20.2.3.2.3\*** Facilities shall be designed and constructed to provide reasonable and appropriate notification to occupants during emergency situations.

**20.2.3.2.4** Facilities shall be designed and constructed to provide reasonable signage to identify hazards, means of egress, and other building safety features.

**20.2.3.3 Glass.** Glass or other similar frangible construction material shall be installed in such a manner that, if occupants come into contact with such material, one of the following occurs:

- (1) The material resists impact without breaking.
- (2) The material breaks in such a manner that it does not cause injury.
- (3) The material is protected from occupant impact.

**20.2.4 Uncontrolled Moisture.**

**20.2.4.1** Where critical to the operation and use of the animal housing facility, uncontrolled moisture shall be controlled in accordance with 20.2.4.1.1 through 20.2.4.1.3.

**20.2.4.1.1** The exterior envelope of the building shall be designed to control the entry of precipitation into the building.

**20.2.4.1.2** The exterior walls, attics, crawl spaces, and other concealed or enclosed building elements that constitute the building envelope shall be designed to control the accumulation of water vapor or its condensation in such quantities and physical state that contact of water vapor or its condensation with the building insulation or building materials will not result in conditions that adversely affect the health of the building occupants.

**20.2.4.1.3** Building materials located in areas within the building that are subject to exposure from water discharges or leaks in quantities and durations that cause exterior moisture to accumulate for extended periods of time, thus resulting in conditions that adversely affect the health of the building occupants, shall be designed to control penetration of, or direct contact with, water or shall be protected from such exposure.

**20.3 Retained Prescriptive Requirements.** The design shall comply with the requirements of Section 20.3 in addition to

the performance criteria of Section 20.2 and the methods of Sections 20.4 through 20.8.

**20.3.1 Systems and Features.** All fire protection systems and features of the building shall comply with applicable NFPA standards for those systems and features.

**20.3.2 Means of Egress.** Means of egress shall comply with Chapter 8.

**20.4\* Performance-Based Design Characteristics and Assumptions.**

**20.4.1 General.**

**20.4.1.1** Design characteristics and assumptions used in the performance-based design shall be clearly stated and shown to be realistic and sustainable.

**20.4.1.2** Each design characteristic and assumption used in the design shall be accurately translated into input data specifications, as appropriate for the calculation method or model to be used.

**20.4.1.3** Design characteristics and assumptions that the design analyses do not explicitly address or incorporate and that are, therefore, omitted from input data specifications shall be identified, and a sensitivity analysis of the consequences of that omission shall be performed.

**20.4.1.4** Design characteristics and assumptions modified in input data specifications, due to limitations in test methods or other data-generation procedures, shall be identified, and a sensitivity analysis of the consequences of the modification shall be performed.

**20.4.1.5\*** The design shall not include mutually inconsistent characteristics, assumptions, or statements of conditions.

**20.4.2 Building Characteristics and Assumptions.**

**20.4.2.1\*** Characteristics of the building or its contents, equipment, layout, or operations that are not inherent in the design specifications, but that affect occupant or building behavior or the rate of hazard development, shall be explicitly identified.

**20.4.2.2\*** The performance of building systems and features shall reflect the documented performance and reliability of the components of those systems or features, unless design specifications are incorporated to modify the expected performance.

**20.4.3 Occupant Characteristics and Assumptions.**

**20.4.3.1\* General.** The selection of occupant characteristics to be used in the design calculations shall be approved by the AHJ and shall provide an accurate reflection of the expected population of building users.

**20.4.3.2 Occupant Profile.** Occupant characteristics shall represent the normal occupant profile, unless design specifications are used to modify the expected occupant features.

**20.4.3.3 Response Characteristics.** The basic response characteristics of sensibility, reactivity, mobility, and susceptibility shall be considered.

**20.4.3.3.1** Consideration for the characteristics listed in 20.4.3.3 shall include the expected distribution of characteristics of a population appropriate to the use of the building.

**20.4.3.3.2** The source of data for the characteristics listed in 20.4.3.3 shall be documented.

**20.4.3.4 Location.** It shall be assumed that, in every normally occupied room or area, at least one occupant shall be located at the most remote point from the exits.

