# NFPA 97

# Standard Glossary of Terms Relating to Chimneys, Vents, and Heat-Producing Appliances

## 2003 Edition

NFPA, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101
An International Codes and Standards Organization

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**NFPA 97**

**Standard Glossary of**

# Terms Relating to Chimneys, Vents, and Heat-Producing Appliances

**2003 Edition**

This edition of NFPA 97, *Standard Glossary of Terms Relating to Chimneys, Vents, and Heat-Producing Appliances*, was prepared by the Technical Committee on Chimneys, Fireplaces, and Venting Systems for Heat-Producing Appliances and acted on by NFPA at its November Association Technical Meeting held November 16–20, 2002, in Atlanta, GA. It was issued by the Standards Council on January 17, 2003, with an effective date of February 6, 2003, and supersedes all previous editions.

This edition of NFPA 97 was approved as an American National Standard on January 17, 2003.

## Origin and Development of NFPA 97

This glossary of terms was prepared by the NFPA Committee on Chimneys and Heating Equipment. It was submitted to the Association for tentative adoption at the annual meeting in 1959 and was adopted on that basis. In the year following, minor revisions were made by the committee, and it was submitted and received final adoption by the Association on May 18, 1960. The glossary was revised in 1961, 1966, and 1968. It was extensively revised in 1972, and additional definitions were included in 1979 and 1984.

The committee hopes that this glossary will be used by all NFPA committees responsible for standards involving chimneys, gas vents, and heat-producing appliances. The objective is to achieve uniformity in the use and definitions of the terms defined in the glossary. The 1988 edition contained a new definition of Smoke Chamber and a change in the definition of Fireplace Stove.

Several definitions were added or revised in the 1992, 1996, and 2000 editions to keep the glossary consistent with changes in NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*.

The 2003 edition has reformatted the document in accordance with the NFPA *Manual of Style* and has adopted the preferred definitions from the NFPA *Glossary of Terms* to maintain consistency with other standards.

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**Marek Kulik,** Flex-L International Inc., Canada [M]
**Richard D. Peacock,** National Institute of Standards and Technology, MD [RT]
**Jack Pixley,** Jack Pixley Sweeps, Inc., MN [IM]
Rep. National Chimney Sweep Guild
**Christopher R. Schulz,** Van-Packer Co., Inc., IL [M]
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**Paul B. Stegmeir,** Faribault, MN [SE]
**Richard L. Stone,** Quincy, CA [SE]
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Rep. Hearth Products Association
**Robert J. Zimmerman, Jr.,** Underwriters Laboratories Inc., IL [RT]

**Alternates**

**Tammy Lynn Bitting,** Van-Packer Co., Inc., IL [M]
(Alt. to C. R. Schulz)
**James P. Brewer,** Magic Sweep Corp., VA [IM]
(Alt. to J. Pixley)
**Rick Curkeet,** Intertek Testing Services, WI [RT]
(Alt. to H. A. Grisack)
**Harry P. Jones,** Underwriters Laboratories Inc., IL [RT]
(Alt. to R. J. Zimmerman)
**Paul W. Moody,** State of Maine, ME [E]
(Alt. to R. V. LeClair)

**Nonvoting**

**Janet Buyer,** Consumer Product Safety Commission, MD [C]

**James D. Lake,** NFPA Staff Liaison

**Committee Scope:** This Committee shall have primary responsibility for documents on fire safety for the construction, installation, and use of chimneys, fireplaces, vents, venting systems, and solid fuel-burning appliances. It also shall be responsible for documents on clearances of heat-producing appliances from combustible materials and terms relating to chimneys, vents, and heat-producing appliances.

*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.



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**NFPA 97**

**Standard Glossary of**

# Terms Relating to Chimneys, Vents, and Heat-Producing Appliances

**2003 Edition**

NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

Changes other than editorial are indicated by a vertical rule beside the paragraph, table, or figure in which the change occurred. These rules are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraphs have been deleted, the deletion is indicated by a bullet (•) between the paragraphs that remain.

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, Annex B lists the complete title and edition of the source documents for both mandatory and nonmandatory extracts. Editorial changes to extracted material consist of revising references to an appropriate division in this document or the inclusion of the document number with the division number when the reference is to the original document. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

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

## Chapter 1 Administration

**1.1 Scope. (Reserved)**

**1.2 Purpose. (Reserved)**

## Chapter 2 Referenced Publications

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

**2.2 NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 54, *National Fuel Gas Code,* 2002 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances,* 2003 edition.

NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials,* 2000 edition.

NFPA 259, *Standard Test Method for Potential Heat of Building Materials,* 2003 edition.

**2.3 Other Publications.**

**2.3.1 ASTM Publications.** American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 396, *Standard Specification for Fuel Oils*, 1995.

ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, 1995.

ASTM E 136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C*, 1994.

**2.3.2 Canadian Government Publication.** Canadian Government Publishing Centre, Ottawa, Canada, K1A 059.

Canadian Government Specification Board, 3-GP-2e, *Heating Fuel Oil.*

**2.3.3 UL Publications.** Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062.

UL 723, *Standard for Safety Test for Surface Burning Characteristics of Building Materials*, 1993.

UL 900, *Standard for Safety for Air Filter Units*, 1994.

## Chapter 3 Definitions

**3.1 General.** The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not included, common usage of the terms shall apply.

**3.2 NFPA Official Definitions.**

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

**3.2.2* Authority Having Jurisdiction (AHJ).** The organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure.

**3.2.3 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.

**3.2.4* 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.

**3.2.5 Shall.** Indicates a mandatory requirement.

**3.3 General Definitions.**

**3.3.1 Accessible.** Having access to but which first may require the removal of a panel, door, or similar covering of the item described. [**54:**3.3]

**3.3.1.1 *Readily Accessible.*** Capable of being reached easily and quickly for operation, adjustment, or inspection, without necessitating those seeking access to climb over or remove obstacles or to resort to the use of items such as portable ladders or chairs.

**3.3.2* Air Change.** A quantity of air, provided through a fuel burner, equal to the volume of furnace and boiler gas passes. *(See also 3.3.163, Purge.)*



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**3.3.3 Air Conditioning.** The treatment of air to control simultaneously its temperature, humidity, purity, and distribution to meet the needs of a conditioned space.

**3.3.3.1** ***Air Conditioning Return System.*** An assembly of connected ducts, air passages or plenums, and fittings through which air from the space or spaces to be conditioned is conducted back to the cooling or heating unit.

**3.3.3.2** ***Air Conditioning Supply System.*** An assembly of connected ducts, air passages or plenums, and fittings through which conditioned air is conducted from the cooling or heating unit to the space or spaces to be conditioned.

**3.3.4 Air Duct.** A conduit or passageway for conveying air to or from heating, cooling, air conditioning, or ventilating equipment, but not including the plenum.

**3.3.5 Air Exhauster.** A fan used to withdraw air from an affected area.

**3.3.6 Air Filter.** Fire Hazard Classification.

**3.3.6.1** ***Class 1 Air Filter.*** An air filter that, when clean, does not contribute fuel when attacked by flame and emits only negligible amounts of smoke when tested in accordance with UL 900, *Standard for Safety for Air Filter Units.*

**3.3.6.2** ***Class 2 Air Filter.*** An air filter that, when clean, burns moderately when attacked by flame or emits moderate amounts of smoke, or both, tested in accordance with UL 900, *Standard for Safety for Air Filter Units.*

**3.3.7 Air Heater.** An indirect-fired appliance intended to supply heated air for space heating and other purposes, but not intended for permanent installation.

**3.3.8 Air Seal.** Air supplied to any device at a significantly higher pressure than the surrounding air for the specified purpose of excluding contamination by the surrounding atmosphere.

**3.3.9 Air Shutter.** An adjustable device for varying the size of the air inlet(s) regulating primary or secondary air.

**3.3.9.1** ***Automatically Operated Air Shutter.*** An air shutter operated by an automatic control.

**3.3.9.2** ***Manually Operated Air Shutter.*** An air shutter manually set and locked in the desired position.

**3.3.10 Alarm.** An audible or visible signal indicating an off-standard or abnormal condition.

**3.3.11 Aluminum-Coated Steel.** Steel in which the bond between the steel and the aluminum is an iron-aluminum alloy.

**3.3.12 Antiflooding Device.** A safety control that causes the flow of (liquid) fuel to be shut off when a rise in fuel level occurs or when excess fuel is received, and that operates before the hazardous discharge of fuel can occur.

**3.3.13 Appliance.** Utilization equipment, generally other than industrial, normally built in standardized sizes or types, that is installed or connected as a unit to perform one or more functions such as clothes washing, air conditioning, food mixing, deep frying, etc. [**73:**1.4]

**3.3.13.1** ***Attic-Type Heating Appliance.*** A heating appliance designed specifically for installation in an attic or in a space with low headroom that normally is unoccupied.

**3.3.13.2** ***Automatically Lighted Fuel-Burning Appliance.*** A fuel-burning appliance in which fuel to the main burner is normally turned on and ignited automatically.

**3.3.13.3** ***Building Heating Appliance.*** A fuel-burning or electric boiler operating at a gauge pressure not over 345 kPa (50 psi), a central furnace, or a heater intended primarily for heating spaces having a volume exceeding 708 $m^3$ (25,000 $ft^3$).

**3.3.13.4** ***Central Heating Appliance.*** A stationary heating appliance comprising the following: boilers, central furnaces, floor furnaces, and wall furnaces. A floor-mounted unit heater to be connected to a duct system also is classified as a central heating appliance.

**3.3.13.5** ***Cooking Appliance (Floor-Mounted Restaurant-Type).*** A range, oven, broiler, or other miscellaneous cooking appliance, designated for use in hotel and restaurant kitchens and for mounting on the floor.

**3.3.13.6** ***Counter Appliance (Gas).*** Appliances such as gas-operated coffee brewers and coffee urns and any appurtenant water-heating equipment, food and dish warmers, hot plates, and griddles.

**3.3.13.7** ***Factory-Built Appliance.*** A manufactured appliance furnished by the manufacturer as a single assembly or as a package set of subassemblies or parts, and including all the essential components necessary for it to function normally where installed as intended.

**3.3.13.8** ***Nonresidential Appliance.***

**3.3.13.8.1** ***Nonresidential Appliance 760°C (1400°F).*** A commercial, industrial, or institutional appliance needing a chimney capable of withstanding a continuous flue gas temperature not exceeding 760°C (1400°F).

