

**EXISTING.** See “Equipment, Existing” and “Appliances, Existing.”

**EXTRA-HEAVY-DUTY COOKING APPLIANCE.** Extra-heavy-duty cooking appliances include appliances utilizing solid fuel such as wood, charcoal, briquettes, and mesquite as the primary source of heat for cooking.

**FIRE PREVENTION CODE.** The “Ohio Fire Code.”

**FIREPLACE.** An assembly consisting of a hearth and fire chamber of noncombustible material and provided with a chimney, for use with solid fuels.

**Factory-built fireplace.** A listed and labeled fireplace and chimney system composed of factory-made components, and assembled in the field in accordance with manufacturer’s instructions and the conditions of the listing.

**Masonry fireplace.** A field-constructed fireplace composed of solid masonry units, bricks, stones or concrete.

**FIREPLACE STOVE.** A free-standing chimney-connected solid-fuel-burning heater, designed to be operated with the fire chamber doors in either the open or closed position.

**FLAME SAFEGUARD.** A device that will automatically shut off the fuel supply to a main burner or group of burners when the means of ignition of such burners becomes inoperative, and when flame failure occurs on the burner or group of burners.

**FLAME SPREAD INDEX.** The numerical value assigned to a material tested in accordance with ASTM E 84.

**FLAMMABILITY CLASSIFICATION.** See “Refrigerants Safety Classification.”

**FLAMMABLE LIQUIDS.** Any liquid that has a *closed cup* flash point below 100°F (38°C), and has a vapor pressure not exceeding 40 psia (276 kPa) at 100°F (38°C). Flammable liquids shall be known as Class I liquids and shall be divided into the following classifications:

**Class IA.** Liquids having a flash point below 73°F (23°C) and a boiling point below 100°F (38°C).

**Class IB.** Liquids having a flash point below 73°F (23°C) and a boiling point at or above 100°F (38°C).

**Class IC.** Liquids having a flash point at or above 73°F (23°C) and below 100°F (38°C).

**FLAMMABLE SOLID.** A solid, other than a blasting agent or explosive, that is capable of causing fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which has an ignition temperature below 212°F (100°C) or which burns so vigorously and persistently when ignited as to create a serious hazard. A chemical shall be considered a flammable solid as determined in accordance with the test method of CPSC 16 CFR; Part 1500.44, if it ignites and burns with a self-sustained flame at a rate greater than 0.1 inch (2.5 mm) per second along its major axis.

**FLAMMABLE VAPOR OR FUMES.** Mixtures of gases in air at concentrations equal to or greater than the LFL and less than or equal to the upper flammability limit (UFL).

**FLASH POINT.** The minimum temperature in degrees Fahrenheit at which a liquid will give off sufficient vapors to form an

ignitable mixture with air near the surface or in the container, but will not sustain combustion. The flash point of a liquid shall be determined by appropriate test procedure and apparatus as specified in ASTM D 56, ASTM D 93 or ASTM D 3278.

**FLOOR AREA, NET.** The actual occupied area, not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms, closets or thicknesses of walls.

**FLOOR FURNACE.** A completely self-contained furnace suspended from the floor of the space being heated, taking air for combustion from outside such space and with means for observing flames and lighting the appliance from such space.

**FLUE.** A passageway within a chimney or vent through which gaseous combustion products pass.

**FLUE CONNECTION (BREECHING).** A passage for conducting the products of combustion from a fuel-fired appliance to the vent or chimney (see also “Chimney connector” and “Vent connector”).

**FLUE GASES.** Products of combustion and excess air.

**FLUE LINER (LINING).** A system or material used to form the inside surface of a flue in a chimney or vent, for the purpose of protecting the surrounding structure from the effects of combustion products and conveying combustion products without leakage to the atmosphere.