**20.4.3.5 Number of Occupants.**

**20.4.3.5.1** The design shall be based on the maximum number of occupants that every occupied room or area is expected to contain.

**20.4.3.5.2** Where success or failure of the design is contingent on a specified maximum number of occupants, operational controls shall be used to ensure that a greater number of occupants could not be expected to be present.

**20.4.3.6\* Staff Assistance.**

**20.4.3.6.1** In those occupancies where staff assistance is required to ensure the safety of other occupants, such trained assistance shall be provided.

**20.4.3.6.2** The ability of trained employees to be included as part of the building safety system shall be identified and documented.

**20.4.4 Emergency Response Personnel Characteristics and Assumptions.**

**20.4.4.1** Nongovernmental emergency response personnel shall not be relied upon in the performance design, unless they are under the continuous and direct control of the building owner or occupant.

**20.4.4.2** Emergency response personnel of the governmental agency legally responsible for providing emergency responders to the local jurisdiction shall be permitted to be relied upon in the performance design when approved by the governmental agency.

**20.4.4.3** Design characteristics and assumptions related to the availability, speed of response, effectiveness, roles, and other characteristics of emergency response personnel shall be specified, estimated, or characterized sufficiently for evaluation of the design.

**20.5\* Design Scenarios.**

**20.5.1 General.**

**20.5.1.1** The proposed design shall be considered to meet the goals and objectives if it achieves the performance criteria for each required design scenario.

**20.5.1.2** The AHJ shall approve the parameters involved with design scenarios.

**20.5.1.3** Design scenarios shall be evaluated for each required scenario using a method acceptable to the AHJ and appropriate for the conditions.

**20.5.1.4** Each scenario shall be as challenging and realistic as any that could realistically occur in the building.

**20.6 Evaluation of Proposed Designs.**

**20.6.1 General.**

**20.6.1.1** A proposed design's performance shall be assessed relative to each performance objective in Section 4.1 and each applicable scenario in Section 20.5, with the assessment conducted through the use of appropriate calculation methods.

**20.6.1.2** The AHJ shall approve the choice of assessment methods.

**20.6.2 Use.** The design professional shall use the assessment methods to demonstrate that the proposed design will achieve the goals and objectives for each scenario, as measured by the performance criteria in light of the safety margins and uncertainty analysis, given the assumptions.

### **20.6.3 Input Data.**

#### **20.6.3.1 Data.**

**20.6.3.1.1** Input data for computer fire models shall be obtained in accordance with ASTM E1591, *Standard Guide for Obtaining Data for Fire Growth Models*.

**20.6.3.1.2** Data for use in analytical models that are not computer-based fire models shall be obtained using appropriate measurement, recording, and storage techniques to ensure the applicability of the data to the analytical method being used.

**20.6.3.2 Data Requirements.** A complete listing of input data requirements for all models, engineering methods, and other calculation or verification methods required or proposed as part of the performance-based design shall be provided.

**20.6.3.3 Uncertainty and Conservatism of Data.** Uncertainty in input data shall be analyzed and, as determined appropriate by the AHJ, addressed through the use of conservative values.

**20.6.4 Output Data.** The assessment methods used shall accurately and appropriately produce the required output data from input data based on the design specifications, assumptions, and scenarios.

**20.6.5 Validity.** Evidence shall be provided confirming that the assessment methods are valid and appropriate for the proposed building, use, and conditions.

**20.7 Safety Factors.** Approved safety factors shall be included in the design methods and calculations to reflect uncertainty in the assumptions, data, and other factors associated with the performance-based design.

## **20.8 Documentation Requirements.**

### **20.8.1\* General.**

**20.8.1.1** All aspects of the design, including those described in 20.8.2 through 20.8.14, shall be documented.

**20.8.1.2** The format and content of the documentation shall be acceptable to the AHJ.

### **20.8.2 Technical References and Resources.**

**20.8.2.1** The AHJ shall be provided with sufficient documentation to support the validity, accuracy, relevance, and precision of the proposed methods.

**20.8.2.2** The engineering standards, calculation methods, and other forms of scientific information provided shall be appropriate for the particular application and methodologies used.

**20.8.3 Building Design Specifications.** All details of the proposed building design that affect the ability of the building to meet the stated goals and objectives shall be documented.