**3.3.13.8.2** ***Nonresidential High-Heat Appliance.*** A commercial, industrial, or institutional appliance needing a chimney capable of withstanding a continuous flue gas temperature exceeding 982°C (1800°F).

**3.3.13.8.3** ***Nonresidential Low-Heat Appliance.*** A commercial, industrial, or institutional appliance needing a chimney capable of withstanding a continuous flue gas temperature not exceeding 538°C (1000°F).

**3.3.13.8.4** ***Nonresidential Medium-Heat Appliance.*** A commercial, industrial, or institutional appliance needing a chimney capable of withstanding a continuous flue gas temperature not exceeding 982°C (1800°F).

**3.3.13.9** ***Portable Appliance.*** An appliance that is actually moved or can easily be moved from one place to another in normal use. [**70:**550.2]

**3.3.13.10** ***Residential-Type Heating Appliance.*** Fuel-burning and electric heating appliances, not including high-pressure steam boilers, for heating building spaces having a volume of not more than 708 $m^3$ (25,000 $ft^3$), and other heat-producing appliances of the type mainly used in residences but that might be used in other buildings, such as cooking stoves and ranges, clothes dryers, fireplace stoves, domestic incinerators, laundry stoves, water heaters, and heat pumps.

**3.3.14 Appliance Branch Fuel Piping.** Any run of piping or tubing and its fittings, not part of an appliance, that is used to convey fuel from the main piping manifold to a heat-producing appliance.



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**3.3.15 Appliance Casing (or Jacket).** An enclosure forming the outside of the appliance.

**3.3.16 Appliance Flue.** See 3.3.87.1.

**3.3.17 Ash.** The solid residue that remains after combustion is complete.

**3.3.18 Ash Receptacle Door.** A door below the grade level providing access to the ash receptacle.

**3.3.19 Atmospheric Tank.** A storage tank that has been designed to operate at gauge pressures from atmospheric through 3.45 kPa (0.5 psi).

**3.3.20 Atomizing Medium.** A supplementary fluid, such as steam or air, that assists in breaking down oil into a finely divided state.

**3.3.21 Automatic Electric Igniter.** A device for fuel burners designed to utilize electric energy for ignition of a fuel–air mixture at the burner.

**3.3.22 Baffle.** An object placed in an appliance to change the direction of, or to retard, the flow of air, air–fuel mixtures, or flue gases.

**3.3.23 Barometric Draft Regulator.** A device built into a fuel-burning appliance, or made a part of a chimney connector or vent connector, that functions to reduce excessive draft through an appliance to a desired value by admitting ambient air into the appliance chimney, chimney connector, vent, or vent connector.

**3.3.24 Base.** The main supporting frame or structure of an assembly, exclusive of its legs.

**3.3.25 Blower.** A fan used to force air under pressure into an affected area.

**3.3.26 Body.** The principal structure of an appliance, including the supporting frame.

**3.3.27 Boiler.** A closed vessel in which water is heated, steam is generated, steam is superheated, or in which any combination thereof takes place by the application of heat from combustible fuels, in a self-contained or attached furnace.

**3.3.27.1** ***Combination-Fuel Boiler.*** A single boiler unit designed to burn more than one type of fuel (gas, oil, or solid), either separately or simultaneously, using either separate or common combustion chambers and flues.

**3.3.27.2** ***High-Pressure Boiler.*** A boiler for generating steam at gauge pressures in excess of 103 kPa (15 psi), or for heating water to a temperature in excess of 121°C (250°F) or at a gauge pressure in excess of 1103 kPa (160 psi).

**3.3.27.3** ***Hot Water Supply Boiler.*** A low-pressure hot water boiler having a volume exceeding 454 L (120 gal), or a heat input exceeding 58.6 kWh (200,000 Btu/hr), or an operating temperature exceeding 93°C (200°F) that provides hot water to be used outside the boiler.

**3.3.27.4** ***Low-Pressure Boiler.*** A boiler for generating steam at gauge pressures not in excess of 103 kPa (15 psi) or for furnishing water at a maximum temperature of 121°C (250°F) at a maximum gauge pressure of 1103 kPa (160 psi).

**3.3.27.5** ***Supplementary Boiler.*** A boiler designed to burn one type of fuel (gas, oil, or solid) that is intended for supplementing a boiler burning another type of fuel (gas, oil, or solid) by means of a common heat transfer medium.

**3.3.28 Bond.** Where referring to bricklaying and masonry chimneys, that connection between brick, stone, or other masonry units formed by lapping them upon one another in carrying up the work, thereby forming an inseparable mass.

**3.3.29 Breeching.** The conduit conveying flue gas from the appliance to the chimney.

**3.3.30 Btu.** Abbreviation for British thermal unit. The quantity of heat needed to raise the temperature of 1 lb of water 1°F.

**3.3.31 Burner.**

**3.3.31.1** ***Automatically Ignited Burner.*** A burner equipped so that the main burner fuel can be turned on and ignited automatically.

**3.3.31.2** ***Combination Gas–Oil Burner.*** A burner designed to burn either gas or oil, or both simultaneously.

**3.3.31.3** ***Conversion Gas Burner.*** A burner designed to burn gas in an appliance originally designed to utilize another fuel.

**3.3.31.4** ***Dual Fuel Burner.*** A burner designed to burn either gas or oil, but not both simultaneously.

**3.3.31.5** ***Manually Ignited Burner.*** A burner equipped so that the main burner fuel is turned on only by hand and ignited under supervision.

**3.3.31.6** ***Mechanical Draft–Type Burner.*** A burner that includes a power-driven fan, blower, or other mechanism as the primary means for supplying the air for combustion.

**3.3.31.7** ***Natural Draft–Type Burner.*** A burner that depends primarily on the natural draft created in the chimney or venting system to induce the air needed for combustion into the burner.

**3.3.32 Central Warm-Air Heating System.** A heating system consisting of a heat exchanger with an outer casing or jacket, a solar collection system, or an electric heating unit that is connected to a supply system and a return system. [**90B:**3.3]

**3.3.33 Centralized Oil Distribution System.** A system of piping through which oil is supplied from a remote central supply tank or tanks to one or more buildings, mobile homes, recreational vehicles, or other structures.

**3.3.34 Chimney.** A structure containing one or more vertical or nearly vertical passageways for conveying flue gases to the outside atmosphere. [**211:**1.5]

**3.3.34.1** ***Factory-Built 760°C (1400°F) Type Chimney.*** A chimney suitable for continuous use at 760°C (1400°F), composed of listed, factory-built components, intended for open, nonenclosed use at specified minimum clearances to combustibles and for use in noncombustible locations, and assembled in accordance with the terms of the listing to form the completed chimney.

**3.3.34.2** ***Factory-Built Building Heating Appliance–Type Chimney.*** A heating appliance chimney suitable for continuous use at 538°C (1000°F), composed of listed, factory-built components, designed for open, nonenclosed use at specified minimum clearances to combustibles, and assembled in accordance with the terms of the listing to form the completed chimney.

**3.3.34.3** ***Factory-Built Masonry Chimney.*** A field-constructed chimney of solid masonry units, bricks, stones, listed masonry chimney units, or reinforced portland cement concrete that is lined with suitable chimney flue liners and



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built in accordance with of NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances.*

**3.3.34.4** ***Factory-Built Medium-Heat Appliance–Type Chimney.*** A chimney used with appliances that produce maximum flue gas temperatures of 982°C (1800°F), composed of listed, factory-built components, suitable for open, nonenclosed use at specified minimum clearances to combustibles, and assembled in accordance with the terms of the listing to form the completed chimney.

**3.3.34.5** ***Factory-Built Residential Type and Building Heating Appliance–Type Chimney.*** A chimney suitable for continuous use at 538°C (1000°F), composed of listed, factory-built components that might be fully enclosed in combustible, residential-type construction, and that is assembled in accordance with the terms of the listing to form the completed chimney.

**3.3.34.6** ***Factory-Built Unlisted Metal Chimney (Smokestack).*** A manufactured or field-constructed chimney intended only for nonresidential applications having one or more metal walls, or made of metal with a refractory lining, and that is capable of withstanding the flue gas conditions of its use.

**3.3.35 Chimney Cap.** A protective covering or housing for the top of a chimney, intended to prevent the entry of rain, snow, animals, and birds, and to prevent downdrafts.

**3.3.36 Chimney Connector.** The pipe that connects a fuel-burning appliance to a chimney.

**3.3.37 Chimney Connector–Type Heat Reclaimer.** A heat exchanger intended to be installed in a chimney connector between a heating appliance and the chimney to transfer heat from the flue gases through metal to air or water.

**3.3.38 Chimney Flue Base (Base of Flue).** The lowest point of a flue within a chimney.

**3.3.39 Cleanout Opening.** An opening or hole in a chimney, usually located near its base, designed to allow access to the flue for purposes of removing ash, creosote, soot, and other extraneous matter that becomes trapped.

**3.3.40 Clearance.** The distance between a heat-producing appliance, chimney, chimney connector, vent, vent connector, or plenum and other surfaces.

**3.3.41 Closed Water Piping System.** A system of water piping where a check valve or other device prevents the free return of water or steam to the water main.

**3.3.42 Clothes Dryer.** A device used to dry wet laundry by means of heat derived from the combustion of fuel or from electric heating elements.

**3.3.42.1** ***Type 1 Clothes Dryer.*** A factory-built, mass-produced dryer, primarily used in a family living environment. It might or might not be coin-operated for public use and usually is the smallest unit both physically and in function.

**3.3.42.2** ***Type 2 Clothes Dryer.*** A factory-built, mass-produced dryer used in a commercial business. It might or might not be operated by the public or a hired attendant. It might or might not be coin-operated and is not designed for use in an individual family living environment. It can be small, medium, or large in size.

**3.3.43 Combustible Gas or Vapor Detector.** An instrument for determining the concentration of combustible gas or vapor in the air.

**3.3.44 Combustible Material.** Material made of or surfaced with wood, compressed paper, plant fibers, plastics, or other material that can ignite and burn, whether flameproofed or not, or whether plastered or unplastered.

**3.3.45 Combustion.** A chemical process of oxidation that occurs at a rate fast enough to produce heat and usually light in the form of either a flow or flame.

