A.3.3.90.4 Combination Detector. These detectors do not utilize a mathematical evaluation principle of signal processing more than a simple "or" function. Normally, these detectors provide a single response resulting from either sensing method, each of which operates independent of the other. These detectors can provide a separate and distinct response resulting from either sensing method, each of which is processed independent of the other. [**72,**2019]

A.3.3.90.7 Fixed-Temperature Detector. The difference between the operating temperature of a fixed-temperature device and the surrounding air temperature is proportional to the rate at which the temperature is rising. The rate is commonly referred to as *thermal lag*. The air temperature is always higher than the operating temperature of the device. [**72,**2019]

Typical examples of fixed-temperature sensing elements are as follows:

(1) *Bimetallic*. A sensing element comprised of two metals that have different coefficients of thermal expansion arranged so that the effect is deflection in one direction when heated and in the opposite direction when cooled.
(2) *Electrical Conductivity*. A line-type or spot-type sensing element in which resistance varies as a function of temperature.
(3) *Fusible Alloy*. A sensing element of a special composition metal (eutectic) that melts rapidly at the rated temperature.
(4) *Heat-Sensitive Cable*. A line-type device in which the sensing element comprises, in one type, two current-carrying wires separated by heat-sensitive insulation that softens at the rated temperature, thus allowing the wires to make electrical contact. In another type, a single wire is centered in a metallic tube, and the intervening space is filled with a substance that becomes conductive at a critical temperature, thus establishing electrical contact between the tube and the wire.
(5) *Liquid Expansion*. A sensing element comprising a liquid that is capable of marked expansion in volume in response to an increase in temperature.

[**72,**2019]

A.3.3.90.8 Flame Detector. Flame detectors are categorized as ultraviolet, single wavelength infrared, ultraviolet infrared, or multiple wavelength infrared. [**72,**2019]

A.3.3.90.12 Multi-Criteria Detector. A multi-criteria detector is a detector that contains multiple sensing methods that respond to fire signature phenomena and utilizes mathematical evaluation principles to determine the collective status of the device and generates a single output. Typical examples of multi-criteria detectors are a combination of a heat detector with a smoke detector, or a combination rate-of-rise and fixed-temperature heat detector that evaluates both signals using an algorithm to generate an output such as pre-alarm or alarm. The evaluation can be performed either at the detector or at the control unit. Other examples are detectors that include sensor combinations that respond in a predictable manner to any combination of heat, smoke, carbon monoxide, or carbon dioxide. [**72,**2019]

A.3.3.90.13 Multi-Sensor Detector. Typical examples of multi-sensor detectors are a combination of a heat detector with a smoke detector, or a combination rate-of-rise and fixed-temperature heat detector that evaluates both signals using an algorithm to generate an output such as pre-alarm or alarm. The evaluation can be performed either at the detector or at the control unit. Other examples are detectors that include sensor combinations that respond in a predictable manner to any combination of heat, smoke, carbon monoxide, or carbon dioxide. [**72,**2019]

A.3.3.90.18 Rate Compensation Detector. A typical example of a rate compensation detector is a spot-type detector with a tubular casing of a metal that tends to expand lengthwise as it is heated and an associated contact mechanism that closes at a certain point in the elongation. A second metallic element inside the tube exerts an opposing force on the contacts, tending to hold them open. The forces are balanced in such a way that, on a slow rate-of-temperature rise, there is more time for heat to penetrate to the inner element, which inhibits contact closure until the total device has been heated to its rated temperature level. However, on a fast rate-of-temperature rise, there is not as much time for heat to penetrate to the inner element, which exerts less of an inhibiting effect so that contact closure is achieved when the total device has been heated to a lower temperature. This, in effect, compensates for thermal lag. [**72,**2019]

A.3.3.90.19 Rate-of-Rise Detector. Typical examples of rate-of-rise detectors are as follows:

(1) *Pneumatic Rate-of-Rise Tubing*. A line-type detector comprising small-diameter tubing, usually copper, that is installed on the ceiling or high on the walls throughout the protected area. The tubing is terminated in a detector unit that contains diaphragms and associated contacts set to actuate at a predetermined pressure. The system is sealed except for calibrated vents that compensate for normal changes in temperature.
(2) *Spot-Type Pneumatic Rate-of-Rise Detector*. A device consisting of an air chamber, a diaphragm, contacts, and a compensating vent in a single enclosure. The principle of operation is the same as that described for pneumatic rate-of-rise tubing.
(3) *Electrical Conductivity–Type Rate-of-Rise Detector*. A line-type or spot-type sensing element in which resistance changes due to a change in temperature. The rate of change of resistance is monitored by associated control equipment, and an alarm is initiated when the rate of temperature increase exceeds a preset value.

[**72,**2019]

N **A.3.3.99 Dwelling Unit.** It is not the intent of the *Code* that the list of spaces in the definition of the term *dwelling unit* to be all inclusive. It is the intent of the *Code* that the list of spaces is a minimal set of criteria that must be provided to be considered a dwelling unit and, therefore, the dwelling unit can contain other spaces that are typical to a single-family dwelling. [**5000**, 2021]

N **A.3.3.103 Energy Storage Systems (ESS).** ESS include but are not limited to the following categories:

(1) Chemical: hydrogen storage
(2) Thermal: thermal energy storage
(3) Electrochemical:
    (a) Batteries
    (b) Flow batteries
(4) Mechanical:
    (a) Flywheel
    (b) Pumped hydro

(c) Compressed air energy storage (CAES)
(5) Electrical:
(a) Capacitors
(b) Superconducting magnetic energy storage (SMES)

These systems can have ac or dc output for utilization and can include inverters and converters to change stored energy into electrical energy. It is not the intention for ESS to include energy generation systems.
[**855,** 2020]

A.3.3.107 Exhausted Enclosure. Such enclosures include laboratory hoods, exhaust fume hoods, and similar appliances and equipment used to retain and exhaust locally the gases, fumes, vapors, and mists that could be released. Rooms or areas provided with general ventilation, including rooms, such as control areas, with dedicated hazardous vapor/gas exhaust systems, in and of themselves, are not exhausted enclosures. [**55,**2020]

A.3.3.108 Existing. See A.3.3.29.5, Existing Building. [***101,***2021]

A.3.3.110 Exit. Exits include exterior exit doors, exit passageways, horizontal exits, exit stairs, and exit ramps. In the case of a stairway, the exit includes the stair enclosure, the door to the stair enclosure, the stairs and landings inside the enclosure, the door from the stair enclosure to the outside or to the level of exit discharge, and any exit passageway and its associated doors, if such are provided, so as to discharge the stair directly to the outside. In the case of a door leading directly from the street floor to the street or open air, the exit comprises only the door. [***101,***2021]

Doors of small individual rooms, as in hotels, while constituting exit access from the room, are not referred to as exits, except where they lead directly to the outside of the building from the street floor. [***101,***2021]

A.3.3.110.1 Horizontal Exit. Horizontal exits should not be confused with egress through doors in smoke barriers. Doors in smoke barriers are designed only for temporary protection against smoke, whereas horizontal exits provide protection against serious fire for a relatively long period of time in addition to providing immediate protection from smoke. *(See 7.2.4 of NFPA 101.)* [***101,***2021]