**20.8.4 Performance Criteria.** Performance criteria, with sources, shall be documented.

**20.8.5 Occupant Characteristics.** Assumptions about occupant characteristics shall be documented.

**20.8.6 Design Scenarios.** Descriptions of design hazard scenarios shall be documented.

**20.8.7 Input Data.** Input data to models and assessment methods, including sensitivity analysis, shall be documented.

**20.8.8 Output Data.** Output data from models and assessment methods, including sensitivity analysis, shall be documented.

**20.8.9 Safety Factors.** The safety factors utilized shall be documented.

**20.8.10 Prescriptive Requirements.** Retained prescriptive requirements shall be documented.

### **20.8.11\* Modeling Feature.**

**20.8.11.1** Assumptions made by the model user and the description of the models and methods used, including known limitations, shall be documented.

**20.8.11.2** Documentation shall be provided verifying that the assessment methods have been used validly and appropriately to address the design specifications, assumptions, and scenarios.

**20.8.12 Evidence of Modeler Capability.** The design team's relevant experience with the models, test methods, databases, and other assessment methods used in the performance-based design proposal shall be documented.

**20.8.13 Performance Evaluation.** The performance evaluation summary shall be documented.

**20.8.14 Use of Performance-Based Design Option.** Design proposals shall include documentation that provides anyone involved in ownership or management of the building with notification of the following:

- (1) The building was approved as a performance-based design with certain specified design criteria and assumptions.
- (2) Any remodeling, modification, renovation, change in use, or change in the established assumptions is to be reevaluated and reapproved.

## **Annex A Explanatory Material**

*Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.*

**A.1.1.1** The requirements of NFPA 150 recognize the following fundamental principles:

- (1) Animals are sentient beings.
- (2) Animals, both domesticated and feral, lack the ability of self-preservation when housed in buildings and other structures.
- (3) Current building, fire, and life safety codes do not address the life safety of the animal occupants. The requirements found in NFPA 150 are written with the intention that animal housing facilities will continue to be designed, constructed, and maintained in accordance with the applicable building, fire, and life safety codes. The requirements herein are not intended to replace or



rewrite the basic requirements for the human occupants. Instead, NFPA 150 provides additional minimum requirements for the protection of the animal occupants and the human occupants who interact with those animals in these facilities. NFPA 150 is divided into three major sections: The first section, Chapters 1 through 3, contains only administrative requirements, while the second section, Chapters 4 through 10, provides general requirements for all facilities housing animals (i.e., facility subclassification, animal category, construction, means of egress, fire protection, and interior finish requirements), and the third section, Chapters 11 through 18, include specific requirements focused on the class of the facility.

**A.1.1.2** NFPA 150 is referenced in Chapter 11 of NFPA 101.

▲ **A.1.3.1** While it would be appropriate for NFPA 150 to clearly establish a minimum number of animals above which the requirements of NFPA 150 apply, the necessary technical information to make these decisions is not available at this time. Instead, 1.3.1 states that facilities requiring a permit or license from the local, state, or federal authorities to function must comply with this *Code*. With this approach, adopting jurisdictions can further modify this *Code* to fit its local requirements.

**A.1.3.3** An extensive modification includes modification of an entire building or an entire occupancy within a building and should be considered reconstruction. Modification work that is exclusively electrical, mechanical, or structural, or that exclusively involves plumbing or equipment used in the care or treatment of animals or the fire protection system should not be considered a reconstruction, regardless of its extent. See Chapter 43 of NFPA 101 for the specific rehabilitation requirements and thresholds.

**A.1.3.4** In this particular situation, the definition of temporary is left to the applicable building, life safety, and fire codes enforced in the jurisdiction.

**A.3.2.1 Approved.** The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

**A.3.2.2 Authority Having Jurisdiction (AHJ).** The phrase “authority having jurisdiction,” or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction;

at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

**A.3.2.3 Code.** The decision to designate a standard as a “code” is based on such factors as the size and scope of the document, its intended use and form of adoption, and whether it contains substantial enforcement and administrative provisions.

**A.3.2.5 Listed.** The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

**A.3.3.2.1 Confined Animals.** This includes animals in pens near or adjacent to a structure where they would be endangered by smoke, heat, fire spread, or structural failure.