**FUEL GAS.** A natural gas, manufactured gas, liquefied petroleum gas or a mixture of these.

**FUEL OIL.** Kerosene or any hydrocarbon oil having a *closed cup* flash point not less than 100°F (38°C).

**FUEL-OIL PIPING SYSTEM.** A closed piping system that connects a combustible liquid from a source of supply to a fuel-oil-burning appliance.

**FURNACE.** A completely self-contained heating unit that is designed to supply heated air to spaces remote from or adjacent to the appliance location.

**FURNACE ROOM.** A room primarily utilized for the installation of fuel-burning, space-heating and water-heating appliances other than boilers (see also “Boiler room”).

**FUSIBLE PLUG.** A device arranged to relieve pressure by operation of a fusible member at a predetermined temperature.

**GAS CABINET.** A fully enclosed, noncombustible enclosure used to provide an isolated environment for compressed gas cylinders in storage or use. Doors and access ports for exchanging cylinders and accessing pressure-regulating controls are allowed to be included.

**GAS ROOM.** A separately ventilated, fully enclosed room in which only compressed gases and associated equipment and supplies are stored or used.

**GROUND SOURCE HEAT PUMP LOOP SYSTEM.** Piping buried in horizontal or vertical excavations or placed in a body of water for the purpose of transporting heat transfer liquid to and from a heat pump. Included in this definition are closed loop systems in which the liquid is recirculated and open loop systems in which the liquid is drawn from a well or other source.

## DEFINITIONS

**HAZARDOUS LOCATION.** Any location considered to be a fire hazard for flammable vapors, dust, combustible fibers or other highly combustible substances. The location is not necessarily categorized in the *building code* as a high-hazard use group classification.

**HAZARDOUS PRODUCTION MATERIAL (HPM).** A solid, liquid, or gas associated with semiconductor manufacturing that has a degree-of-hazard rating in health, flammability or reactivity of Class 3 or 4 as ranked by NFPA 704 and which is used directly in research, laboratory or production processes which have as their end product materials that are not hazardous.

**HEAT EXCHANGER.** A device that transfers heat from one medium to another.

**HEAT PUMP.** A refrigeration system that extracts heat from one substance and transfers it to another portion of the same substance or to a second substance at a higher temperature for a beneficial purpose.

**HEAT TRANSFER LIQUID.** The operating or thermal storage liquid in a mechanical system, including water or other liquid base, and additives at the concentration present under operating conditions used to move heat from one location to another. Refrigerants are not included as heat transfer liquids.

**HEAVY-DUTY COOKING APPLIANCE.** Heavy-duty cooking appliances include electric under-fired broilers, electric chain (conveyor) broilers, gas under-fired broilers, gas chain (conveyor) broilers, gas open-burner ranges (with or without oven), electric and gas wok ranges, and electric and gas over-fired (upright) broilers and salamanders.

**HIGH-PROBABILITY SYSTEMS.** A refrigeration system in which the basic design or the location of components is such that a leakage of refrigerant from a failed connection, seal or component will enter an occupancy classified area other than the machinery room.

**HIGH-SIDE PRESSURE.** The parts of a refrigerating system subject to condenser pressure.

**HOOD.** An air-intake device used to capture by entrapment, impingement, adhesion or similar means, grease and similar contaminants before they enter a duct system.

**Type I.** A kitchen hood for collecting and removing grease vapors and smoke.

**Type II.** A general kitchen hood for collecting and removing steam, vapor, heat and odors.

**HYDROGEN GENERATING APPLIANCE.** A self-contained package or factory-matched packages of integrated systems for generating gaseous hydrogen. Hydrogen generating appliances utilize electrolysis, reformation, chemical, or other processes to generate hydrogen.

**IGNITION SOURCE.** A flame, spark or hot surface capable of igniting flammable vapors or fumes. Such sources include appliance burners, burner ignitors and electrical switching devices.

**IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH).** The concentration of airborne contaminants that pose a threat of death, immediate or delayed permanent adverse health effects, or effects that could prevent escape from such an

environment. This contaminant concentration level is established by the National Institute of Occupational Safety and Health (NIOSH) based on both toxicity and flammability. It is generally expressed in parts per million by volume (ppm v/v) or milligrams per cubic meter (mg/m<sup>3</sup>).

**INCOMPATIBLE MATERIALS.** Materials that, when mixed, have the potential to react in a manner which generate heat, fumes, gases or byproducts which are hazardous to life or property.

**INDIRECT REFRIGERATION SYSTEM.** A system in which a secondary coolant cooled or heated by the refrigerating system is circulated to the air or other substance to be cooled or heated. Indirect systems are distinguished by the method of application shown below:

**Closed system.** A system in which a secondary fluid is either cooled or heated by the refrigerating system and then circulated within a closed circuit in indirect contact with the air or other substance to be cooled or heated.

**Double-indirect open-spray system.** A system in which the secondary substance for an indirect open-spray system is heated or cooled by an intermediate coolant circulated from a second enclosure.

**Open-spray system.** A system in which a secondary coolant is cooled or heated by the refrigerating system and then circulated in direct contact with the air or other substance to be cooled or heated.

**Vented closed system.** A system in which a secondary coolant is cooled or heated by the refrigerating system and then passed through a closed circuit in the air or other substance to be cooled or heated, except that the evaporator or condenser is placed in an open or appropriately vented tank.

**INFORMATION TECHNOLOGY EQUIPMENT.** Any electronic digital or analog computer, along with all peripheral, support, memory, programming, or other directly associated equipment, records, storage, and activities.

**INFORMATION TECHNOLOGY EQUIPMENT AREA.** An area of a building where the information technology equipment room is located, including support rooms served by the same special air-conditioning/air-handling equipment as the information technology equipment room.

**INFORMATION TECHNOLOGY EQUIPMENT ROOM.** An enclosed area, with one or more means of entry, that contains computer-based business and industrial information technology equipment.

**JOINT, FLANGED.** A joint made by bolting together a pair of flanged ends.

**JOINT, FLARED.** A metal-to-metal compression joint in which a conical spread is made on the end of a tube that is compressed by a flare nut against a mating flare.

**JOINT, MECHANICAL.** A connection between pipes, fittings, or pipes and fittings, which is *not* screwed, caulked, threaded, soldered, solvent cemented, brazed or welded. Also, a joint in which compression is applied along the centerline of the pieces being joined. *In some applications, the joint is part of a coupling, fitting or adapter.*

**JOINT, PLASTIC ADHESIVE.** A joint made in thermoset plastic piping by the use of an adhesive substance which forms a continuous bond between the mating surfaces without dissolving either one of them.

**JOINT, PLASTIC HEAT FUSION.** A joint made in thermoplastic piping by heating the parts sufficiently to permit fusion of the materials when the parts are pressed together.

**JOINT, PLASTIC SOLVENT CEMENT.** A joint made in thermoplastic piping by the use of a solvent or solvent cement which forms a continuous bond between the mating surfaces.

**JOINT, SOLDERED.** A gas-tight joint obtained by the joining of metal parts with metallic mixtures of alloys which melt at temperatures between 400°F (204°C) and 1,000°F (538°C).

**JOINT, WELDED.** A gas-tight joint obtained by the joining of metal parts in molten state.

**JURISDICTION.** *The authority to enforce this code by municipal corporations, townships or counties certified by the board in accordance with 3781.10 of the Revised Code or the division of industrial compliance in the department of commerce.*

**LABEL.** *An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, the name and identification of an approved agency and that indicates the representative sample of the product or material has been tested and evaluated by an approved agency (see building code section 1703.5 and building code definitions “Inspection Certificate,” “Manufacturer’s Designation,” and “Mark”).*

**LABELED.** Devices, equipment, appliances or materials to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and by whose label the manufacturer attests to compliance with applicable nationally recognized standards.