A.3.3.114 Explosion Control. NFPA 68 provides guidance on the use of deflagration venting systems in buildings and other enclosures. The primary purpose of a venting system is to relieve the overpressure produced in an explosion to limit the potential damage to the building where the explosion occurs. Although some structural damage can be anticipated, the use of relief venting is expected to prevent massive building failure and collapse. In cases where detonation is probable, venting is often used in conjunction with barricade construction where the pressure-resistant portions of the building have been constructed to resist the pressures anticipated should an explosive event occur. Design of barricade systems is highly specialized and the subject of military standards applicable to the subject. NFPA 69 provides guidance on the use of suppression, ventilation systems, and the limiting of oxidants as a means to prevent the occurrence of an explosion. When relief vents are to be used as a means to provide explosion relief, the fundamental requirements of the building code for structural elements, including snow, wind, and seismic events, should be considered. In some instances, the requirements for wind resistance can impose more rigorous requirements on the relief vents than required by the engineering analysis used to determine the relief pressure. In such cases, users must demonstrate that the relief vents will not become airborne or release in such a manner as to create secondary hazards within or external to the building in which they are installed. Specific designs might require approval by the AHJ. [**55,**2020]

Δ **A.3.3.115 Explosive Material.** The term *explosive material* includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, igniters, and Display Fireworks 1.3G (Class B, Special). The term *explosive* includes any material determined to be within the scope of Title 18, United States Code, Chapter 40, and also includes any material classified as an explosive by the Hazardous Materials Regulations of the U.S. Department of Transportation (DOT) in 49 CFR. [**5000,**2021]

The former classification system used by DOT included the terms *high explosive* and *low explosive*, as further defined in A.3.3.408.3 of *NFPA 5000*®. These terms remain in use by the U.S. Bureau of Alcohol, Tobacco, Firearms, and Explosives. Explosive materials classified as hazard Class 1 are further defined under the current system applied by DOT. Compatibility group letters are used in concert with division numbers to specify further limitations on each division noted. For example, the letter G (as in 1.4G) identifies substances or articles that contain a pyrotechnic substance and similar materials. UN/DOT Class 1 Explosives are defined as follows:

(1) Division 1.1 explosives are explosives that are a mass explosion hazard, which is a hazard that instantaneously affects almost the entire load.
(2) Division 1.2 explosives are explosives that are a projection hazard but not a mass explosion hazard.
(3) Division 1.3 explosives are explosives that are a fire hazard and either a minor blast hazard or a minor projection hazard, or both, but not a mass explosion hazard.
(4) Division 1.4 explosives are explosives that pose a minor explosion hazard and meet both of the following criteria:
(a) The explosive effects are largely confined to the package, and no projection of fragments of appreciable size or range is to be expected.
(b) An external fire cannot cause virtually instantaneous explosion of almost the entire contents of the package.
(5) Division 1.5 explosives are very insensitive explosives that are comprised of substances that are a mass explosion hazard, but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.
(6) Division 1.6 explosives are extremely insensitive articles that are not a mass explosion hazard, that are comprised of articles that contain only extremely insensitive detonating substances, and that demonstrate a negligible probability of accidental initiation or propagation.

[**5000,**2021]

N **A.3.3.119 Festival Seating.** Festival seating describes situations in assembly occupancies where live entertainment events are held that are expected to result in overcrowding and high audience density that can compromise public safety. It is not the intent to apply the term *festival seating* to exhibitions; sports events; conventions; and bona fide political, religious, and educational events. Assembly occupancies with 15 ft^2 (1.4 m^2)

or more per person should not be considered festival seating. [*101*,2021]

A.3.3.121.2 Interior Finish. Interior finish is not intended to apply to surfaces within spaces such as those that are concealed or inaccessible. Furnishings that, in some cases, might be secured in place for functional reasons should not be considered as interior finish. [*101*,2021]

A.3.3.121.3 Interior Floor Finish. Interior floor finish includes coverings applied over a normal finished floor or stair treads and risers. [*101*, 2021]

A.3.3.121.4 Interior Wall Finish. Such partitions are intended to include washroom water closet partitions. [*101*, 2021]

A.3.3.130 Fire Hydrant. See Figure A.3.3.130(a) and Figure A.3.3.130(b). [**25,** 2020]

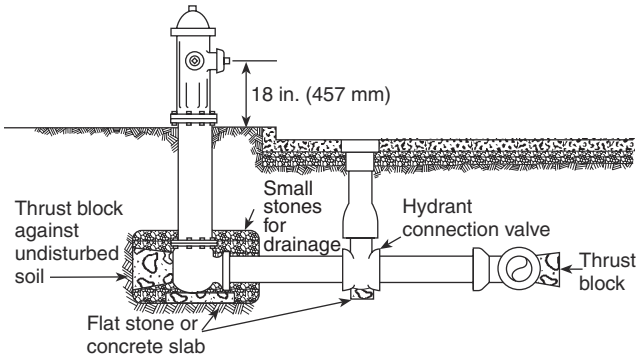
A.3.3.131 Fire Lane. The traditional term *fire lane* is no longer utilized in this *Code*. However, a fire apparatus access road that is marked and prohibits obstructions in accordance with 18.2.3.6 would meet the traditional intent of a fire lane.

A.3.3.136 Fireworks. Toy caps for use in toy pistols, toy canes, toy guns, and novelties and trick noisemakers are not considered to be fireworks *(see Annex C of NFPA 1124)*. The regulations referred to limit the explosive content of each toy cap to not more than an average of 0.25 gr (16.2 mg). Also, each package containing such caps has to be labeled to indicate the maximum explosive content per cap. For information on the use of model rockets and model rocket motors, see NFPA 1122. For information on the use of high power rockets and high power rocket motors, see NFPA 1127. Model rockets, model rocket motors, high power rockets, and high power rocket motors designed, sold, and used for the purpose of propelling recoverable aero models are not considered to be fireworks. [**1124,** 2017]

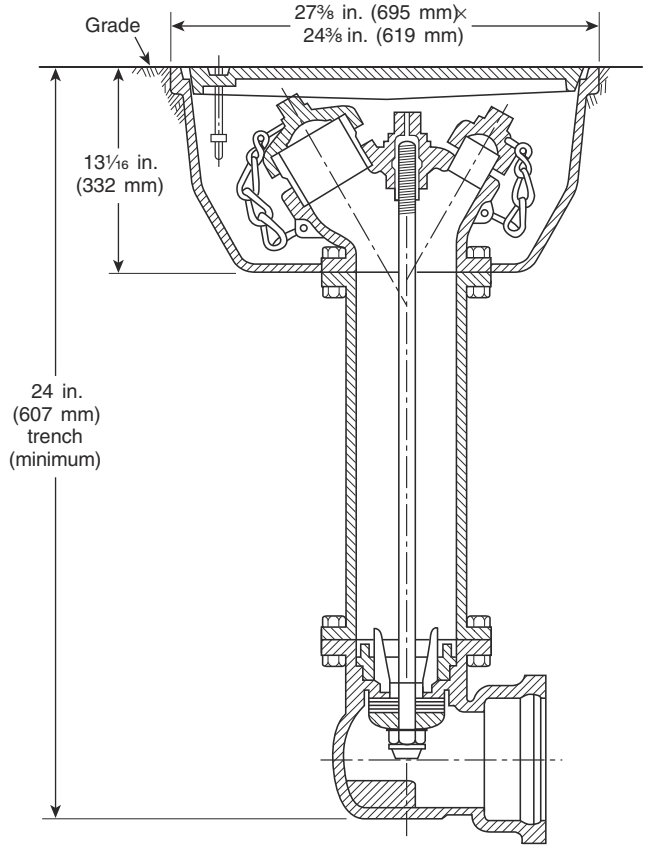
A.3.3.136.1 Display Fireworks. Display fireworks are described as Fireworks, UN0335 and are classified as Explosives, 1.3G by the U.S. Department of Transportation (U.S. DOT) *(see Annex C of NFPA 1124)*.