**A.3.3.3 Animal Handler.** This includes but is not limited to attendants, exhibitors, hands, keepers, groomers, technicians, trainers, veterinarians, wranglers, or their assistants.

**A.3.3.4 Animal Housing Facility.** This includes but is not limited to barns, kennels, coops, stables, sheds, pens, corrals, runs, vivaria, terraria, laboratories, zoos, including accessory areas and incidental use areas. Adjacent exterior spaces include areas near or adjacent to a structure where confined animals would be endangered by smoke, heat, fire spread, or structural failure.

**A.3.3.16 Protection.** For the purposes of this *Code*, *protection* takes various distinct forms. The specific provision of the *Code* will address what the *Code* intends as an acceptable minimum device, material, or system. With regard to structural fire protection, *protection* or *protected* usually means an assembly of materials that has achieved a specified level of fire resistance. For fire suppression systems, *protected* usually means being provided with an approved automatic sprinkler system or similar automatic fire suppression system. The type of *protection* desired must be clearly understood within the context of the item under consideration.

**A.4.1** The overall goals of this *Code* are presented in 4.1.1. These overall goals are treated in greater depth in 4.1.3 and 4.1.4. In each of these subsections, an overall goal for the subsection is defined, specific goals relating to the overall goal are presented, and the objectives that relate to the specific goal follow. This format is intended to enhance the usability of the *Code*.

**A.4.1.1** These highest level goals are intentionally general in nature. Each includes a broad spectrum of topics as shown in 4.1.3 and 4.1.4. Property protection is not included as a highest level goal as it is contained in most of the other goals. Safety is intended to indicate a need for protection against immediate or short-duration hazards, such as a fire or similar emergency.

**A.4.1.2** The objectives are stated in more specific terms and define how the goal is to be achieved. Objectives are quantitative. Goals are qualitative.

**A.4.1.3.1.1** The phrase “reasonably safe from fire” is defined by subsequent language in this *Code*, primarily in the objectives.

**A.4.1.3.1.2.2** In many cases, the other provisions of the *Code* that provide safety for occupants will satisfy this goal for protection of emergency responders.



**A.4.1.3.2.1** Certain requirements are provided to ensure that the occupants are safe during nonemergency use of the buildings. Failure to address these features could result in injuries to occupants in their normal daily activities in the building.

**A.4.1.3.2.2.3** Appropriate consideration should be given to the type of audible device selected. Certain signals can cause a stress response in some animals (e.g., a bell would be inappropriate as a fire alarm in a racetrack stable).

**A.4.1.4.1.1** The long-term function of a building, in total, is not within the scope of this goal. This goal relates, however, to the long-term, continued operation and effectiveness of the building to satisfy the goals of safety and usability.

**A.4.1.4.1.2** This objective is intended to apply to systems, features, and construction that are provided in the building for the purpose of meeting the other objectives and is not intended to apply to nonrequired systems, features, and construction.

**A.4.2.4** Fire alarm systems and devices alert occupants to initiate emergency procedures, facilitate orderly conduct of fire drills, and initiate response by emergency services.

**A.4.3.1.3** This *Code* is not intended to address every conceivable arrangement of construction or use of animal housing facilities. These structures are unique in that the life safety of two important, but dramatically different, forms of life are addressed — humans and animals. These structures often involve the interaction of animals and people that are unfamiliar with one another's reaction to fire or other emergency conditions. For instance, for mobility impaired or other disabled individuals, the ability of the humans to egress can be impaired, hindered, or jeopardized by the movement of the animals. These facilities can also be located within or close to a process or other occupancy that elevates the risk to animals, but perhaps not to humans, beyond that contemplated by the *Code*. These facilities can be housed in a historic building. If these or other special circumstances clearly exist, the AHJ can require alternative or additional fire protection features. These can include, but are not limited to, a performance-based analysis of the special condition, building fire evacuation plans, management policies on staff response to emergencies, a higher staff-to-client ratio, increased fire resistance ratings, or modification of fire suppression or fire alarm requirements.