**3.3.45.1** ***Complete Combustion.*** The complete oxidation of a fuel.

**3.3.45.2** ***Incomplete Combustion.*** Burning with an insufficient supply of air so that the burning substance is only partially consumed and could be burned further with an additional air supply.

**3.3.46 Combustion Air.** The air necessary to provide for the complete combustion of fuel and usually consisting of primary air, secondary air, and excess air.

**3.3.46.1** ***Excess Combustion Air.*** Air supplied for combustion in excess of theoretical air.

**3.3.46.2** ***Primary Combustion Air.*** The air introduced into a burner that mixes with the fuel before it reaches the ignition zone.

**3.3.46.3** ***Secondary Combustion Air.*** The air externally supplied to the flame in the combustion zone.

**3.3.46.4** ***Theoretical Combustion Air.*** The chemically correct amount of air necessary for complete combustion of a given quantity of a specific fuel.

**3.3.47 Combustion Chamber.** That portion of an appliance within which combustion occurs.

**3.3.48 Combustion Detector.** That part of a primary safety control that is responsive directly to flame properties.

**3.3.49 Combustion Products.** Constituents resulting from the combustion of a fuel with the oxygen in the air, including the inerts but excluding excess air.

**3.3.50 Combustion Safeguard.** See 3.3.58.7, Nonrecycling-Type Primary Safety Control; 3.3.58.9, Primary Safety Control; 3.3.58.10, Recycling-Type Primary Safety Control; 3.3.58.11, Relight-Type Primary Safety Control.

**3.3.51 Combustion Tests.** The sampling of combustion products to determine the percentage of constituents and the temperature of same above ambient.

**3.3.52 Combustion Volume.** The space necessary for the satisfactory burning of a fuel.

**3.3.53 Condensate (Condensation).** The liquid that separates from a gas (including flue gases) due to a reduction in temperature or increase in pressure. [**54:**3.3]

**3.3.54 Condenser.** A piece of equipment that lowers the temperature of a vapor to the point where it changes to a liquid.

**3.3.55 Confined Space.** A space whose volume is less than 1.42 $m^3$/293 W (50 $ft^3$/1000 Btu/hr) of the aggregate input rating of all appliances installed in that space.

**3.3.56 Connected Loads.** The sum of the rated Btu input to individual appliances connected to a piping system.

**3.3.57 Constant-Level Valve.** See 3.3.206.3.



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**3.3.58 Control.** A device designed to regulate the fuel, air, water, or electrical supply to the controlled equipment and that can be automatic, semiautomatic, or manual.

**3.3.58.1** ***Automatic Control.*** A control having a self-acting or self-regulating mechanism that performs a necessary function at a predetermined point in an operation.

**3.3.58.2** ***Fan Control.*** An automatic control that responds to changes in temperature and is intended to control the operation of the fan on forced-air appliances.

**3.3.58.3** ***High-/Low-Firing Input (Combustion) Control.*** The action of a combustion control that positions the air and fuel supply for low and high firing in accordance with load demand.

**3.3.58.4** ***Input (Combustion) Control.*** A control that automatically regulates the firing rate at a predetermined air–fuel ratio in accordance with load demand.

**3.3.58.5** ***Limit Control.*** An automatic safety control that responds to changes in fluid flow or level, pressure, or temperature, which is normally set beyond the operating range to limit the operation of the controlled equipment by shutting off the energy supply.

**3.3.58.6** ***Modulating Input (Combustion) Control.*** The action of a combustion control that gradually varies the air and fuel supplies within the specified limits of the load demand.

**3.3.58.7** ***Nonrecycling-Type Primary Safety Control (Combustion Safeguard).*** A primary safety control that, upon accidental flame failure during a normal firing cycle, causes a safety shutdown.

**3.3.58.8** ***Operating Control.*** A control, other than a safety control or interlock, used to start or regulate burner firing according to load demand and to stop or regulate firing on satisfaction of demand or upon reaching normal temperature or pressure in the appliances being fired. Operating controls also might be used to actuate auxiliary equipment.

**3.3.58.9** ***Primary Safety Control (Combustion Safeguard).*** A safety control that responds directly to flame properties, that senses the presence or absence of flame, and that, in the event of ignition failure or unintentional flame extinguishment, causes safety shutdown.

**3.3.58.10** ***Recycling-Type Primary Safety Control (Combustion Safeguard).*** A primary safety control for automatically lighted burners that, upon accidental flame failure during a normal firing cycle and the subsequent shutoff of main burner fuel, provides one attempt to automatically light the main burner after a preestablished shutdown period and under a normal starting program.

**3.3.58.11** ***Relight-Type Primary Safety Control (Combustion Safeguard).*** A primary safety control providing interrupted ignition for automatically lighted burners that, upon accidental flame failure during a normal firing cycle, will cause the ignition energy to be restored in not more than 0.8 second; then, if the main burner flame is not established, causes a safety shutdown.

**3.3.58.12** ***Safety Control.*** Automatic controls (including relays, switches, and other auxiliary equipment used in conjunction to form a safety control system) that are intended to prevent unsafe operation of the controlled equipment.

**3.3.59 Corbel.** Units of masonry projecting from or projecting upward and outward from the face of a wall or chimney in courses to form a support or ledge for a beam, rafter, or other member.

**3.3.60 Cubic Foot of Gas.** The amount of gas that occupies 0.0283 $m^3$ (1 $ft^3$) when at a temperature of 16°C (60°F), saturated with water vapor and under a pressure equivalent to 101 kPa (30 in. of mercury).

**3.3.61 Damper.** A valve or plate for controlling draft or the flow of gases, including air.

**3.3.61.1** ***Automatically Operated Damper.*** A damper operated by an automatic control.

**3.3.61.2** ***Fire Damper.*** A damper arranged to seal off airflow automatically through part of an air duct system to restrict the passage of heat. A fire damper also can be used as a smoke damper, provided the location lends itself to the dual purpose.

**3.3.61.3** ***Flue Gas Damper.*** A damper located on the downstream side of the combustion chamber of a fuel-burning appliance, usually in a flue passage of the appliance or in the chimney or vent connector.

**3.3.61.4** ***Manually Operated Damper.*** An adjustable damper manually set and locked in the desired position.

**3.3.61.5** ***Smoke Damper.*** A damper arranged to seal off airflow automatically through a part of an air duct system, to restrict the passage of smoke. A smoke damper also can be a standard louvered damper serving other control functions, provided the location lends itself to the dual purpose. A smoke damper is not required to meet all the design functions of a fire damper.

**3.3.62 Deep-Fat Fryer (Restaurant-Type).** An appliance including a cooking vessel in which oils or fats are placed at such a depth that the cooking food is essentially supported by displacement of the cooking fluid rather than by the bottom of the vessel and designed primarily for use in hotels, restaurants, clubs, and similar institutions.

**3.3.63 Design Working Pressure.** The maximum allowable working pressure for which a specific part of a system is designed.

**3.3.64 Dilution Air.** The air that enters the relief opening of a draft hood or draft diverter, or the air that enters another opening in an appliance flue or venting system.

**3.3.65 Direct Electric Ignition.** The ignition of a main-burner flame by an electric ignition source such as a high-voltage spark or hot wire.

**3.3.66 Direct Vent Appliance (Sealed Combustion System Appliance).** A system consisting of an appliance, combustion air and flue gas connections between the appliance and the outside atmosphere, and a vent cap supplied by the manufacturer, and constructed so that all air for combustion is obtained from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

**3.3.67 Direct-Fired Appliance.** A fuel-burning appliance in which the products of combustion (flue gases) are mixed with the medium (e.g., air) being heated.

**3.3.68 Direct-Fired Oven.** An oven in which the products of combustion from fuel burning flow through the oven compartment.



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**3.3.69 Diversity Factor.** The ratio of the maximum probable demand to the maximum possible demand.

**3.3.70 Draft.** The pressure differential that causes the flow of air or gases through a chimney, gas vent, or venting system.

**3.3.70.1** ***Mechanical Draft.*** Draft produced by a fan or an air or steam jet. When a fan is located so as to push the flue gases through the chimney or vent, the draft is forced. When the fan is located so as to pull the flue gases through the chimney or vent, the draft is induced.

**3.3.70.2** ***Natural Draft.*** Draft produced by the difference in the weight of a column of flue gases within a chimney or vent and a corresponding column of air of equal dimension outside the chimney or vent.

**3.3.71 Draft Hood.** A device built into an appliance, or made a part of the vent connector from an appliance, that is designed (1) to provide for the ready escape of the flue gases from the appliance in the event of no draft, backdraft, or stoppage beyond the draft hood, (2) to prevent a backdraft from entering the appliance, and (3) to neutralize the effect of stack action of the chimney or gas vent upon the operation of the appliance.

**3.3.72 Draft Hood Relief Opening.** The opening provided in a draft hood to allow the ready escape to the atmosphere of the flue gases in the event of no draft, backdraft, or stoppage beyond the draft hood, and to allow the inspiration of air into the draft hood to neutralize strong chimney or vent updraft.

**3.3.73 Drip.** A container placed at a low point in a system of piping to collect condensate and from which the condensate can be removed.

**3.3.74 Duct System.** A continuous passageway for the transmission of air that, in addition to ducts, might include duct fittings, dampers, plenums, fans, and accessory air-handling equipment.

**3.3.75 Electrical Circuits.**

**3.3.75.1** ***Isolated Limited Secondary Electrical Circuits.*** A circuit of limited energy derived from an isolated secondary winding of a transformer having a maximum capacity of 100 volt-amperes and an open-circuit secondary voltage rating not exceeding 1000 volts.

**3.3.75.2** ***Line-Voltage Electrical Circuits.*** A circuit involving a potential of not more than 600 volts and having circuit characteristics in excess of those of low-voltage and isolated limited secondary circuits.

**3.3.75.3** ***Low-Voltage Electrical Circuits.*** A circuit involving a potential of not more than 30 volts and supplied by a primary battery or by a standard Class 2 transformer; or by a suitable combination of transformer and fixed impedance that, as a unit, complies with all the performance requirements for a Class 2 transformer. (A circuit derived from a supply source classified as a line-voltage circuit, by connecting resistance in series with the supply circuit as a means of limiting the voltage and current, is neither considered to be a low-voltage nor an isolated secondary circuit.)