Display fireworks include, but are not limited to, the following:

(1) Salutes or firecrackers containing more than 2 gr (130 mg) of explosive composition (salute powder)
(2) Aerial shells containing more than 2.1 oz (60 g) of total pyrotechnic and explosive composition



Δ **FIGURE A.3.3.130(a) Typical Fire Hydrant Connection. [25:Figure A.3.3.13(a)]**



Δ **FIGURE A.3.3.130(b) Flush-Type Hydrant. [25:Figure A.3.3.13(b)]**

(3) Other display pieces that exceed the limits for classification as consumer fireworks

Such fireworks are also described as fireworks, 49 CFR 172 by the U.S. DOT.

[**1124,** 2017]

A.3.3.137 Flame Spread. See Section 10.2 of NFPA *101*. [*101*, 2021]

•

A.3.3.141.1 Gross Floor Area. Where the term *floor area* is used, it should be understood to be gross floor area, unless otherwise specified. [**5000,**2021]

A.3.3.143 Fugitive Emissions. These include leaks from pump seals, valve packing, flange gaskets, compressor seals, process drains, and so forth. [**30,**2021]

A.3.3.146.1 Compressed Gas. The states of a compressed gas are categorized as follows:

(1) Nonliquefied compressed gases are gases, other than those in solution, that are in a packaging under the charged pressure and are entirely gaseous at a temperature of 68°F (20°C).
(2) Liquefied compressed gases are gases that, in a packaging under the charged pressure, are partially liquid at a temperature of 68°F (20°C). Cryogenic fluids represent a transient state of a gas that is created through the use of refrigeration. Cryogenic fluids cannot exist in the liquid

form or partial liquid form at temperatures of 68°F (20°C); hence, they are not "compressed gases" as defined.
(3) Compressed gases in solution are nonliquefied gases that are dissolved in a solvent.
(4) Compressed gas mixtures consist of a mixture of two or more compressed gases contained in a packaging, the hazard properties of which are represented by the properties of the mixture as a whole.
[**55,**2020]

A.3.3.146.6 Inert Gas. Inert gases do not react readily with other materials under normal temperatures and pressures. For example, nitrogen combines with some of the more active metals such as lithium and magnesium to form nitrides, and at high temperatures it will also combine with hydrogen, oxygen, and other elements. The gases neon, krypton, and xenon are considered rare due to their scarcity. Although these gases are commonly referred to as inert gases, the formation of compounds is possible. For example, xenon combines with fluorine to form various fluorides and with oxygen to form oxides; the compounds formed are crystalline solids. Radon is inert under the definition provided, but because it is radioactive, it is not considered inert for the purposes of NFPA 55. [**55,**2020]

A.3.3.146.9 Liquefied Petroleum Gas (LP-Gas). In the pure state propylene (Chemical Abstract Service 105-07- 01) has a vapor pressure of 132.8 psig (915.72 kPa) at 70°F (21.1°C). The vapor pressure of commercial propane (Chemical Abstract Service 74-98-6) at 70°F 21.1°C) is 124 psig (855 kPa). Although commercial propane can contain some propylene, as in impurity, propylene in the pure state does not meet the definition of LP-Gas. Propylene in the pure state is commonly found in use as an industrial fuel gas. *(See NFPA 51.)* [**58,**2020]

A.3.3.146.11 Other Gas. A gas classified as an "other gas" might be a nonflammable gas or an inert gas. [**55,**2020]

A.3.3.146.17 Unstable Reactive Gas. Unstable reactive materials are subdivided into five classifications. Class 4 materials are materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. They include the following:

(1) Materials that are sensitive to localized thermal or mechanical shock at normal temperatures and pressures
(2) Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 482°F (250°C) of 1000 W/mL or greater
[**55,**2020]

Class 3 materials are materials that in themselves are capable of detonation or explosive decomposition or explosive reaction but require a strong initiating source or heat under confinement before initiation. Class 3 materials include the following:

(1) Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 482°F (250°C) at or above 100 W/mL and below 1000 W/mL
(2) Materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures
(3) Materials that react explosively with water without requiring heat or confinement
[**55,**2020]

Class 2 materials are materials that readily undergo violent chemical change at elevated temperatures and pressures, including the following:

(1) Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 482°F (250°C) at or above 10 W/mL and below 100 W/mL
(2) Materials that react violently with water or form potentially explosive mixtures with water
[**55,**2020]

Class 1 materials are materials that in themselves are normally stable but that can become unstable at elevated temperatures and pressures, including the following:

(1) Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 482°F (250°C) at or above 0.01 W/mL and below 10 W/mL
(2) Materials that react vigorously with water, but not violently
(3) Materials that change or decompose on exposure to air, light, or moisture
[**55,**2020]

Class 0 materials are materials that in themselves are normally stable, even under fire conditions, including the following:

(1) Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 482°F (250°C) below 0.01 W/mL
(2) Materials that do not react with water
(3) Materials that do not exhibit an exotherm at temperatures less than or equal to 932°F (500°C) when tested by differential scanning calorimetry
[**55,**2020]

A.3.3.147 Gas Cabinet. Doors and access ports for exchanging cylinders and accessing pressure-regulating controls are permitted to be included as part of a gas cabinet. [**55,**2020]

A.3.3.150 Gaseous Hydrogen (GH_2) System. The system includes stationary or portable containers, pressure regulators, pressure-relief devices, manifolds, interconnecting piping, and controls as required. [**55,**2020]

N **A.3.3.151 Grade Plane.** See 7.1.4 of NFPA 5000 for provisions for establishing the grade plane. Vertical measurements might be used in determining the number of stories or building height. [**5000,** 2021]

A.3.3.154 Hazard of Contents. Hazardous materials are materials that present physical or health hazards and are regulated by the *Code*. The categories of materials classified as physical hazards, health hazards, or both have been established in concert with those categories identified by OSHA in 29 CFR that are used by preparers of Material Safety Data Sheets (MSDS). In some cases, the hazard categories are further subdivided into classes that have long been established by NFPA standards. For example, while OSHA recognizes flammable liquids as a broad class, including those that are combustible, such liquids are further categorized by building and fire codes with respect to degree of hazard under the system of classification used by NFPA to include Class I, Class II, and Class III liquids. They are further subdivided within these classes to Class IA, Class IB and so forth. A similar approach is used for materials in other categories where there are subcategories of hazard established by existing NFPA standards, including

oxidizers, unstable reactives, organic peroxides, water reactives, and others. [**5000:**A.6.3.2]

Under the classification system used by OSHA, a hazardous material can have one or more physical or health hazards in categories not currently regulated by the *Code*; for example, irritants, sensitizers, radioactive materials, etiological agents, and others. This is not to say that these materials are not hazardous materials, but rather that the *Code* does not provide specific regulation for the hazard category represented. [**5000:**A.6.3.2]