**A.4.3.4.1** Disaster/emergency management programs should include the following items based on the type of occupancy and hazards involved:

- (1) Procedures for reporting of emergencies requiring relocation and/or evacuation of occupants
- (2) Occupants or staff member duties during emergencies
- (3) Floor plans identifying the locations of portable fire extinguishers, other manual fire-extinguishing equipment, other automatic or manual fire suppression systems, first aid equipment, hazardous material spill equipment, and equipment designated as necessary for the evacuation of animals
- (4) Manual fire alarm pull stations and fire alarm control panel locations
- (5) Floor plans identifying the primary and secondary routes of evacuation for each room or portion of the occupancy
- (6) Floor plans indicating the locations of interior areas of refuge and animal occupied areas

- (7) Site maps identifying the designated exterior assembly area for each evacuation route
- (8) Assessments of both building systems and management features
- (9) Use of alarms
- (10) Transmission of alarm to fire department
- (11) Response to alarms
- (12) Procedures for isolation and/or extinguishment of fire
- (13) Properties and location of hazardous storage or operations
- (14) Special procedures for staff members who perform or shut down critical plant operations and/or attend to animals
- (15) A system to account for animal and human occupants and staff members after evacuation
- (16) Designation of an emergency response coordinator and a back-up coordinator
- (17) An alternate means of communications other than the fire alarm
- (18) Emergency contact information
- (19) Special procedures for animal handlers to address such items as animal bites and animal escapes

**A.4.3.4.2.1** The disaster/emergency management plan should include considerations for conducting a comprehensive hazards analysis and risk assessment prior to facility construction/renovation to identify and then take action to mitigate the hazards that are operable on the site. Examples of hazards include flood zones, wildfire exposures, WUI interfaces, high wind events, hurricanes, tornadoes, power loss, barn fires, manure sludge hazards, snow loading, and so forth.

The plan should consider the following:

- (1) Maintaining ventilation for animals during and after a disaster
- (2) Maintaining a program for feed and fresh, clean water for animals during and after a disaster
- (3) Ensuring secondary sources of power
- (4) Moving animals from flood prone areas (including basements) or other exposed areas to the safety of dry land
- (5) Maintaining waste lagoons to avoid overflowing or breaching
- (6) Implementing provisions for protection against mosquito infestation
- (7) Following provisions for the administration of first aid and periodic inspection for illnesses
- (8) Maintaining a program for debris/trash removal
- (9) Provisioning for proper disposal of carcasses
- (10) Provisioning for the care of orphaned young
- (11) Planning in the face of catastrophic disaster where it is not possible to provide appropriate shelter, care, and provisioning for confined animals

Employees should have awareness of the specific types of evacuations that the facility might be subject to where confined animals would be endangered by smoke, heat, fire spread, structural failure, rising water levels from floods, debris, or electrical hazards.

Training in Animal Technical Rescue reflected in NFPA 1670 and NFPA 1006 is available for first responders.

**A.4.3.5** The purpose of disaster/emergency drills is to educate the participants in the fire safety features of the building, the egress facilities available, safe handling of the animal occupants, and the procedures to be followed. Speed in evacuating

buildings or relocating occupants, while desirable, is not the only objective. Prior to an evaluation of the performance of a disaster/emergency drill, an opportunity for instruction and practice should be provided. This educational opportunity should be presented in a nonthreatening manner with consideration to the prior knowledge, age, and ability of the audience.

**A.4.3.5.2.2** If a disaster/emergency drill is considered merely as a routine exercise from which some persons are allowed to be excused, there is a grave danger that, in an actual emergency, the evacuation and relocation will not be successful. However, there could be circumstances under which all occupants do not participate in a disaster/emergency drill.

▲ **A.6.1.1** The user should reference *NFPA 5000*, *NFPA 101*, Chapter 11, or the locally adopted building code to obtain the general human occupancy classification of an animal housing facility whether it is storage, business, assembly, or other occupancy. If there are multiple occupancies within the facility, they should be in accordance with the mixed or separated occupancy requirements in Chapter 6 of *NFPA 5000* or Chapter 6 of *NFPA 101*. **NFPA 150** and its subclassification, defined in Section 6.2, are intended to apply only to those portions of the facility housing animals.

**A.6.2.1.2** Examples include animal hospitals (e.g., surgery, post-op housing) and inpatient veterinary hospital sites.