**LIGHT-DUTY COOKING APPLIANCE.** Light-duty cooking appliances include gas and electric ovens (including standard, bake, roasting, revolving, retherm, convection, combination convection/steamer, conveyor, deck or deck-style pizza, and pastry), electric and gas steam-jacketed kettles, electric and gas compartment steamers (both pressure and atmospheric) and electric and gas cheesemelters.

**LIMIT CONTROL.** A device responsive to changes in pressure, temperature or level for turning on, shutting off or throttling the gas supply to an appliance.

**LIMITED CHARGE SYSTEM.** A system in which, with the compressor idle, the design pressure will not be exceeded when the refrigerant charge has completely evaporated.

**LIMITED SPRAYING SPACE.** *An area in which spraying operations for touch-up or spot painting of a surface area of nine square feet (0.84 m<sup>2</sup>) or less are conducted.*

**LIQUID STORAGE ROOM.** *A room classified as a Group H-3 occupancy used for the storage of flammable or combustible liquids in a closed position.*

**LIQUID STORAGE WAREHOUSE.** *A room classified as a Group H-3 occupancy used for the storage of flammable or combustible liquids in an unopened condition. The quantities of flammable or combustible liquids stored are not limited.*

**LISTED.** Equipment, appliances or materials included in a directory published by an approved agency whose listing states either that the equipment, appliances or materials meet standards listed in this code or have been tested and found suitable for use in a specified manner.

**LIVING SPACE.** Space within a dwelling unit utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes.

**LOWER EXPLOSIVE LIMIT (LEL).** See “Lower Flammability Limit.”

**LOWER FLAMMABLE LIMIT (LFL).** The minimum concentration of vapor in air at which propagation of flame will occur in the presence of an ignition source. The LFL is sometimes referred to as LEL or lower explosive limit.

**LOW-PRESSURE HOT-WATER-HEATING BOILER.** A boiler furnishing hot water at pressures not exceeding 160 psi (1103 kPa) and at temperatures not exceeding 250°F (121°C).

**LOW-PRESSURE STEAM-HEATING BOILER.** A boiler furnishing steam at pressures not exceeding 15 psi (103 kPa).

**LOW-PROBABILITY SYSTEMS.** A refrigeration system in which the basic design or the location of components is such that a leakage of refrigerant from a failed connection, seal or component will not enter an occupancy-classified area, other than the machinery room.

**LOW-SIDE PRESSURE.** The parts of a refrigerating system subject to evaporator pressure.

**MACHINERY ROOM.** *As used in Chapter 11 of this code, meaning “Refrigeration Machinery Room.”*

**MECHANICAL DRAFT SYSTEM.** A venting system designed to remove flue or vent gases by mechanical means, that consists of an induced-draft portion under nonpositive static pressure or a forced-draft portion under positive static pressure.

**Forced-draft venting system.** A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under positive static pressure.

**Induced-draft venting system.** A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under nonpositive static vent pressure.

**Power venting system.** A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under positive static vent pressure.

**MECHANICAL EQUIPMENT/APPLIANCE ROOM.** A room or space in which nonfuel-fired mechanical equipment and appliances are located.

**MECHANICAL EXHAUST SYSTEM.** A system for removing air from a room or space by mechanical means.

**MECHANICAL JOINT.** See “JOINT, Mechanical.”

## DEFINITIONS

**MECHANICAL SYSTEM.** A system specifically addressed and regulated in this code and composed of components, devices, appliances and equipment.

**MEDIUM-DUTY COOKING APPLIANCE.** Medium-duty cooking appliances include electric discrete element ranges (with or without oven), electric and gas hot-top ranges, electric and gas griddles, electric and gas double-sided griddles, electric and gas fryers (including open deep fat fryers, donut fryers, kettle fryers, and pressure fryers), electric and gas pasta cookers, electric and gas conveyor pizza ovens, electric and gas tilting skillets (braising pans) and electric and gas rotisseries.