The *Code* defines contents as either high hazard, low hazard, or ordinary hazard. The category of high hazard, which includes hazardous materials, is subdivided into groups in which the hazards of the groups are comparable, for example, high hazard Level 1 through Level 5. *(See also A.34.1.1 of NFPA 5000®.)* [**5000:**A.6.3.2]

A.3.3.154.2 Low Hazard Contents. Chapter 42 of NFPA *101* recognizes storage of noncombustible materials as low hazard. In other occupancies, it is assumed that, even where the actual contents hazard is normally low, there is sufficient likelihood that some combustible materials or hazardous operations will be introduced in connection with building repair or maintenance, or some psychological factor might create conditions conducive to panic, so that the egress facilities cannot safely be reduced below those specified for ordinary hazard contents. [***101*:**A.6.2.2.2]

Δ **A.3.3.154.3 Ordinary Hazard Contents.** Ordinary hazard classification represents the conditions found in most buildings and is the basis for the general requirements of NFPA *101*. [***101*:**A.6.2.2.3]

The fear of poisonous fumes or explosions is necessarily a relative matter to be determined on a judgment basis. All smoke contains some toxic fire gases but, under conditions of ordinary hazard, there should be no unduly dangerous exposure during the period necessary to escape from the fire area, assuming there are proper exits. [***101*:**A.6.2.2.3]

A.3.3.155 Hazard Rating. The criteria for hazard rating are as defined in NFPA 704. [**55,**2020]

A.3.3.159 Hazardous Reaction or Hazardous Chemical Reaction. These dangers might include, but are not limited to, toxic effects, reaction speed (including detonation), exothermic reaction, or production of unstable or reactive materials. [**30,**2021]

A.3.3.161 Heliport. The term *heliport* applies to all sites used or intended to be used for the landing and takeoff of helicopters. [**418,** 2016]

A.3.3.165 Immediately Dangerous to Life and Health (IDLH). This level is established by the National Institute for Occupational Safety and Health (NIOSH). If adequate data do not exist for precise establishment of IDLH, an independent certified industrial hygienist, industrial toxicologist, or appropriate regulatory agency should make such determination. [**55,**2020]

N **A.3.3.166 Imminent Danger.** A use of a building or portion of a building that is inconsistent with the approved use under the Certificate of Occupancy could qualify as an imminent danger.

A.3.3.168 Incident Commander (IC). This position is equivalent to the on-scene incident commander as defined in OSHA 1910.120(8), Hazardous Waste Operations and Emergency Response. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site. [**472,** 2018]

A.3.3.174 ISO Module. The characteristic internal water volume of individual tubular cylinders is 43 scf (1218 L) or a water capacity of 2686 lb (1218 kg). The frame of an ISO container module and its corner castings are specially designed and dimensioned to be used in multimodal transportation service on container ships, special highway chassis, and container-on-flatcar railroad equipment. [**55,**2020]

A.3.3.176.1 Ceiling Limit. 1000. [**5000,**2021]

A.3.3.176.2 Permissible Exposure Limit (PEL). The maximum permitted time-weighted average exposures to be utilized are those published in 29 CFR 1910.1000. [**55,**2020]

A.3.3.176.3 Short-Term Exposure Limit (STEL). STEL limits are published in 29 CFR 1910.1000. [**55,**2020]

• *N* **A.3.3.178.4 Ignitible Liquid.** Unless otherwise specified, the term *liquid* means an ignitible liquid. [**30,** 2021]

The term *ignitible liquid* refers to any liquid that has a measurable closed-cup flash point. Class I liquids [FP < 100°F (37.8°C)], Class II and Class III liquids [FP ≥ 100°F (37.8°C)], and inflammable liquids are all ignitible liquids. [**30,** 2021]

Δ **A.3.3.187.3 Corrosive Material.** A chemical is considered to be corrosive if it destroys or irreversibly changes the structure of the tissue at the site of contact within a specified period of time using one of the *in vivo* or *in vitro* OECD test methods authorized in 49 CFR Part 173.137. For purposes of this code, this term does not refer to action on inanimate surfaces (e.g., steel or aluminum). Available testing data produced prior to September 30, 1995 from the test method in Appendix A to 49 CFR 173 in effect on October 1, 1994 can also be used to determine the corrosivity of a material. [**400,**2019]

N **A.3.3.187.4 Hazardous Material.** Hazardous wastes might or might not be classified as hazardous materials. Management and disposal of hazardous waste is regulated by the EPA under the Resource Conservation and Recovery Act (RCRA). EPA requires wastes identified as hazardous to be handled, stored, treated, and disposed of according to the stipulations of the RCRA hazardous waste program in 40 CFR 260–299, "Solid Wastes." [**400,** 2019]

A.3.3.187.7 Highly Toxic Material. While categorization is basically simple in application, the degree of hazard depends on many variables that should be carefully considered individually and in combination. Some examples include the following:

(1) Materials wherein the highly toxic component or mixtures thereof are inextricably bound and cannot be released so there is little or no potential for exposure
(2) Nonfriable solid hazardous materials existing in product forms and in the demonstrated absence of inhalable particles that might not present the same inhalation hazard as the chemical components existing in a friable state
(3) Mixtures of highly toxic materials with ordinary materials, such as water, that might not warrant classification as highly toxic

[**400,**2019]

Any hazard evaluation that is required for the precise categorization of highly toxic material is required to be performed by experienced, technically competent persons. [**400,**2019]

A.3.3.187.9 Incompatible Material. Information on incompatible materials can be found in safety data sheets (SDS) or manufacturers' product bulletins. [**400,**2019]

A.3.3.187.14 Toxic Material. While categorization is basically simple in application, the degree of hazard depends on many variables that should be carefully considered individually and in combination. Some examples include the following:

(1) Materials wherein the toxic component or mixtures thereof are inextricably bound and cannot be released so there is little or no potential for exposure
(2) Nonfriable solid hazardous materials existing in product forms and in the demonstrated absence of inhalable particles that might not present the same inhalation hazard as the chemical components existing in a friable state
(3) Mixtures of toxic materials with ordinary materials, such as water, that might not warrant classification as toxic

[**400,** 2019]

Any hazard evaluation that is required for the precise categorization of toxic material is required to be performed by experienced, technically competent persons. [**400,**2019]

A.3.3.187.15 Unstable (Reactive) Material. Unstable (reactive) material is classified as follows:

(1) Class 4 unstable (reactive) materials are those that, in themselves, are readily capable of detonation, explosive decomposition, or explosive reaction at normal temperatures and pressures and include, among others, materials that are sensitive to localized thermal or mechanical shock at normal temperatures and pressures.
(2) Class 3 unstable (reactive) materials are those that, in themselves, are capable of detonation, explosive decomposition, or explosive reaction, but that require a strong initiating source or that must be heated under confinement before initiation, and include, among others, materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures.
(3) Class 2 unstable (reactive) materials are those that readily undergo violent chemical change at elevated temperatures and pressures and include, among others, materials that exhibit an exotherm at temperatures less than or equal to 30°F (–1°C) when tested by differential scanning calorimetry.
(4) Class 1 unstable (reactive) materials are those that, in themselves, are normally stable, but that can become unstable at elevated temperatures and pressures and include among others, materials that change or decompose on exposure to air, light, or moisture and that exhibit an exotherm at temperatures greater than 30°F (–1°C), but less than or equal to 57°F (14°C), when tested by differential scanning calorimetry.