**3.3.76 Electrical Diagram.**

**3.3.76.1** ***Connection Diagram.*** A diagram that shows the connections of an installation or its component devices or parts. It can cover internal or external connections, or both, and contains such detail as is needed to make or trace connections that are involved. The connection diagram usually shows the general physical arrangement of the component devices or parts.

**3.3.76.2** ***Ladder-Form Schematic.*** A diagram drawn in the form of a vertical ladder, in which the outer vertical lines represent the electrical supply conductors, and the horizontal steps represent each individual circuit with all component devices.

**3.3.76.3** ***Schematic.*** A diagram that shows, by means of graphic symbols, the electrical connections and functions of a specific circuit arrangement. The schematic diagram facilitates tracing the circuit and its functions without regard to the actual physical size, shape, or location of the component device or parts.

**3.3.77 Electrical Enclosure.** A case enclosing electrical equipment and wiring that is designed expressly to prevent (1) a person from accidentally contacting uninsulated live parts, (2) burning or molten materials from contacting adjacent combustible materials or falling onto combustible materials, (3) conductive or combustible materials from dropping onto uninsulated live parts, and (4) mechanical abuse of electrical equipment not designed or approved to withstand the intended normal use without such additional enclosure.

**3.3.78* Engineered Venting or Chimney System.** A system that has been sized and configured in accordance with approved engineering methods.

**3.3.79 Equivalent Length of Pipe.** The resistance of valves, controls, and fittings to flow, expressed as an equivalent length of straight pipe for convenience in calculating pipe sizes.

**3.3.80 Fan.** A blower or exhauster assembly comprising blades or runners and housings or casings.

**3.3.81 Fireplace.** A hearth, fire chamber, or similarly prepared area and a chimney.

**3.3.81.1** ***Factory-Built Fireplace.*** A fireplace composed of listed, factory-built components assembled in accordance with the terms of the listing.

**3.3.81.2** ***Masonry Fireplace.*** A hearth and fire chamber of solid masonry units, such as bricks, stones, listed masonry units, or reinforced concrete, provided with a suitable chimney.

**3.3.82 Fireplace Stove.** A freestanding, chimney-connected, solid fuel–burning appliance that is designed to be operated with the fire chamber either open or closed.

**3.3.83 Flame Safeguard.** See 3.3.58.9, Primary Safety Control.

**3.3.84 Flame Spread Rating.** A relative measurement of the surface burning characteristics of building materials when tested in accordance with NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials.*

**3.3.85 Flame-Failure Response Time.** The interval between the occurrence of flame extinguishment and the de-energizing of the safety shutoff means.

**3.3.86 Floor Protector.** A noncombustible surfacing applied to the floor area underneath and extending in front, to the sides, and to the rear of a heat-producing appliance.



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**3.3.87 Flue.** The general term for a passage through which flue gases are conveyed from the combustion chamber to the outer air.

**3.3.87.1** ***Appliance Flue.*** The flue passage within an appliance.

**3.3.87.2** ***Chimney Flue.*** The passage in a chimney for conveying the flue gases to the outside atmosphere.

**3.3.87.3** ***Dilution Flue.*** A passage designed to effect the dilution of flue gases with air before discharge from an appliance.

**3.3.88 Flue Collar.** That portion of an appliance designed for attachment of a chimney or vent connector or a draft hood.

**3.3.89 Flue Gases.** Combustion products from fuel-burning appliances along with excess air.

**3.3.90 Flush-to-Wall–Type Range.** A range designed for installation in direct contact with back and side walls without spacing means.

**3.3.91 Fuel Gases.** Any gas used as a fuel source, including natural gas, manufactured gas, sludge gas, liquefied petroleum gas–air mixtures, liquefied petroleum gas in the vapor phase, and mixtures of these gases. See NFPA 54, *National Fuel Gas Code*.

**3.3.91.1** ***Liquid Petroleum Fuel Gases.*** Material composed predominantly of any of the following hydrocarbons, or mixtures of them: propane, propylene, butanes (normal butane or iso-butane), and butylenes.

**3.3.91.2** ***LP-Gas–Air Mixture Fuel Gases.*** Liquefied petroleum gases distributed at relatively low pressures and normal atmospheric temperatures that have been diluted with air to produce desired heating value and utilization characteristics.

**3.3.91.3** ***Manufactured Fuel Gases.*** A mixture of gases usually composed of various proportions of some of the following: (1) coal gas — formed by distillation or cracking of bituminous coal, (2) coke-oven gas — produced in a similar manner as a by-product in the manufacture of coke, (3) carbureted water gas — formed by flowing steam through incandescent carbon, (4) oil gas — made by "cracking" petroleum oils.

**3.3.91.4** ***Natural Fuel Gases.*** A mixture of gases, principally methane and ethane, obtained from gas wells and from which less volatile hydrocarbons such as propane and butane have been removed, leaving a mixture of gases that will remain in the gaseous state at all pressures and temperatures encountered in the distribution system.

**3.3.92 Fuel Meter.** An instrument installed to measure the volume of fuel delivered through it.

**3.3.93 Fuel Oil.** Any hydrocarbon oil as specified by ASTM D 396, *Standard Specification for Fuel Oils*, or the Canadian Government Specification Board, 3-GP-2e, *Heating Fuel Oil*, and having a minimum flash point of 38°C (100°F).

**3.3.94 Fuel Strainer.** A device to remove foreign matter from fuel.

**3.3.94.1** ***Primary Fuel Strainer.*** The strainer through which all fuel first passes on its way to a burner, located upstream from any other strainer.

**3.3.94.2** ***Secondary Fuel Strainer.*** A strainer downstream from the primary strainer, interposed in the fuel line between the primary strainer and the point at which fuel is delivered for combustion.

**3.3.95 Furnace.**

**3.3.95.1** ***Central Warm-Air Furnace.*** A self-contained indirect-fired or electrically heated appliance designed to supply heated air through ducts to spaces remote from or adjacent to the appliance location.

**3.3.95.2** ***Central Warm-Air Forced-Air Furnace.*** A central furnace equipped with a blower that provides the primary means for the circulation of air.

**3.3.95.3** ***Central Warm-Air Forced-Air, Attic-Type Furnace.*** A forced-air–type furnace designed specifically for installation in an attic or in a space with low headroom that is normally unoccupied.

**3.3.95.4** ***Central Warm-Air Forced-Air, Downflow-Type Furnace.*** A forced-air–type furnace designed with airflow essentially in a vertical path, discharging air at or near the bottom of the furnace.

**3.3.95.5** ***Central Warm-Air Forced-Air, Horizontal-Type Furnace.*** A forced-air–type furnace designed with airflow through the furnace essentially in a horizontal path.

**3.3.95.6** ***Central Warm-Air Forced-Air, Upflow-Type Furnace.*** A forced-air–type furnace designed with airflow essentially in a vertical path, discharging air at or near the top of the furnace.

**3.3.95.7** ***Central Warm-Air Gravity-Type Furnace.*** A central furnace depending primarily on circulation of air by gravity.

**3.3.95.8** ***Central Warm-Air Gravity-Type Furnace with Booster Fan.*** A central furnace equipped with a booster fan that does not materially restrict free circulation of air by gravity flow when such a fan is not in operation.

**3.3.95.9** ***Central Warm-Air Gravity-Type Furnace with Integral Fan.*** A central furnace equipped with a fan as an integral part of its construction and operable on gravity systems only, where the fan is used only to overcome the internal resistance to airflow.

**3.3.95.10** ***Combination-Fuel Furnace.*** A single furnace unit designed to burn more than one type of fuel (gas, oil, or solid), either separately or simultaneously, using either separate or common combustion chambers and flues.

**3.3.95.11** ***Duct Furnace.*** A central furnace designed for installation in a duct of an air distribution system to supply warm air for heating and that depends on a blower not furnished as part of the furnace for air circulation.

**3.3.95.12** ***Floor Furnace.*** A self-contained indirect-fired or electrically heated furnace designed to be suspended from the floor of the space to be heated. A fuel-burning floor furnace is designed to take air for combustion from outside the space being heated and is provided with means for observing the flame and lighting the appliance from such space.

**3.3.95.12.1** ***Fan-Type Floor Furnace.*** A floor furnace equipped with a blower that provides the primary means for circulation of air.

**3.3.95.12.2** ***Gravity-Type Floor Furnace.*** A floor furnace depending primarily on circulation of air by gravity. This classification also includes floor furnaces equipped with booster-type fans that do not materially restrict free circulation of air by gravity flow when such fans are not in operation.



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**3.3.95.13** ***Supplementary Furnace.*** A furnace designed to burn one type of fuel (gas, oil, or solid) that is intended for supplementing a central warm-air furnace burning another type of fuel (gas, oil, or solid) by means of a common warm-air supply plenum.

**3.3.96 Gallon of Oil.** The amount of oil that will occupy 3.785 L (1 gal) [3.79 $dm^3$ (231 $in.^3$)] at a temperature of 16°C (60°F).

**3.3.97 Gas Appliance Connector.** A listed product used to connect a gas appliance to the building gas supply.

**3.3.98 Gas Meter Set Assembly.** The piping and fittings installed by the serving gas supplier to connect the inlet side of the meter to the gas service and to connect the outlet side of the meter to the customer's house or yard piping.

**3.3.99 Gas Pressure Regulator.** A device, either adjustable, nonadjustable, or convertible, for controlling and maintaining a uniform outlet gas pressure.

**3.3.99.1** ***Adjustable, Spring-Type, Limited Adjustment Gas Pressure Regulator.*** A regulator in which the regulating force acting on the diaphragm is derived principally from a spring, the loading of which is adjustable over a range of not more than 249 Pa (1.0 in.) water outlet pressure.

**3.3.99.2** ***Adjustable, Spring-Type, Standard Adjustment Gas Pressure Regulator.*** A regulator in which the regulating force acting on the diaphragm is derived principally from a spring, the loading of which is adjustable.

**3.3.99.3** ***Convertible Gas Pressure Regulator.*** A regulator whose adjustment means can be positioned from one predetermined outlet pressure setting to another predetermined outlet pressure setting, with no intermediate pressure setting and without addition, deletion, or substitution of parts.

**3.3.99.4** ***Nonadjustable, Spring-Type Gas Pressure Regulator.*** A regulator in which the regulating force acting on the diaphragm is derived principally from a spring, the loading of which is not adjustable.