**MODULAR BOILER.** A steam or hot-water-heating assembly consisting of a group of individual boilers called modules intended to be installed as a unit with no intervening stop valves. Modules are under one jacket or are individually jacketed. The individual modules shall be limited to a maximum input rating of 400,000 Btu/h (117 228 W) gas, 3 gallons per hour (gph) (11.4 L/h) oil, or 115 kW (electric).

**NATURAL DRAFT SYSTEM.** A venting system designed to remove flue or vent gases under nonpositive static vent pressure entirely by natural draft.

**NATURAL VENTILATION.** The movement of air into and out of a space through intentionally provided openings, such as windows and doors, or through nonpowered ventilators.

**NONABRASIVE/ABRASIVE MATERIALS.** Nonabrasive particulate in high concentrations, moderately abrasive particulate in low and moderate concentrations, and highly abrasive particulate in low concentrations, such as alfalfa, asphalt, plaster, gypsum and salt.

**NONCOMBUSTIBLE MATERIALS.** Materials that, when tested in accordance with ASTM E 136, have at least three of four specimens tested meeting all of the following criteria:

1. The recorded temperature of the surface and interior thermocouples shall not at any time during the test rise more than 54°F (30°C) above the furnace temperature at the beginning of the test.
2. There shall not be flaming from the specimen after the first 30 seconds.
3. If the weight loss of the specimen during testing exceeds 50 percent, the recorded temperature of the surface and interior thermocouples shall not, at any time during the test, rise above the furnace air temperature at the beginning of the test, and there shall not be flaming of the specimen.

**OCCUPANCY.** The purpose for which a building, or portion thereof, is used.

**OFFSET (VENT).** A combination of approved bends that make two changes in direction, bringing one section of the vent out of line but into a line parallel with the other section.

**OUTDOOR AIR.** Air taken from the outdoors, and therefore not previously circulated through the system.

**OUTDOOR OPENING.** A door, window, louver or skylight openable to the outside atmosphere.

**OUTLET.** A threaded connection or bolted flange in a piping system to which a gas-burning appliance is attached.

**PANEL HEATING.** A method of radiant space heating in which heat is supplied by large heated areas of room surfaces. The heating element usually consists of warm water piping, warm air ducts, or electrical resistance elements embedded in or located behind ceiling, wall or floor surfaces.

**PELLET FUEL-BURNING APPLIANCE.** A closed-combustion, vented appliance equipped with a fuel-feed mechanism for burning processed pellets of solid fuel of a specified size and composition.

**PIPING.** Where used in this code, “piping” refers to either pipe or tubing, or both.

**Pipe.** A rigid conduit of iron, steel, copper, brass or plastic.

**Tubing.** Semirigid conduit of copper, aluminum, plastic or steel.

**PLASTIC, THERMOPLASTIC.** A plastic that is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

**PLASTIC, THERMOSETTING.** A plastic that is capable of being changed into a substantially infusible or insoluble product when cured under application of heat or chemical means.

**PLENUM.** An enclosed portion of the building structure, other than an occupiable space being conditioned, that is designed to allow air movement, and thereby serve as part of an air distribution system.

**PLUMBING CODE.** *The “Ohio Plumbing Code.”*

**PORTABLE FUEL CELL APPLIANCE.** A fuel cell generator of electricity, which is not fixed in place. A portable fuel cell appliance utilizes a cord and plug connection to a grid-isolated load and has an integral fuel supply.