**A.6.2.1.3** Examples include grooming, training, and outpatient veterinary wellness clinics.

**A.6.2.2.1** Examples include stables, and facilities for horse racing and horse breeding. Facilities where horses are brought temporarily, like veterinary clinics, are not included in this category.

**A.6.2.2.2** Category 2 Class A facilities are typically larger than 5,000 ft<sup>2</sup> (465 m<sup>2</sup>).

**A.6.2.2.3** Category 2 Class B facilities are typically less than 5,000 ft<sup>2</sup> (465 m<sup>2</sup>).

**A.6.2.2.4** Examples include stables for less than five horses owned by the same owner.

**A.6.2.3.1** Examples include laboratories, schools, and universities. The intent of the research category is to provide protection for animals with contagious diseases or high value due to research projects.

**A.6.2.5.2** Examples include zoos, petting zoos, nature centers, aquariums, amusement parks, and wildlife sanctuaries.

**A.6.2.5.3** Examples include circuses and carnivals.

**A.6.2.6.1** Examples include facilities used for boarding, training, therapy, service animals, or law enforcement animals. This category excludes horse facilities, which are covered under Category 2.

**A.6.2.6.2** Examples include facilities where animals are unattended indoors, such as boarding facilities, without staff supervision.

**A.6.2.6.3** Examples include facilities that are staffed 24/7.

**A.6.2.7.2** Examples include production swine farrowing and nurseries, poultry housing, milking facilities, and dairy loafing sheds.

**A.6.2.7.3** Examples include small backyard chicken coups and small fenced-in pens for private dairy animals. The required zoning or permitting would be classified as residential or private.

**A.6.2.7.4** Examples include pastures, feed lots, and hutches.

**A.6.2.8.1** Examples include emergency/disaster relief centers. Buildings that are not designed as an emergency/disaster relief center that will be used for emergency animal housing facilities should be existing buildings that are approved for assembly and educational occupancies; or other occupancies provided with automatic sprinkler protection and fire alarm system, adequate means of egress, lighting, and ventilation.

**A.6.3.1** See Figure A.6.3.1(a) and Figure A.6.3.1(b) for illustrations of the multiple subclassifications.

**A.6.3.3.3** A small storage room, gift shop, or minor office space might be considered incidental use. Assembly occupancies or spaces used for overnight sleeping (humans) are never considered incidental.

**A.7.1** Table A.7.1 is a reprint of Table 7.2.1.1 from *NFPA 5000*.

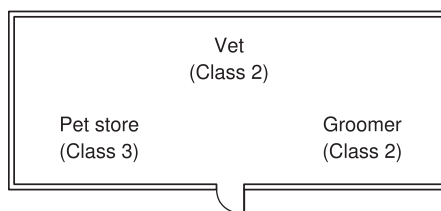
**A.7.2.2** Descriptions of the construction types found in Table 7.2.2 can be found in *NFPA 220* and *NFPA 5000*.

**A.7.3.2** Animals should be able to lie down with their limbs extended in a normal manner without obstruction from enclosure sides or having to extend their feet through feed doors or bars.

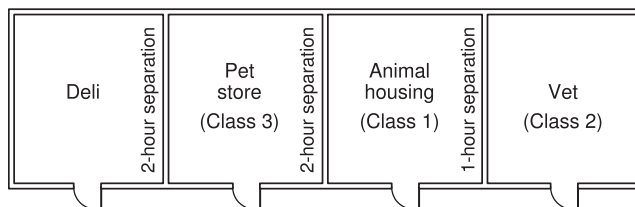
**A.7.3.3** An example of a temporary holding area, as used in 7.3.3, might be less than 12 hours.

▲ **A.7.5.2** Table A.7.5.2 lists the recommended animal enclosure horizontal design forces for a sampling of animals.

**A.8.2.1.1(2)** The width of the animal should be the widest part of the animal, including horns, antlers, and other appendages. Average widths are summarized by the American Zoo and Aquarium Association's *Minimum Husbandry Guidelines for Mammals*. Additional guidelines can be found in the Institute for Laboratory Animal Research's *Guide for the Care and Use of Laboratory Animals*.



**FIGURE A.6.3.1(a) Multiple Mixed Subclass.**



**FIGURE A.6.3.1(b) Multiple Separated Subclass.**