**3.3.99.5** ***Nonadjustable, Weight-Type Gas Pressure Regulator.*** A regulator in which the regulating force acting on the diaphragm is derived from a weight or combinations of weights.

**3.3.100 Gas–Air Mixer.** A device for mixing gas and air in any desired proportion.

**3.3.100.1** ***Air Jet Gas–Air Mixer.*** A mixer using the kinetic energy of a stream of air issuing from an orifice to entrain the gas necessary for combustion. In some cases, this type of mixer is designed to entrain some of the air for combustion as well as gas.

**3.3.100.2** ***Atmospheric Inspirator Gas–Air Mixer.*** A mixer using the kinetic energy of a jet of gas issuing from an orifice to entrain all or part of the air necessary for combustion. If gas for the jet is available at the spud at gauge pressures below 6.9 kPa (1 psi), the mixer is defined as a "low-pressure atmospheric inspirator" mixer; if at gauge pressure 6.9 kPa (1 psi) or above, the mixer is designated as a "high-pressure atmospheric inspirator."

**3.3.100.3** ***Automatic Gas–Air Mixer.*** A mixer that automatically maintains within its rated capacity a substantially constant air/gas ratio at varying rates of flow. All types defined under Gas–Air Mixer can be designed to fit this classification.

**3.3.100.4** ***Manual Gas–Air Mixer.*** A mixer that needs manual adjustments to maintain the desired air/gas ratio as rates of flow are changed.

**3.3.100.5** ***Mechanical Gas–Air Mixer.*** A mixer using mechanical means to mix gas and air, neglecting entirely any kinetic energy in the gas and air, and compressing the resultant mixture to a pressure suitable for delivery to its point of use. A mixer in this group utilizes either a centrifugal fan or some other type of mechanical compressor with a proportioning device on its intake through which gas and air are drawn by the fan or compressor suction. The proportioning device can be automatic or can necessitate manual adjustment to maintain the desired air/gas ratio as rates of flow are changed.

**3.3.101 Gas-Fired Illuminating Appliance.** A gas appliance designed for illumination.

**3.3.102 Header.** Where referring to chimneys, a beam set at right angles to floor or roof joists to provide support and framing around the opening.

**3.3.103 Hearth.** The floor area within the fire chamber of a fireplace or a fireplace stove.

**3.3.104 Hearth Extension.** The noncombustible surfacing applied to the floor area extending in front of and at the sides of the hearth opening of a fireplace or a fireplace stove; also where applied to the floor area beneath a fireplace stove or beneath an elevated overhanging fireplace hearth.

**3.3.105 Heat Exchanger.** A chamber in which heat resulting directly from the combustion of fuel, or heat from a medium such as air, water, or steam, is transferred through the walls of the chamber to air passing through the exchanger; or a chamber in which heat from electric resistors is transferred to the air.

**3.3.105.1** ***Direct Heat Exchanger.*** A heat exchanger in which heat generated in the combustion chamber of an appliance is transferred directly through the walls of the appliance to a heating medium (such as air, steam, or water) held in close contact with the combustion chamber walls. It is a self-contained combustion and heat-transfer device and, therefore, a direct heat-transfer device.

**3.3.105.2** ***Indirect Heat Exchanger.*** A heat exchanger that encloses or contains a heating medium (such as air, electric resistors, steam, or water), the heat from which is transferred to another heating medium separately contained in close contact with or directed through the heat exchanger. It is an indirect heat-transfer device.

**3.3.106 Heat Pump.** A refrigeration system arranged to accomplish either heating or heating and cooling. [**90B:**3.3]

**3.3.107 Heating Surfaces.** All surfaces of a heat exchanger that transmit heat from flames, flue gases, or a heating medium to another medium to be heated.

**3.3.108 Heat-Producing Appliance.** An appliance that produces heat by utilizing electric energy or by burning fuel.

**3.3.109 High Gas Pressure Switch.** A pressure-actuated device that is arranged to effect a safety shutdown or to prevent starting when the gas pressure exceeds the preset value.

**3.3.110 High Steam Pressure Switch.** A pressure-actuated device that is arranged to effect a normal burner shutdown when the steam pressure exceeds a preset pressure.



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**3.3.111 Hot Plate (Domestic).** An appliance consisting of one or more open-top–type burners or electric elements mounted on short legs or a base.

**3.3.112 Igniter.** A device that provides energy to ignite a pilot or main burner immediately.

**3.3.112.1** ***Continuous Igniter.*** An igniter that is continuously maintained at ignition temperature for the entire time the burner is in service, whether or not the main burner is firing.

**3.3.112.2** ***Intermittent Igniter.*** An igniter that is automatically energized each time the main burner is to be fired, and where ignition is maintained during the entire period that the main burner is firing.

**3.3.112.3** ***Interrupted Igniter.*** An igniter that is automatically energized each time the main burner is to be fired, and where ignition is maintained during the main-burner flame-establishing period and then is automatically cut off.

**3.3.112.4** ***Manual Igniter.*** An ignition device or source that is manually energized and for which the fuel to the main burner is turned on only by hand and ignited under the supervision of the operator.

**3.3.112.5** ***Proved Igniter.*** An igniter that is supervised by a primary safety control that senses the presence of energy for ignition prior to allowing the main-burner fuel to be delivered to the combustion zone.

**3.3.112.6** ***Unproved Igniter.*** An igniter assumed to be energized during the main-burner flame-establishing period.

**3.3.113 Incinerator.** An appliance or combustion chamber for the reduction, by burning, of rubbish, garbage, and other wastes.

**3.3.113.1** ***Chute-Fed Incinerator (Class IIA).*** An incinerator designed specifically to be fed refuse from one or more floors above the incinerator directly into the incinerator by a separate chute constructed with a positive means to avoid penetration by smoke or fumes and connected directly over the primary combustion chamber. The incinerator is built with a primary and secondary combustion chamber and a settling chamber. It can include a flue gas washer or scrubber. A separate chimney serves to convey the combustion gases to the outdoors. This class of incinerator is suitable for Type 1 and Type 2 wastes. It generally is used in residential and institutional buildings, including apartments, clubs, dormitories, churches, schools, and other occupancies where Type 1 and Type 2 wastes are to be incinerated.

**3.3.113.2** ***Commercial-Industrial–Type Incinerator (Classes III, IV, V, VI, and VII).*** An incinerator having a charging capacity in excess of 0.142 $m^3$ (5 $ft^3$) and suitable for a variety of wastes as follows: (1) Class III — Waste Type 0, Type 1, or Type 2; (2) Class IV — Waste Type 3; (3) Class V — Waste Types 0–4 (municipal incinerators); (4) Class VI — Waste Type 4; (5) Class VII — Waste Types 5 and 6.

**3.3.113.3** ***Flue-Fed Incinerator (Class II).*** An incinerator served by a single chimney flue that serves also as the charging chute, where refuse is fed directly to the incinerator through this chimney flue from one or more floors above the incinerator. This class of incinerator is suitable for Type 1 and Type 2 waste materials and garbage incidental to residential occupancy in single- and multifamily buildings. This class of incinerator is generally used in residential and institutional buildings, including apartments, clubs, dormitories, churches, schools, and other occupancies where Type 1 and Type 2 wastes are to be incinerated.

**3.3.113.4** ***Residential-Type Incinerator.*** An incinerator for the burning of ordinary combustible waste material and garbage (Type 2 waste) incidental to residential occupancy and having a firebox or charging compartment not greater than 0.142 $m^3$ (5 $ft^3$) in capacity. Residential-type incinerators can be self-contained, factory-built units that do not necessitate field construction, or can be of a built-in type designed to be encased in masonry or installed in a masonry wall or chimney.

**3.3.114 Indirect-Fired Appliance.** A fuel-burning appliance in which products of combustion (flue gases) are not mixed in the appliance with the medium (e.g., air) being heated.

**3.3.115 Indirect-Fired Oven.** A fuel-fired oven in which the products of combustion do not flow through the oven compartment.

**3.3.116 Inerting.** A technique by which a combustible mixture is rendered nonignitable by addition of an inert gas or a noncombustible dust. [**69:**3.3]

**3.3.117 Infrared Radiant Heater.** A heater that directs a substantial amount of its energy output in the form of infrared radiant energy into the area to be heated. Such heaters can be of either the vented or unvented type.

**3.3.118* Input Rating.** The fuel-burning capacity of an appliance in Btu per hour as specified by the manufacturer.

**3.3.119 Interlock.** A device, or an arrangement of devices, in which the operation of one part or one mechanism of the device or arrangement controls the operation of another part of another mechanism.

**3.3.120 Kerosene Stove.** An unvented, self-contained, self-supporting, kerosene-burning range or room heater equipped with an integral fuel tank not exceeding a 7.6-L (2-gal) capacity.

**3.3.121 Kettle.**

**3.3.121.1** ***Gas-Fired Kettle.*** An appliance with a cooking chamber that is heated either by a steam jacket in which steam is generated by gas heat, or by direct gas heat applied to the cooking chamber.

**3.3.121.2** ***Steam-Jacketed Kettle.*** An appliance with a cooking chamber that is heated either by a steam jacket in which steam is generated or by direct heat applied to the cooking chamber.

**3.3.122 Kilowatt Hour (kWh).** A unit of work or energy equal to that done by 1 kilowatt acting for 1 hour (approximately 1.34 horsepower).

**3.3.123 Light-Off.** To establish the combustion of fuel entering a combustion chamber.

**3.3.124 Limited Combustible.** A building construction material not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 8141 kJ/kg (3500 Btu/lb), where tested in accordance with NFPA 259, *Standard Test Method for Potential Heat of Building Materials*, and complies with (a) or (b): (a) materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 3.2 mm (⅛ in.) that has a flame spread index not greater than 50; and (b) materials, in the form and thickness used, other than as described in (a), having neither a flame spread index greater than 25 nor evidence of continued



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progressive combustion and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion. (Materials subject to increase in combustibility or flame spread index beyond the limits herein established through the effects of age, moisture, or other atmospheric condition shall be considered combustible.) [**33:**1.6]

**3.3.125 Lintel.** The horizontal, noncombustible member, usually of masonry or steel, spanning the opening of a masonry fireplace to support the load above.

**3.3.126 Lockout Timing.** That period of time between the initial ignition trial and lockout by the ignition control system.