**POWER BOILER.** See “Boiler.”

**POWER PIPING.** *Piping systems and their component parts that are not building services piping systems, and that may be installed within electric power generating stations, industrial and institutional plants, utility geothermal heating systems, and central and district heating and cooling systems. Power piping includes, but is not limited to, piping used in the distribution of plant and process steam at boiler pressures greater than fifteen pounds per square inch gauge, high temperature water piping from high pressure and high temperature boilers, power boiler steam condensate piping, high pressure and high temperature water condensate piping, and compressed air and hydraulic piping upstream of the first stop valve off a system distribution header.*

**PREMISES.** A lot, plot or parcel of land, including any structure thereon.

**PRESSURE, FIELD TEST.** A test performed in the field to prove system tightness.

**PRESSURE-LIMITING DEVICE.** A pressure-responsive mechanism designed to stop automatically the operation of the pressure-imposing element at a predetermined pressure.

provide for drainage of grease down the duct around the dam, and shall be approved for the application. Where the dimensions of the sides, top or bottom of the duct preclude the installation of the prescribed minimum-size cleanout opening, the cleanout shall be located on the duct face that affords the largest opening dimension and shall be installed with the opening edges at the prescribed distances from the duct edges as previously set forth in this section.

**506.3.10 Grease duct enclosure.** A grease duct serving a Type I hood that penetrates a ceiling, wall or floor shall be enclosed from the point of penetration to the outlet terminal. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the *building code*. Ducts shall be enclosed in accordance with the *building code* requirements for shaft construction. The duct enclosure shall be sealed around the duct at the point of penetration and vented to the outside of the building through the use of weather-protected openings. Clearance from the duct to the interior surface of enclosures of combustible construction shall be not less than 18 inches (457 mm). Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wallboard attached to noncombustible structures shall be not less than 6 inches (152 mm). The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring or systems.

**Exceptions:**

1. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an “F” and “T” rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the duct is continuously covered on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled material, system, method of construction or product specifically evaluated for such purpose, in accordance with a nationally recognized standard for such enclosure materials. Exposed duct wrap systems shall be protected where subject to physical damage.
2. A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.

**506.3.11 Grease duct fire-resistive access opening.** Where cleanout openings are located in ducts within a fire-resistance-rated enclosure, access openings shall be provided in the enclosure at each cleanout point. Access openings shall be equipped with tight-fitting sliding or hinged doors that are equal in fire-resistive protection to that of the shaft or enclosure. An approved sign shall be placed on access opening panels with wording as follows: “ACCESS PANEL. DO NOT OBSTRUCT.”

**506.3.12 Exhaust outlets serving Type I hoods.** Exhaust outlets for grease ducts serving Type I hoods shall conform to the requirements of Sections 506.3.12.1 through 506.3.12.3.

**506.3.12.1 Termination above the roof.** Exhaust outlets that terminate above the roof shall have the discharge opening located not less than 40 inches (1016 mm) above the roof surface.

**506.3.12.2 Termination through an exterior wall.** Exhaust outlets shall be permitted to terminate through exterior walls where the smoke, grease, gases, vapors, and odors in the discharge from such terminations do not create a public nuisance or a fire hazard. Such terminations shall not be located where protected openings are required by the building code. Other exterior openings shall not be located within 3 feet (914 mm) of such terminations.

**506.3.12.3 Termination location.** Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from parts of the same or contiguous buildings, adjacent property lines and air intake openings into any building and shall be located not less than 10 feet (3048 mm) above the adjoining grade level.

**Exception:** Exhaust outlets shall terminate not less than 5 feet (1524 mm) from an adjacent building, adjacent property line and air intake openings into a building where air from the exhaust outlet discharges away from such locations.

**506.4 Ducts serving Type II hoods.** Single or combined Type II exhaust systems for food-processing operations shall be independent of all other exhaust systems. Commercial kitchen exhaust systems serving Type II hoods shall comply with Sections 506.4.1 and 506.4.2.

**506.4.1 Type II exhaust outlets.** Exhaust outlets for ducts serving Type II hoods shall comply with Sections 401.5 and 401.5.2. Such outlets shall be protected against local weather conditions and shall meet the provisions for exterior wall opening protectives in accordance with the building code.