[**400,**2019]

Δ **A.3.3.187.16 Water-Reactive Material.** Class 1 water-reactive materials are materials whose heat of mixing is at or above 30 cal/g and less than 100 cal/g. Class 2 water-reactive materials are materials whose heat of mixing is at or above 100 cal/g and less than 600 cal/g. Class 3 water-reactive materials are materials whose heat of mixing is greater or equal to 600 cal/g. [**400,** 2019]

A.3.3.188 Maximum Allowable Quantity (MAQ). Quantities are permitted to exceed the MAQ when they are located in an area complying with Protection Levels 1–5 in accordance with the building code.

A.3.3.189 Means of Egress. A means of egress comprises the vertical and horizontal travel and includes intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, elevators, enclosures, lobbies, escalators, horizontal exits, courts, and yards. [***101,***2021]

A.3.3.193 Mobile Supply Unit. Examples include ISO modules, tube trailers, and cylinder packs. [**55,**2020]

A.3.3.194 Mobile or Temporary Cooking. Mobile or temporary cooking can include self-propelled trucks and vehicles; trailered units; push carts; equipment located under cover of awnings, canopies, or pop-up tents; or other structures for which a building permit has not been issued.

A.3.3.197 Normal Temperature and Pressure (NTP). There are different definitions of normal conditions. The normal conditions defined here are the ones most commonly used in the compressed gas and cryogenic fluid industry. [**55,**2020]

A.3.3.199.1 Ambulatory Health Care Occupancy. It is not the intent that occupants be considered to be incapable of self-preservation just because they are in a wheelchair or use assistive walking devices, such as a cane, a walker, or crutches. Rather it is the intent to address treatment centers that receive patients who have been rendered incapable of self-preservation, such as being rendered unconscious as a result of an accident or being unable to move due to sudden illness. [***101,***2021]

It is not the intent that the term *anesthesia* be limited to general anesthesia. [***101,***2021]

A.3.3.199.2 Apartment Building. The *Code* specifies that, wherever there are three or more living units in a building, the building is considered an apartment building and is required to comply with Chapter 30 or Chapter 31 of NFPA *101*, as appropriate. Townhouse units are considered to be apartment buildings if there are three or more units in the building. The type of wall required between units in order to consider them to be separate buildings is normally established by the AHJ. If the units are separated by a wall of sufficient fire resistance and structural integrity to be considered as separate buildings, then the provisions of Chapter 24 of NFPA *101*, apply to each townhouse. Condominium status is a form of ownership, not occupancy; for example, there are condominium warehouses, condominium apartments, and condominium offices. [***101,***2021]

A.3.3.199.3 Assembly Occupancy. Assembly occupancies might include the following:

(1) Armories
(2) Assembly halls
(3) Auditoriums
(4) Bowling lanes
(5) Club rooms
(6) College and university classrooms, 50 persons and over
(7) Conference rooms
(8) Courtrooms
(9) Dance halls

(10) Drinking establishments
(11) Exhibition halls
(12) Gymnasiums
(13) Libraries
(14) Mortuary chapels
(15) Motion picture theaters
(16) Museums
(17) Passenger stations and terminals of air, surface, underground, and marine public transportation facilities
(18) Places of religious worship
(19) Pool rooms
(20) Recreation piers
(21) Restaurants
(22) Skating rinks
(23) Special amusement buildings, regardless of occupant load
(24) Theaters
[***101***,2021]

Assembly occupancies are characterized by the presence or potential presence of crowds with attendant panic hazard in case of fire or other emergency. They are generally open or occasionally open to the public, and the occupants, who are present voluntarily, are not ordinarily subject to discipline or control. Such buildings are ordinarily occupied by able-bodied persons and are not used for sleeping purposes. Special conference rooms, snack areas, and other areas incidental to, and under the control of, the management of other occupancies, such as offices, fall under the 50-person limitation. [***101***,2021]

Restaurants and drinking establishments with an occupant load of fewer than 50 persons should be classified as mercantile occupancies. [***101***,2021]

For special amusement buildings, see 12.4.9 and 13.4.9 of NFPA *101*. [***101***,2021]

Δ **A.3.3.199.5 Business Occupancy.** Business occupancies include the following:

(1) Airport traffic control towers (ATCTs)
(2) City halls
(3) College and university instructional buildings, classrooms under 50 persons, and instructional laboratories
(4) Courthouses
(5) Dentists' offices
(6) Doctors' offices
(7) General offices
(8) Outpatient clinics (ambulatory)
(9) Town halls
[***101***,2021]

Doctors' and dentists' offices are included, unless of such character as to be classified as ambulatory health care occupancies. *(See 3.3.199.1.)*[***101***,2021]

Birth centers should be classified as business occupancies if they are occupied by fewer than four patients, not including infants, at any one time; do not provide sleeping facilities for four or more occupants; and do not provide treatment procedures that render four or more patients, not including infants, incapable of self-preservation at any one time. For birth centers occupied by patients not meeting these parameters, see Chapter 18 or Chapter 19 of NFPA *101*, as appropriate. [***101***,2021]

Service facilities common to city office buildings such as newsstands, lunch counters serving fewer than 50 persons, barber shops, and beauty parlors are included in the business occupancy group. [***101***,2021]

City halls, town halls, and courthouses are included in the business occupancy group insofar as their principal function is the transaction of public business and the keeping of books and records. Insofar as they are used for assembly purposes, they are classified as assembly occupancies. [***101***,2021]

A.3.3.199.6 Day-Care Home. A day-care home is generally located within a dwelling unit. [***101***,2021]

A.3.3.199.7 Day-Care Occupancy. Day-care occupancies include the following:

(1) Adult day-care occupancies, except where part of a health care occupancy
(2) Child day-care occupancies
(3) Day-care homes
(4) Kindergarten classes that are incidental to a child day-care occupancy
(5) Nursery schools
[***101***,2021]

In areas where public schools offer only half-day kindergarten programs, many child day-care occupancies offer state-approved kindergarten classes for children who need full-day care. Because these classes are normally incidental to the day-care occupancy, the requirements of the day-care occupancy should be followed. [***101***,2021]

Δ **A.3.3.199.8 Detention and Correctional Occupancy.** Detention and correctional occupancies include the following:

(1) Adult and juvenile substance abuse centers
(2) Adult and juvenile work camps
(3) Adult community residential centers
(4) Adult correctional institutions
(5) Adult local detention facilities
(6) Juvenile community residential centers
(7) Juvenile detention facilities
(8) Juvenile training schools
[***101***,2021]

Detention and correctional occupancies do not include psychiatric and dementia units in hospitals, emergency rooms in hospitals, ambulatory health care occupancies, nursing homes, and residential board and care occupancies where persons can be lawfully detained. [***101***, 2021]

See A.22.1.1.1.6 and A.23.1.1.1.6 of NFPA *101*. [***101***, 2021]

A.3.3.199.9 Dormitory. Rooms within dormitories intended for the use of individuals for combined living and sleeping purposes are guest rooms or guest suites. Examples of dormitories are college dormitories, fraternity and sorority houses, and military barracks. [***101***,2021]