**3.3.127 Low Gas Pressure Switch.** A pressure-actuated switch arranged to open when the gas supply pressure falls below normal gas supply pressure.

**3.3.128 Low Oil Pressure Switch.** A pressure-actuated device that is arranged to effect a safety shutdown or to prevent starting when the gas pressure is below the preset value.

**3.3.129 Low Oil Temperature Switch.** A temperature-actuated device that initiates a signal when the oil temperature falls below the limits that are required to maintain the viscosity range recommended by the burner manufacturer.

**3.3.130 Low-Water Cutoff.** A device that is arranged to effect a shutdown of the burner when the water level in the boiler falls to a predetermined low level.

**3.3.131 Main Burner.** A device or group of devices essentially forming an integral unit for the final conveyance of fuel or a mixture of fuel and air to the combustion zone, and from which combustion takes place to accomplish the function for which the appliance is designed.

**3.3.132 Main-Burner Flame-Establishing Period.** The length of time the main-burner fuel-safety shutoff valves are allowed to remain open before the flame-sensing device assumes supervision of the main burner flame.

**3.3.133 Mantel.** A shelf or facing ornament above a fireplace opening.

**3.3.134 Manual Reset.** The manual operation that is necessary after safety shutdown before an appliance can be restarted.

**3.3.135 Manually Lighted Appliance.** An appliance in which fuel to the main burner is turned on only by hand and ignited under supervision.

**3.3.136 Manufacturer.** The person or persons, company, firm, corporation, partnership, or other organization responsible for turning raw materials or components into a finished product.

**3.3.137 Master Fuel Trip.** A device for the rapid automatic shutoff of all fuel, including igniters, to combustion equipment. This device has provision for both manual and automatic initiation.

**3.3.138 Measured Gas.** Gas that has passed through a meter, the volume of which has been registered by the meter.

**3.3.139 Mechanical Draft System.** Equipment installed as part of or attached to a chimney or vent that provides an induced or forced draft.

**3.3.140 Mechanical Exhaust System.** Equipment, installed as part of or attached to a duct, which will cause air flow.

**3.3.141 Modulate.** To gradually vary the fuel and air flows to the burner in accordance with load demand.

**3.3.142 Monitor.** To sense and indicate a condition without initiating automatic corrective action. [**85:**1.3]

**3.3.143 Noncombustible Material.** A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. Materials that are reported as passing ASTM E 136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750ºC*, shall be considered noncombustible materials. [**220:**2.1]

**3.3.144 Normal Care.** The periodic tasks usually performed to operate and maintain an appliance, such as air, fuel, pressure, and temperature regulation; cleaning; lubrication; and resetting of controls.

**3.3.145 Normal Fuel Supply Pressure.** The pressure at the fuel service connection for which the fuel-burning system has been designed.

**3.3.146 Oil Burner Tank.** A fuel-oil tank used in conjunction with an oil burner installation.

**3.3.146.1** ***Oil Burner Auxiliary Tank.*** A tank having a capacity of not more than 227 L (60 gal) (50 Imp. gal) that is listed for installation in the supply piping between a burner and its main fuel supply tank. It can be included as an integral part of an automatic pump or a transfer pump, or it can be a separate tank.

**3.3.146.2** ***Oil Burner Gravity Tank.*** A supply tank from which the oil is delivered directly to the burner by gravity.

**3.3.146.3** ***Oil Burner Integral Tank.*** A tank that is furnished by the manufacturer as an integral part of an oil-burning appliance.

**3.3.146.4** ***Oil Burner Storage Tank.*** A separate tank that is not connected to the oil-burning appliance.

**3.3.146.5** ***Oil Burner Supply Tank.*** A separate tank connected either directly or by means of a pump to the oil-burning appliance.

**3.3.147 Oil-Burning Stove.** A self-contained, freestanding, above-the-floor, indirect-fired appliance equipped with one or more oil burners. It can be equipped with an integral oil tank or can be designed for connection to a separate oil supply tank.

**3.3.148 Oil-Fired Unit.** An appliance equipped with one or more oil burners and all the necessary safety controls, electrical equipment, and related equipment manufactured for assembly as a complete unit. This definition does not include kerosene stoves or oil stoves.

**3.3.149 Operating Range.** The range between the maximum fuel input and the minimum fuel input within which the burner flame can be maintained in a continuous and stable manner. [**85:**1.3]

**3.3.150 Oven.** A receptacle or compartment for cooking, baking, drying, or processing by means of heat.

**3.3.150.1** ***Baking and Roasting Oven.*** An oven used principally for food preparation.

**3.3.150.2** ***Cabinet Baking and Roasting Oven.*** A single stationary deck oven having more than one deck heated by a single burner or group of burners.



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**3.3.150.3** ***Reel-Type Baking and Roasting Oven.*** A single oven employing trays that are moved by mechanical means.

**3.3.150.4** ***Sectional Baking and Roasting Oven.*** A single stationary deck oven or one composed of one or more independently heated stationary decks.

**3.3.151 Pellet Fuel.** A solid processed fuel of specified size and composition capable of being fed to the appliance combustion system at a controlled rate.

**3.3.152 Pellet Fuel–Burning Appliance.** A closed combustion pellet vent or chimney-connected solid pellet fuel–burning appliance incorporating a fuel-feed control mechanism.

**3.3.153 Pilot.** A flame that is used to light the main burner.

**3.3.153.1** ***Continuous Pilot.*** A pilot that burns without turndown for the entire time a burner is in service, whether or not the main burner is firing.

**3.3.153.2** ***Expanding Pilot.*** A continuously burning pilot that is automatically expanded to ignite the main burner reliably. The pilot can be turned down at the end of the main-burner flame-establishing period.

**3.3.153.3** ***Intermittent Pilot.*** A pilot that is lighted automatically each time there is a call for heat and that burns during the entire period that the main burner is firing.

**3.3.153.4** ***Interrupted Pilot.*** A pilot that is lighted automatically each time there is a call for heat, where the pilot fuel is cut off automatically at the end of the main-burner flame-establishing period.

**3.3.153.5** ***Proved Pilot.*** A pilot flame supervised by a primary safety control that senses the presence of the pilot flame prior to allowing the main burner fuel to be delivered for combustion.

**3.3.154 Pilot Flame–Establishing Period.** The interval of time fuel is allowed to be delivered to a proved pilot before the primary safety control proves the pilot flame.

**3.3.155 Piping.** The tubing or conduit of the system. The three general classes of piping are main lines, risers, and branch (lateral) lines. [**99:**3.3]

**3.3.155.1** ***Classes of Piping.***

**3.3.155.1.1** ***Branch (Lateral) Lines.*** Those sections or portions of the piping system that serve a room or group of rooms on the same story of the facility. [**99:**3.3]

**3.3.155.1.2** ***Main Lines.*** The piping that connects the source (pumps, receivers, etc.) to the risers or branches, or both. [**99:**3.3]

**3.3.155.1.3** ***Risers.*** The vertical pipes connecting the system main line(s) with the branch lines on the various levels of the facility. [**99:**3.3]

**3.3.155.2** ***Concealed Piping.*** Piping that, where in place in the finished building, necessitates removal of permanent construction to gain access to the piping.

**3.3.155.3** ***Exposed Piping.*** Piping that is in view in a finished structure.

**3.3.155.4** ***Pipe.*** Rigid conduit of iron, steel, copper, brass, aluminum, or plastic.

**3.3.155.5** ***Tubing.*** A semirigid conduit of copper, steel, aluminum, or plastic.

**3.3.156 Piping System.** Piping or tubing, valves, and fittings used to connect fuel-burning utilization equipment to the source of supply.

**3.3.157 Plenum.** A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system. [**90A:**3.3]

**3.3.157.1** ***Furnace Return Plenum.*** A furnace plenum attached directly to, or an integral part of, the return-air inlet of the furnace.

**3.3.157.2** ***Furnace Supply Plenum.*** A furnace plenum attached directly to, or an integral part of, the supply outlet of the furnace.

**3.3.158 Port.** Any opening in a burner head through which fuel or an air–fuel mixture is discharged for ignition.

**3.3.159 Portable Appliance.** See 3.3.13.9.

**3.3.160 Portable Kerosene Heater.** An unvented, self-contained, self-supporting heater, with integral reservoir, designed to be carried from one location to another.

**3.3.161 Prove.** To establish by measurement or test the existence of a specific condition, such as flame, level, flow, pressure, or position.

**3.3.162 Pump.**

**3.3.162.1** ***Automatic Oil Pump.*** A pump, not an integral part of an oil burner, that automatically pumps oil from the supply tank and delivers the oil by gravity under a constant head to an oil-burning appliance, and that is designed to stop pumping automatically in case of total breakage of the oil supply line between the pump and the appliance.

**3.3.162.2** ***Oil-Transfer Pump.*** An oil pump, automatically or manually operated, that transfers oil through continuous piping from a supply tank to an oil-burning appliance or to an auxiliary tank, and that is not designed to stop pumping automatically in case of total breakage of the oil supply line between the pump and the appliance.

**3.3.163 Purge.** A flow of air or an inert medium at a rate that will effectively remove any gaseous or suspended combustibles and replace them with air. [**85:**1.3]

**3.3.164 Purge Air Change.** A quantity of air, provided through a fuel burner, equal to the volume of furnace and boiler gas passes. [Air volume is to be calculated at 101 kPa (absolute) (14.7 psia) and 21°C (70°F).]

**3.3.165 Quick-Disconnect Device.** A hand-operated device that provides a means for connecting to and disconnecting from a fuel supply an appliance or an appliance connector and that is equipped with an automatic means to shut off the fuel supply when the device is disconnected.

**3.3.166 Range.** An appliance intended primarily for cooking, including roasting, baking, or broiling or any combination of these functions.

**3.3.166.1** ***Bungalow Utility-Type Range.*** A range having an additional section for gas, liquid, or solid fuel that is designed for space heating and heating a solid top section but not for oven heating.

**3.3.166.2** ***Built-in Residential-Type Range.*** A range designed to be recessed into, placed upon, or attached to counters, cabinets, walls, or partitions.



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**3.3.166.3** ***Residential-Type Range.*** A range intended primarily for residential cooking purposes.

**3.3.166.4** ***Restaurant-Type Range.*** A range of the type designed for use primarily in restaurant and hotel kitchens.