A.3.3.199.10 Educational Occupancy. Educational occupancies include the following:

(1) Academies
(2) Kindergartens
(3) Schools
[***101***,2021]

An educational occupancy is distinguished from an assembly occupancy in that the same occupants are regularly present. [***101***,2021]

Δ **A.3.3.199.11 Health Care Occupancy.** Health care occupancies include the following:

(1) Hospitals
(2) Limited care facilities
(3) Nursing homes

[***101***,2021]

Occupants of health care occupancies typically have physical or mental illness, disease, or infirmity. They also include infants, convalescents, or infirm aged persons. It is not the intent to consider occupants incapable of self-preservation because they are in a wheelchair or use assistive walking devices, such as a cane, a walker, or crutches. [***101***,2021]

Δ **A.3.3.199.12 High-Risk Occupancy.** Examples of high-risk occupancies could include multiple-family dwellings, high-rise buildings, hotels, dormitories, lodging and rooming, assembly, child care, detention, educational, health care, and industrial. [**1730**,2019]

A.3.3.199.14 Hotel. So-called apartment hotels should be classified as hotels, because they are potentially subject to the same transient occupancy as hotels. Transients are those who occupy accommodations for less than 30 days. [***101***,2021]

Δ **A.3.3.199.15 Industrial Occupancy.** Industrial occupancies include the following:

(1) Drycleaning plants
(2) Factories of all kinds
(3) Food processing plants
(4) Gas plants
(5) Hangars (for servicing/maintenance)
(6) Laundries
(7) Power plants
(8) Pumping stations
(9) Refineries
(10) Sawmills
(11) Telephone exchanges

[***101***,2021]

In evaluating the appropriate classification of laboratories, the AHJ should treat each case individually, based on the extent and nature of the associated hazards. Some laboratories are classified as occupancies other than industrial; for example, a physical therapy laboratory or a computer laboratory. [***101***,2021]

A.3.3.199.16 Limited Care Facility. Limited care facilities and residential board and care occupancies both provide care to people with physical and mental limitations. However, the goals and programs of the two types of occupancies differ greatly. The requirements in NFPA *101* for limited care facilities are based on the assumption that these are medical facilities, that they provide medical care and treatment, and that the patients are not trained to respond to the fire alarm; that is, the patients do not participate in fire drills but, rather, await rescue. *(See Section 18.7 of NFPA 101.)* [***101***,2021]

The requirements for residential board and care occupancies are based on the assumption that the residents are provided with personal care and activities that foster continued independence, that the residents are encouraged and taught to overcome their limitations, and that most residents, including all residents in prompt and slow homes, are trained to respond to fire drills to the extent they are able. Residents are required to participate in fire drills. *(See Section 32.7 of NFPA 101.)* [***101***,2021]

Persons with Alzheimer's and related illnesses might be located in a nursing home, limited care facility, or board and care facility. For such persons, it is the level of care provided, not the medical diagnosis, that matters for the purposes of determining whether the facility should meet the requirements for limited care. Where personal care is provided but medical or custodial care is not, the limited care definition does not typically apply. It is the intent of this definition that it not apply to persons not receiving medical or custodial care, provided they are able to assist in their own evacuation, regardless of their medical diagnosis. [***101***,2021]

A.3.3.199.18 Low-Risk Occupancy. Examples of low-risk occupancies could include storage, mercantile, and business. [**1730**,2019]

A.3.3.199.19 Mercantile Occupancy. Mercantile occupancies include the following:

(1) Auction rooms
(2) Department stores
(3) Drugstores
(4) Restaurants with fewer than 50 persons
(5) Shopping centers
(6) Supermarkets

[***101***,2021]

Office, storage, and service facilities incidental to the sale of merchandise and located in the same building should be considered part of the mercantile occupancy classification.

[***101***,2021]

A.3.3.199.21 Moderate-Risk Occupancy. Examples of moderate-risk occupancies could include ambulatory health care and industrial occupancies that do not maintain, store, use, or handle hazardous materials in excess of exempt amounts. [**1730**,2019]

A.3.3.199.22.3 Motor Fuel Dispensing Facility Located Inside a Building. The motor fuel dispensing facility can be either enclosed or partially enclosed by the building walls, floors, ceilings, or partitions or can be open to the outside. The motor fuel dispensing area is that area required for dispensing of fuels to motor vehicles. Dispensing of fuel at manufacturing, assembly, and testing operations is not included within this definition. [**30A**,2021]

A.3.3.199.26 Parking Structure. A parking structure is permitted to be enclosed or open, use ramps, and use mechanical control push-button-type elevators to transfer vehicles from one floor to another. Motor vehicles are permitted to be parked by the driver or an attendant or are permitted to be parked mechanically by automated facilities. Where automated-type parking is provided, the operator of those facilities is permitted either to remain at the entry level or to travel to another level. Motor fuel is permitted to be dispensed, and motor vehicles are permitted to be serviced in a parking structure in accordance with NFPA 30A. [**88A**,2019]

A.3.3.199.28 Residential Board and Care Occupancy. The following are examples of facilities that are classified as residential board and care occupancies:

(1) Group housing arrangement for physically or mentally handicapped persons who normally attend school in the community, attend worship in the community, or otherwise use community facilities

(2) Group housing arrangement for physically or mentally handicapped persons who are undergoing training in preparation for independent living, for paid employment, or for other normal community activities
(3) Group housing arrangement for the elderly that provides personal care services but that does not provide nursing care
(4) Facilities for social rehabilitation, alcoholism, drug abuse, or mental health problems that contain a group housing arrangement and that provide personal care services but do not provide acute care
(5) Assisted living facilities
(6) Other group housing arrangements that provide personal care services but not nursing care

[***101*,**2021]

A.3.3.199.29 Residential Occupancy. Residential occupancies are treated as separate occupancies in this *Code* as follows:

(1) One- and two-family dwellings (Chapter 24 of NFPA *101*)
(2) Lodging or rooming houses (Chapter 26 of NFPA *101*)
(3) Hotels, motels, and dormitories (Chapters 28 and 29 of NFPA *101*)
(4) Apartment buildings (Chapters 30 and 31 of NFPA *101*)

[***101*,**2021]

A.3.3.199.31 Storage Occupancy. Storage occupancies include the following:

(1) Barns
(2) Bulk oil storage
(3) Cold storage
(4) Freight terminals
(5) Grain elevators
(6) Hangars (for storage only)
(7) Parking structures
(8) Truck and marine terminals
(9) Warehouses

[***101*,**2021]

Storage occupancies are characterized by the presence of relatively small numbers of persons in proportion to the area.