**3.3.166.5** ***Room Heater–Type Range.*** A range having a separate room heater section.

**3.3.167 Readily Accessible.** See 3.3.1.1.

**3.3.168 Refrigerant.** A substance used to produce refrigeration by its expansion or vaporization.

**3.3.169 Refrigerating System.** A combination of interconnected refrigerant-containing parts, constituting one closed refrigerant circuit, in which a refrigerant is circulated for the purpose of extracting heat.

**3.3.170 Regulator Vent.** The opening in the atmospheric side of a regulator housing that allows air to move in and out to compensate for the movement of the regulator diaphragm.

**3.3.171 Relative Humidity.** The amount of water vapor or moisture held in suspension by gas or air and expressed as a percentage of the amount of moisture that would be held in suspension at the same temperature if saturated.

**3.3.172 Roof Jack.** A factory-built assembly for conveying flue gases through a roof and that includes a flue gas passageway, an insulating means, flashing, and a cap.

**3.3.173 Room Heater.** A self-contained, freestanding, air-heating appliance intended for installation in the space being heated and not intended for duct connection.

**3.3.173.1** ***Circulating Room Heater.*** A room heater with an outer jacket surrounding the heat exchanger, arranged with openings at top and bottom so that air circulates between the heat exchanger and the outer jacket. Room heaters that have openings in an outer jacket to allow some direct radiation from the heat exchanger are classified as a radiant type.

**3.3.173.2** ***Combination Room Heater/Fireplace Stove.*** A chimney-connected, solid fuel-burning room heater that is designed to be operated with the fire chamber either open or closed.

**3.3.173.3** ***Radiant Room Heater.*** A room heater designed to transfer heat primarily by direct radiation.

**3.3.173.4** ***Solid Fuel Room Heater.*** A chimney-connected, solid fuel-burning room heater that is designed to be operated with the fire chamber closed.

**3.3.174 Room Large in Comparison with the Size of the Appliance.** A room having a volume equal to at least 12 times the total volume of a furnace and at least 16 times the total volume of a boiler. The total volume of the furnace or boiler is determined from the exterior dimensions and is to include a fan compartment and burner vestibule, where used. Where the actual ceiling height of a room is greater than 2.44 m (8 ft), the volume of the room is to be figured on the basis of a ceiling height of 2.44 m (8 ft).

**3.3.175 Safe-Start Check.** A checking circuit incorporated in a primary safety control circuit that prevents lighting-off if the combustion detector is in the unsafe (flame present) position due to component failure within the control or the presence of actual or simulated flame.

**3.3.176 Safety Control Circuit.** A circuit involving one or more safety controls.

**3.3.177 Sealed Combustion System Appliance (Direct Vent Appliance).** A system consisting of an appliance, combustion air, flue gas connections between the appliance and the outside atmosphere, and a vent cap supplied by the manufacturer and constructed so that all air for combustion is obtained from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

**3.3.178 Service Pipe.** The pipe that brings the gas from the gas main to the meter.

**3.3.179 Set Point.** A predetermined value to which a device or system is adjusted and at which it performs its intended function. [**85:**1.3]

**3.3.180 Shutdown.**

**3.3.180.1** ***Normal Shutdown.*** Stopping burner operation by means of an operating control that shuts off all fuel and ignition energy to the appliance.

**3.3.180.2** ***Safety Shutdown.*** Stopping burner operation by means of a safety control or interlock that shuts off all fuel and ignition energy to the appliance in a manner necessitating manual restart.

**3.3.181 Smoke Chamber.** The transitional area from the damper opening to the beginning of the flue liner in a fireplace system.

**3.3.182 Smoke Damper.** See 3.3.61.5.

**3.3.183 Smoke Developed Rating.** The smoke developed rating of materials as determined by NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials*; ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*; and UL 723, *Standard for Safety Test for Surface Burning Characteristics of Building Materials.*

**3.3.184 Smoke Test.** A procedure for ascertaining the tightness of a chimney and for detecting any cracks in a masonry chimney flue, or deterioration or breaks in the integrity of a factory-built or metal chimney flue, that involves igniting a smoke bomb or building a smoky fire in a fireplace or solid fuel-burning appliance, covering the chimney termination, and checking for smoke escapage through the chimney walls.

**3.3.185 Solid Fuel.** Wood, coal, and other similar organic materials and any combination of them.

**3.3.186 Solid Fuel–Burning Appliance.** A chimney-connected device that burns solid fuel, designed for purposes of heating, cooking, or both.

**3.3.187 Solid Masonry Construction.** A bonded assembly of stones or solid masonry units.

**3.3.188 Solid Masonry Unit.** A masonry unit whose net cross-sectional area in every plane parallel to the bearing surface is 75 percent or more of its gross cross-sectional area measured in the same plane.

**3.3.189 Spark Arresters.** Screening material or a screening device attached to a chimney termination to prevent the passage of sparks and brands to the outside atmosphere.

**3.3.190 Special Tools and Parts.** Those tools and parts that are not available on the open retail market.

**3.3.191 Splay.** See 3.3.217, Wash.



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**3.3.192 Steam Cooker.** An appliance that cooks, defrosts, or reconstitutes food by direct contact with steam.

**3.3.193 Steam Table.** A covered tank, designed to hold hot water and steam, in which food containers are supported immediately above the surface of the water to keep the food warm.

**3.3.194 Steel Fireplace Unit.** A unit consisting of a steel firebox and an air chamber adjacent to the sides and rear of the firebox, used to construct a masonry fireplace. The unit usually has ducts to circulate air to and heated air from the air chamber to the living space.

**3.3.195 Supervise.** To sense and indicate a condition requiring attention and to automatically initiate corrective action. [**85:**1.3]

**3.3.196 Supervised Flame.** A flame whose presence or absence is detected by a primary safety control.

**3.3.197 Thermostat.** An automatic control actuated by temperature changes to maintain temperatures between predetermined limits.

**3.3.198 Thimble.** A fixed or removable ring, tube, or lining usually located in the hole where the chimney connector or vent connector passes through a wall or enters a chimney or vent.

**3.3.199 Trial-for-Ignition Period.** See 3.3.132, Main-Burner Flame-Establishing Period.

**3.3.200 Trimmer.** Where referring to chimneys, the longer floor or roof framing member around a rectangular opening into which the end of a header is joined.

**3.3.201 Type B Gas Vent.** See 3.3.207.4.

**3.3.202 Type BW Gas Vent.** See 3.3.207.5.

**3.3.203 Type L Vent.** See 3.3.207.6.

**3.3.204 Unit Heater.** A self-contained heating appliance that might or might not include an integral fan for circulating air, that can be of the floor-mounted or suspended type, and that is intended for the heating of the space in which it is installed. A unit heater can be an indirect-fired fuel-burning appliance or might utilize steam, hot water, or electricity.

**3.3.205 Unvented Appliance.** A fuel-burning appliance designed to discharge its products of combustion into the space in which it is located.

**3.3.206 Valve.** A device by which the flow of liquid, air or other gas, loose material in bulk, or other such material can be started, stopped, or regulated by a movable part that opens or obstructs passage.

**3.3.206.1** ***Automatic Valve.*** A valve operated by an automatic control. *(See also 3.3.58.1, Automatic Control.)*

**3.3.206.2** ***Check Valve.*** A valve that allows flow in one direction only.

**3.3.206.3** ***Constant-Level Valve.*** A device for maintaining a constant level of oil fuel within a reservoir for delivery to an oil burner.

**3.3.206.4** ***Diaphragm Valve.*** A valve actuated by means of pressure on a flexible diaphragm.

**3.3.206.5** ***Electric Valve.*** A valve actuated by electrical energy that can be normally closed or normally open.

**3.3.206.6** ***Lubricated Plug–Type Valve.*** A valve of the plug-and-barrel type designed for maintaining a lubricant between bearing surfaces.

**3.3.206.7** ***Manual Reset Valve.*** An automatic shutoff valve that remains closed until manually reopened.

**3.3.206.8** ***Relief Valve.*** A valve designed to forestall the development of an unsafe condition by relieving excessive pressure, temperature, or vacuum.

**3.3.206.9** ***Safety Shutoff Valve.*** A shutoff valve that is automatically closed by the safety control system or by an emergency device, and that can be of the automatically or manually opened type.

**3.3.206.10** ***Shutoff Valve.*** A valve designed so that, when closed, it completely stops the flow.

**3.3.207 Vent.** A flue gas conveying system intended for use only with appliances that do not produce flue gas outlet temperatures higher than 315.6°C (600°F). Vents are listed systems composed of factory-built components assembled in accordance with the terms of the vent listing, except for certain limited applications of unlisted single wall pipe.

**3.3.207.1** ***Gas Vent.*** A passageway composed of listed factory-built components assembled in accordance with the terms of listing for conveying vent gases from gas appliances or their vent connectors to the outside atmosphere. [**54:**3.3]

**3.3.207.2** ***Pellet Vent.*** A venting system composed of listed, factory-built components assembled in accordance with the manufacturer's instructions for conveying flue gases from a listed pellet fuel–burning appliance to the outside atmosphere.

**3.3.207.3** ***Special Gas Vent.*** A gas vent for venting listed Category II, III, and IV gas appliances.

**3.3.207.4** ***Type B Gas Vent.*** A vertical or nearly vertical gas vent for venting listed gas appliances with draft hoods and other Category I gas appliances listed for use with Type B gas vents.

**3.3.207.5** ***Type BW Gas Vent.*** A vertical or nearly vertical gas vent for venting listed gas-fired vented wall furnaces.

**3.3.207.6** ***Type L Vent.*** A vertical or nearly vertical passageway composed of listed factory-built components assembled in accordance with the terms of listing for conveying flue gases from oil and gas appliances or their vent connectors to the outside atmosphere.

**3.3.208 Vent Cap.** A protective covering or housing attached to the vent termination, intended for preventing downdrafts and the entry of rain, snow, and animals.

**3.3.209 Vent Connector.** The pipe that connects a fuel-burning appliance to a gas vent or Type L vent.

**3.3.210 Vent Gases.** Products of combustion from fuel-burning appliances along with excess air, plus any dilution air in the venting system above a draft hood or draft regulator.

**3.3.211 Vent Limiting Means (for Pressure Regulator).** A means that limits the flow of air, gas, or liquid from the atmospheric diaphragm chamber of a pressure regulator into the atmosphere.