[***101*,**2021]

A.3.3.199.31.1 Mini-Storage Building. Mini-storage buildings are typically designed to accommodate relatively small transient tenants who are often private individuals or persons who own small businesses and need additional storage space that is generally very small in area to accommodate their short-term storage needs. This definition is not intended to apply to large warehouse buildings designed to be rented or leased to relatively large multiple tenants who are generally storing their wares in conjunction with their businesses. Garage units that are primarily intended for vehicular storage as part of a multifamily development are not intended to be classified as mini-storage buildings. [**5000,**2021]

A.3.3.203 Operating Unit (Vessel) or Process Unit (Vessel). Unit operations include, but are not limited to, distillation, oxidation, cracking, and polymerization. [**30,**2021]

•

A.3.3.208 Oxidizer. Examples of other oxidizing gases include bromine, chlorine, and fluorine. [**400,**2019]

The classification of oxidizers is based on the technical committee's evaluation of available scientific and technical data, actual experience, and its considered opinion. Classification refers to the pure oxidizer. Gross contamination can cause oxidizers of all classes to undergo exothermic or explosive reaction, particularly if they also are subjected to confinement and heating. *(See G.2.2 through G.2.5 of NFPA 400 for oxidizer classifications.)* [**400,**2019]

The classification of oxidizers is based on the degree to which an oxidizing chemical increases, if at all, the burning rate of available combustible fuels. Factors that can influence the burning rate of oxidizers are concentration, particle size, product form, product packaging, and packaging configuration. Examples of Class 1, 2, 3, and 4 chemical oxidizers are listed in Section G.2 of NFPA 400. The definition of the current classes and the oxidizers listed as typical of each Class in Section G.2 of NFPA 400 are based on the technical committee's evaluation of available data, experience, and results of tests done by the Bureau of Mines and GE Research in the 1970s. [**400,**2019]

The definition of Class 1, 2, 3, and 4 oxidizers is subjective. Currently, there is no bench scale test method that adequately measures the burning rate of oxidizers for large-scale storage. The UN's *Recommendations on the Transport of Dangerous Goods, Model Regulations,* includes a bench scale test method (Test O. 1) to assign packing groups to solid oxidizers. Thirty grams (1.06 oz) of a mixture of the test substance and cellulose powder is ignited with a Nichrome wire. The time from ignition to the end of visible burning of the mixture is compared with the burning time of several different mixtures of potassium bromate (Class 3) and cellulose powder. The test does not characterize chemical reactivity or thermal stability. The test is not representative of packaged oxidizers. The determination of burning time is strongly dependent on test conditions, particle size, and the test operator's perception of the end of active burning. [**400,**2019]

The Fire Protection Research Foundation (FPRF) published *National Oxidizing Pool Chemicals Storage Fire Test Project* in August 1998. The technical report includes literature abstracts, large-scale calorimetry test data, and intermediate scale rack storage tests. The peak rate of heat release of packaging and packaged oxidizers trichloroisocyanuric acid (Trichlor, Class 1) and calcium hypochlorite (available chlorine >68%, Class 3) are summarized in Table A.3.3.208. [**400,**2019]

The Class 1 Trichlor did not increase the burning rate of the combustible packaging. Class 3 calcium hypochlorite (available chlorine >68%) caused a severe increase in the burning rate of the combustible packaging. In 2006, the FPRF published a report on the *Development of an Enhanced Hazard Classification System for Oxidizers.* The report includes a review of fire losses, historical test data, and current test methods for oxidizing materials used by transportation and environmental regulatory agencies. Two classification schemes with multiple test methods and performance-based criteria were proposed to distinguish between Class 1, 2, 3, and 4 oxidizers in a storage situation. [**400,**2019]

Future FPRF effort is proposed to define an appropriate bench scale test, validated by medium scale free burn testing, for oxidizers. The goal of the enhanced classification system would be to prescribe tests and use performance-based criteria to define the different classes of oxidizers based on the degree of burning rate enhancement, chemical reactivity, and thermal stability. [**400,**2019]

The FPRF completed a project that resulted in the development of a bench-scale test, validated by intermediate scale test-

ing, for solid oxidizers. An enhanced classification system with prescribed tests and performance-based criteria to define the different classes of oxidizers based on the degree of burning rate enhancement was developed. [Buc, Elizabeth C., *Oxidizer Classification Research Project: Tests and Criteria*, Fire Protection Research Foundation, November 2009] [**400,**2019]

A.3.3.216 Personal Care. Personal care involves responsibility for the safety of the resident while inside the building. Personal care might include daily awareness by management of the resident's functioning and whereabouts, making and reminding a resident of appointments, the ability and readiness for intervention in the event of a resident experiencing a crisis, supervision in the areas of nutrition and medication, and actual provision of transient medical care, including limited periodic skilled nursing care. [***101,***2021]

A.3.3.219 Pier. The terms *pier* and *wharf* are used interchangeably. [**307,**2021]

A.3.3.222 Pressure Vessel. Pressure vessels of any type can be subject to additional regulations imposed by various states or other legal jurisdictions. Users should be aware that compliance with DOT or ASME requirements might not satisfy all of the required regulations for the location in which the vessel is to be installed or used. [**55:**A.8.2]

A.3.3.224 Process or Processing. The sequence can include both physical and chemical operations, unless the term is modified to restrict it to one or the other. The sequence can involve, but is not limited to, preparation, separation, purification, or change in state, energy content, or composition. [**30,**2021]

A.3.3.233 Rack. Some rack structures use solid shelves. Racks are permitted to be fixed, portable, or movable. Loading is permitted to be either manual, using lift trucks, stacker cranes, or hand placement, or automatic, using machine-controlled storage and retrieval systems. *[See Figure A.34.8.3.1(a) through Figure A.34.8.3.1(k).]*

A.3.3.233.2 Movable Racks. Movable racks can be moved back and forth only in a horizontal, two-dimensional plane. A moving aisle is created as abutting racks are either loaded or unloaded, then moved across the aisle to abut other racks.

A.3.3.233.4 Portable Racks. Portable racks can be arranged in any number of configurations.

A.3.3.234 Ramp. See 7.2.5 of NFPA *101*. [***101,***2021]

Δ **A.3.3.244 Safety Can.** Safety cans listed to UL 30, *Metal Safety Cans,* are limited to 5 U.S. gal (19 L). UL 1313, *Nonmetallic Safety Cans for Petroleum Products,* allows for capacities up to 5 Imperial gal (23 L). [**30,**2021]

N **A.3.3.245 Safety Data Sheet (SDS).** SDSs in the United States are prepared in accordance with the Occupational Safety and Health Administration (OSHA) hazard communication standard (29 CFR 1910.1200, "Hazard Communication"). Chemicals transported internationally might include additional requirements. *(See Annex B of NFPA 400 for additional information regarding SDSs.)* [**400,** 2019]

A.3.3.251 Signal.

A.3.3.251.1 Alarm Signal. Examples of alarm signals include outputs of activated alarm initiating devices, the light and sound from actuated alarm notification appliances, alarm data transmission to a supervising station, and so forth. [**72,** 2016]

A.3.3.251.2 Fire Alarm Signal. Examples include outputs from activated fire alarm initiating devices (manual fire alarm box, automatic fire detector, waterflow switch, etc.), the light and sound from actuated fire alarm notification appliances, fire alarm data transmission to a supervising station, and so forth. [**72,** 2016]

A.3.3.251.3 Supervisory Signal. Examples include activated supervisory signal-initiating device outputs, supervisory data transmissions to supervising stations, the light and sound from actuated supervisory notification appliances, a delinquency signal indicating a guard's tour supervisory condition, and so forth. [**72,** 2016]

The term *guard's tour supervisory signal*, associated with systems supporting guard's tour supervisory service, is a message indicating that a guard has activated a guard's tour reporting station (not in itself an indication of a supervisory condition). Guard's tour supervisory signals are not a subset of the general category of supervisory signals as used in this *Code.* [**72,** 2016]

A.3.3.251.4 Trouble Signal. Examples include off-normal outputs from integrity monitoring circuits, the light and sound from actuated trouble notification appliances, trouble data transmission to a supervising station, and so forth. [**72,** 2016]