**3.3.212 Vented Appliance.** An indirect-fired appliance provided with a flue collar to accommodate a venting system for conveying flue gases to the outer air.

**3.3.213 Venting.** Removal of combustion products as well as noxious or toxic fumes to the outer air.



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**3.3.214* Venting System (Flue Gases).** A continuous, open passageway from the flue collar or draft hood of a fuel-burning appliance to the outside atmosphere for the purpose of removing flue gases.

**3.3.215 Wall Furnace.** A self-contained, vented appliance, complete with grilles or equivalent, designed for incorporation in or permanent attachment to the structure of a building, manufactured home, or recreational vehicle, and furnishing heated air directly into the space to be heated through openings in the casing. Such appliances should not be provided with duct extensions beyond the vertical and horizontal limits of the casing proper, except that boots not exceeding 254 mm (10 in.) beyond the horizontal of the casing for extension through walls of nominal thickness can be used. Where provided, such boots should be supplied by the manufacturer as an integral part of the appliance. This definition excludes floor furnaces, unit heaters, and central furnaces.

**3.3.215.1** ***Fan-Type Wall Furnace.*** A wall furnace equipped with a fan for the circulation of air.

**3.3.215.2** ***Gravity-Type Wall Furnace.*** A wall furnace dependent on the circulation of air by gravity.

**3.3.216 Wall Protector (Shield).** Noncombustible surfacing applied to a wall area for the purpose of reducing the clearance between the wall and a heat-producing appliance.

**3.3.217 Wash.** A slight slope or beveled edge on the top surface of a chimney designed to shed water away from the flue liner. Also referred to as *splay*.

**3.3.218 Water Heater.** An indirect-fired fuel-burning or electrically heated appliance for heating water to a temperature not more than 93°C (200°F), having an input not greater than 58.6 kW/hr (200,000 Btu), and a water-containing capacity not exceeding 454 L (120 U.S. gal).

**3.3.219 Wythe.** Where referring to masonry chimneys, a course, a thickness, or a continuous vertical section of masonry separating flues in a chimney.

**3.3.220 Zero Governor.** A regulating device that is normally adjusted to deliver gas at atmospheric pressure within its flow rating.

## Chapter 4 Reserved

## 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.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.3.2.4 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 Air Change.** Air volume should be calculated at 101 kPa (absolute) (14.7 psia) and 21.1°C (70°F).

**A.3.3.78 Engineered Venting or Chimney System.** The following are considered approved engineering methods: (1) the vent capacity tables in NFPA 54, *National Fuel Gas Code*; (2) the fuel-burning manufacturers' venting instructions; (3) drawings, calculations, and specifications provided by the venting equipment manufacturer or by a professional engineer; (4) use of calculations from the ASHRAE *Handbook, HVAC Systems and Equipment*, Chapter 31, "Chimney, Gas Vent, and Fireplace Systems"; (5) application of the VENTII computer program, developed under Gas Research Institute sponsorship for vent design and analysis.

**A.3.3.118 Input Rating.** Appliance input ratings are based on sea level operation and can be used for operation up to 610 m (2000 ft) elevation. For operation at elevations above 610 m (2000 ft), input ratings should be reduced at the rate of 4 percent for each 305 m (1000 ft) above sea level.

**A.3.3.214 Venting System (Flue Gases).** A venting system for exhausting flue gases usually is composed of a gas vent, Type L vent, or a chimney and vent or chimney connector(s), if used, assembled to form the open passageway.

## Annex B Informational References

**B.1 Referenced Publications. (Reserved)**

**B.2 Informational Reference.** The following documents or portions thereof are listed here as informational resources only. They are not a part of the requirements of this document.

**B.2.1 ASHRAE Publication.** American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., 1791 Tullie Circle, NE, Atlanta, GA 30329-2305.

ASHRAE *Handbook, HVAC Systems and Equipment*, 1992.



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**B.3 References for Extracts.** The following documents are listed here to provide reference information, including title and edition, for extracts given throughout this standard as indicated by a reference in brackets [ ] following a section or paragraph. These documents are not a part of the requirements of this document unless also listed in Chapter 2 for other reasons.

NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, 2000 edition.

NFPA 54, *National Fuel Gas Code*, 2002 edition.

NFPA 69, *Standard on Explosion Prevention Systems*, 2002 edition.

NFPA 70, *National Electrical Code®*, 2002 edition.

NFPA 73, *Electrical Inspection Code for Existing Dwellings*, 2000 edition.

NFPA 85, *Boiler and Combustion Systems Hazards Code*, 2001 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2002 edition.

NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, 2002 edition.

NFPA 99, *Standard for Health Care Facilities*, 2002 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2003 edition.

NFPA 220, *Standard on Types of Building Construction*, 1999 edition.



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## *Sequence of Events Leading to Publication of an NFPA Committee Document*

Call goes out for proposals to amend existing document or for recommendations on new document.

▼

Committee meets to act on proposals, to develop its own proposals, and to prepare its report.

▼

Committee votes on proposals by letter ballot. If two-thirds approve, report goes forward. Lacking two-thirds approval, report returns to committee.

▼

Report — *Report on Proposals* (ROP) — is published for public review and comment.

▼

Committee meets to act on each public comment received.

▼

Committee votes on comments by letter ballot. If two-thirds approve, supplementary report goes forward. Lacking two-thirds approval, supplementary report returns to committee.

▼

Supplementary report — *Report on Comments* (ROC) — is published for public review.

▼

NFPA membership meets (Annual or Fall Meeting) and acts on committee report (ROP or ROC).

▼

Committee votes on any amendments to report approved at NFPA Annual or Fall Meeting.

▼

Appeals to Standards Council on Association action must be filed within 20 days of the NFPA Annual or Fall Meeting.

▼

Standards Council decides, based on all evidence, whether or not to issue standard or to take other action, including upholding any appeals.

## *Committee Membership Classifications*

The following classifications apply to Technical Committee members and represent their principal interest in the activity of the committee.

M *Manufacturer:* A representative of a maker or marketer of a product, assembly, or system, or portion thereof, that is affected by the standard.

U *User:* A representative of an entity that is subject to the provisions of the standard or that voluntarily uses the standard.

I/M *Installer/Maintainer:* A representative of an entity that is in the business of installing or maintaining a product, assembly, or system affected by the standard.

L *Labor:* A labor representative or employee concerned with safety in the workplace.

R/T *Applied Research/Testing Laboratory:* A representative of an independent testing laboratory or independent applied research organization that promulgates and/or enforces standards.

E *Enforcing Authority:* A representative of an agency or an organization that promulgates and/or enforces standards.

I *Insurance:* A representative of an insurance company, broker, agent, bureau, or inspection agency.

C *Consumer:* A person who is, or represents, the ultimate purchaser of a product, system, or service affected by the standard, but who is not included in the *User* classification.

SE *Special Expert:* A person not representing any of the previous classifications, but who has a special expertise in the scope of the standard or portion thereof.

NOTES:

1. "Standard" connotes code, standard, recommended practice, or guide.
2. A representative includes an employee.
3. While these classifications will be used by the Standards Council to achieve a balance for Technical Committees, the Standards Council may determine that new classifications of members or unique interests need representation in order to foster the best possible committee deliberations on any project. In this connection, the Standards Council may make such appointments as it seems appropriate in the public interest, such as the classification of "Utilities" in the National Electrical Code Committee.
4. Representatives of subsidiaries of any group are generally considered to have the same classification as the parent organization.

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# NFPA Technical Committee Document Proposal Form

**Note: All proposals must be received by 5:00 p.m. EST/EDST on the published proposal closing date.**

**For further information on the standards-making process, please contact Codes and Standards Administration at 617-984-7249. For technical assistance, please call NFPA at 617-770-3000.**

FOR OFFICE USE ONLY
Log #: _____
Date Rec'd: _____

**Please indicate in which format you wish to receive your ROP/ROC:** ☐ **CD ROM** ☐ **paper** ☐ **download**
**(Note: In choosing the download option you intend to view the ROP/ROC from our Website. No copy will be sent to you.)**

**Date** 12/18/02 **Name** John B. Smith **Telephone** 617-555-1212
**Company** _____
**Address** 9 Seattle St. **City** Seattle **State** WA **Zip** 02255
**Please indicate organization represented (if any)** Fire Marshals Assn. of North America

1. **a) NFPA Document Title** National Fire Alarm Code
   **b) NFPA No. & Edition** NFPA 72, 2002 ed. **c) Section/Paragraph** 4.4.7.1.1
2. **Proposal Recommends:** *(check one)* ☐ **new text** ☐ **revised text** ☒ **deleted text**
3. **Proposal.** *(Include proposed new or revised wording, or identification of wording to be deleted.)* Note: Proposed text should be in legislative format, that is, use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~). Delete exception.
4. **Statement of Problem and Substantiation for Proposal.** Note: State the problem that will be resolved by your recommendation. Give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication. A properly installed and maintained system should be free of ground faults. The occurrence of one or more ground faults should be required to cause a "trouble" signal because it indicates a condition that could contribute to future malfunction of the system. Ground fault protection has been widely available on these systems for years and its cost is negligible. Requiring it on all systems will promote better installations, maintenance and reliability.
5. ☒ **This Proposal is Original Material.** Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought, or research and, to the best of his/her knowledge, is not copied from another source.

   ☐ **This Proposal is Not Original Material; Its Source** ***(if known)*** **is as Follows:** _____

Sample

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**Signature** ***(Required)*** John B. Smith

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**(Note: In choosing the download option you intend to view the ROP/ROC from our Website. No copy will be sent to you.)**

**Date** _____ **Name** _____ **Telephone** _____
**Company** _____
**Address** _____ **City** _____ **State** _____ **Zip** _____
**Please indicate organization represented (if any)** _____

1. **a) NFPA Document Title** _____
   **b) NFPA No. & Edition** _____ **c) Section/Paragraph** _____

2. **Proposal Recommends:** *(check one)* ☐ **new text** ☐ **revised text** ☐ **deleted text**

3. **Proposal.** *(Include proposed new or revised wording, or identification of wording to be deleted.)* Note: Proposed text should be in legislative format, that is, use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~). _____

4. **Statement of Problem and Substantiation for Proposal.** Note: State the problem that will be resolved by your recommendation. Give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication. _____

5. ☐ **This Proposal is Original Material.** Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought, or research and, to the best of his/her knowledge, is not copied from another source.

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