A.3.3.254 Smoke Barrier. A smoke barrier, such as a wall, floor, or ceiling assembly, might be aligned vertically or horizontally. A smoke barrier might or might not have a fire resistance rating. Application of smoke barrier criteria where required elsewhere in the *Code* should be in accordance with Section 12.9. [**5000,** 2021]

A.3.3.256 Smoke Partition. A smoke partition is not required to have a fire resistance rating. [***101,***2021]

Δ **Table A.3.3.208 Results of Large-Scale Calorimetry Tests with Packaging and Packaged Oxidizers on Wood Pallets**

Oxidizer and Packaging	Total Weight with Pallets (lb)	Peak Convective HRR (kW)
40 cartons of empty HDPE 2 lb capacity containers	300	1736
40 cartons of pea gravel filled HDPE 2 lb capacity containers	1631	464
40 cartons of granular Trichlor in HDPE 2 lb capacity containers	1891	649
40 cartons of tablet form Trichlor in HDPE 2 lb capacity containers	1882	877
48 cartons of granular calcium hypochlorite in 1 lb capacity Surlin (plastic) bags	1468	6696
36 cartons of granular calcium hypochlorite in HDPE 1 lb capacity containers	1452	16,184

For SI units, 1 lb = 0.45 kg.
Source: FPRF, *National Oxidizing Pool Chemicals Storage Fire Test Project,* Aug. 1998.
[**400,**Table A.3.3.73]

A.3.3.259.1 Combustible Particulate Solid. Combustible particulate solids include dusts, fibers, fines, chips, chunks, flakes, and mixtures of these. A definition of this breadth is necessary because it is crucial to address the fact that there is attrition of the material as it is conveyed. Pieces and particles rub against each other and collide with the walls of the duct as they travel through the system. The rubbing and collision break down the material and produce a mixture of pieces and much finer particles, called dusts. Consequently, it is expected that every conveying system produces dusts, regardless of the starting size of the material, as an inherent by-product of the conveying process. [**69,**2019]

A.3.3.259.2 Flammable Solid. Flammable solids include finely divided solid materials that, when dispersed in air as a cloud, could be ignited and cause an explosion. [**400,**2019]

N **A.3.3.261 Solid Shelving.** The placement of loads affects the calculated area of the shelf. It is the intent to apply this definition to loads on the rack where 6 in. (150 mm) nominal flues are not provided on all four sides, regardless of whether shelving materials are present. See 20.5.3.1.2 of NFPA 13 for additional allowances for double-row racks up 25 ft (7.6 m) and for multiple-row racks of any height without a longitudinal flue space. [**13,** 2019]

A.3.3.264 Spray Booth. Spray booths are manufactured in a variety of forms, including automotive refinishing, downdraft, open-face, traveling, tunnel, and updraft booths. This definition is not intended to limit the term *spray booth* to any particular design. The entire spray booth is part of the spray area. A spray booth is not a spray room. [**33,**2018]

A.3.3.265 Spray Room. The entire spray room is considered part of the spray area. A spray booth is not a spray room. [**33,**2018]

A.3.3.269.7 Miscellaneous Tire Storage. The limitations on the type and size of storage are intended to identify those situations where tire storage is present in limited quantities and incidental to the main use of the building. Occupancies such as aircraft hangars, automobile dealers, repair garages, retail storage facilities, automotive and truck assembly plants, and mobile home assembly plants are types of facilities where miscellaneous storage could be present. [**13,**2019]

Δ **A.3.3.273 Street Floor.** Where, due to differences in street levels, two or more stories are accessible from the street, each is a street floor. Where there is no floor level within the specified limits for a street floor above or below ground level, the building has no street floor.[***101,*** 2021]

A.3.3.275 Structure. The term *structure* is to be understood as if followed by the words *or portion thereof. (See also 3.3.29, Building.)* [***101,***2021]

N **A.3.3.275.1 Open Structure.** Open structures are often found in oil refining, chemical processing, or power plants. Roofs or canopies without enclosing walls are not considered an enclosure. [***101,*** 2021]

A.3.3.276 Suburb or Suburban. Suburban areas can include populous towns or large villages or be located outside the official limits of a densely settled city of 2500 to 50,000 people per census block, or those areas that interface with the outer rim of an urban cluster (UC). Suburban communities usually exist within commuting distance of urban areas but exhibit their own jurisdictional autonomy. [**1142,** 2017]

A.3.3.278.1 Bulk Hydrogen Compressed Gas System. The bulk system terminates at the source valve, which is the point where the gas supply, at service pressure, first enters the supply line, or at a piece of equipment that utilizes the hydrogen gas, such as a hydrogen dispenser. The containers are either stationary or movable, and the source gas for the system is stored as a compressed gas. [**55,** 2020]

Bulk hydrogen compressed gas systems can include a bulk storage source, transfer piping and manifold system, compression system, and other components. The gaseous source can include a tube trailer, tube bank, or other high pressure storage vessels used to serve the piping system that transports hydrogen to the end user. Compressors can be installed downstream of the storage supply to boost the pressure of the source gas, and intermediate high pressure storage might be present. This is done where the end use requires hydrogen at a pressure higher than that of the bulk supply. In these instances, there may be intermediate storage vessels used to store the gas at elevated pressures. It is not uncommon for the bulk supply as delivered to be furnished at nominal gauge pressure of 3000 psi (20,684 kPa), and the intermediate high pressure storage to be stored at gauge pressures up to 15,000 psi (103,421 kPa). See Figure A.3.3.278.1(a) through Figure A.3.3.278.1(f). [**55,** 2020]

Δ **A.3.3.278.4 Bulk Oxygen System.** The bulk oxygen system terminates at the source valve, which is commonly the point where oxygen at service pressure first enters the supply line or a piece of equipment that utilizes the oxygen gas or liquid. The oxygen containers are either stationary or movable, and the oxygen is stored as a compressed gas or cryogenic fluid. [**55,** 2020]

Bulk oxygen systems can be used to supply gas in either its compressed gaseous or liquefied form. Systems that may be used to supply both gaseous and liquid forms are referred to as hybrid systems. The following bulk oxygen systems are typical of those in use:

(1) When the primary supply of the gas as stored is from a compressed gaseous source that is used in the compressed and gaseous form, the bulk oxygen system is said to be a bulk compressed oxygen gas system.
(2) When the primary supply of the gas as stored is in a liquid form and the system is designed to transfer only liquid, the system is said to be a bulk liquefied oxygen system.
(3) When the primary supply of the gas as stored is in a liquid form and the system is designed to transfer or store the gas in a compressed gaseous form, with or without a feature that may also allow the subsequent transfer and use of liquid, the bulk oxygen system is said to be a hybrid bulk oxygen system. For the purposes of the application of the *Code*, a hybrid system is viewed as a bulk liquefied oxygen system.

[**55,**2020]

A.3.3.278.13 Standpipe System. This arrangement is accomplished by means of connections to water supply systems or by means of pumps, tanks, and other equipment necessary to provide an adequate supply of water to the hose connections. [**14,**2019]

A.3.3.278.15 Vapor Processing System. Examples are systems using blower-assist for capturing vapors and refrigeration, absorption, and combustion systems for processing vapors. [**30,**2021]