**506.4.2 Ducts.** Ducts and plenums serving Type II hoods shall be constructed of rigid metallic materials. Duct construction, installation, bracing and supports shall comply with Chapter 6. Ducts subject to positive pressure and ducts conveying moisture-laden or waste-heat-laden air shall be constructed, joined and sealed in an approved manner.

**506.5 Exhaust equipment.** Exhaust equipment, including fans and grease reservoirs, shall comply with Section 506.5.1 through 506.5.5 and shall be of an approved design or shall be listed for the application.

**506.5.1 Exhaust fans.** Exhaust fan housings serving a Type I hood shall be constructed as required for grease ducts in accordance with Section 506.3.1.1.

**Exception:** Fans listed and labeled in accordance with UL 762.

**506.5.1.1 Fan motor.** Exhaust fan motors shall be located outside of the exhaust airstream.

**506.5.2 Exhaust fan discharge.** Exhaust fans shall be positioned so that the discharge will not impinge on the roof, other equipment or appliances or parts of the structure. A vertical discharge fan shall be manufactured with an ap-

proved drain outlet at the lowest point of the housing to permit drainage of grease to an approved grease reservoir.

**506.5.3 Exhaust fan mounting.** An upblast fan shall be hinged and supplied with a flexible weatherproof electrical cable to permit inspection and cleaning. The ductwork shall extend a minimum of 18 inches (457 mm) above the roof surface.

**506.5.4 Clearances.** Exhaust equipment serving a Type I hood shall have a clearance to combustible construction of not less than 18 inches (457 mm).

**Exception:** Factory-built exhaust equipment installed in accordance with Section 304.1 and listed for a lesser clearance.

**506.5.5 Termination location.** The outlet of exhaust equipment serving Type I hoods, shall be in accordance with Section 506.3.12.3.

**Exception:** The minimum horizontal distance between vertical discharge fans and parapet-type building structures shall be 2 feet (610 mm) provided that such structures are not higher than the top of the fan discharge opening.

## SECTION 507 COMMERCIAL KITCHEN HOODS

**507.1 General.** Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or Type II and shall be designed to capture and confine cooking vapors and residues.

### Exceptions:

1. Factory-built commercial exhaust hoods which are tested in accordance with UL 710, listed, labeled and installed in accordance with Section 304.1 shall not be required to comply with Sections 507.4, 507.7, 507.11, 507.12, 507.13, 507.14 and 507.15.
2. Factory-built commercial cooking recirculating systems which are tested in accordance with UL 197, listed, labeled and installed in accordance with Section 304.1 shall not be required to comply with Sections 507.4, 507.5, 507.7, 507.12, 507.13, 507.14 and 507.15.
3. Net exhaust volumes for hoods shall be permitted to be reduced during no-load cooking conditions, where engineered or listed multi-speed or variable-speed controls automatically operate the exhaust system to maintain capture and removal of cooking effluents as required by this section.

**507.2 Where required.** A Type I or Type II hood shall be installed at or above all commercial cooking appliances in accordance with Sections 507.2.1 and 507.2.2. Where any cooking appliance under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed.

**507.2.1 Type I hoods.** Type I hoods shall be installed where cooking appliances produce grease or smoke, such as oc-

curs with griddles, fryers, broilers, ovens, ranges and wok ranges.

### Exceptions:

1. A Type I hood is not required for a single light-duty electric convection, bread, retherm, or microwave oven. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC system.
2. A Type II hood may be installed in lieu of a Type I hood over ovens where grease-laden vapors or smoke are generated in quantities that do not constitute a hazard.

**507.2.2 Type II hoods.** Type II hoods shall be installed where cooking or dishwashing appliances produce heat or steam, or products of combustion and do not produce grease or smoke, such as steamers, kettles, pasta cookers and dishwashing machines.

### Exceptions:

1. Under-counter-type commercial dishwashing machines.
2. A Type II hood is not required for dishwashers and potwashers that are provided with heat and water vapor exhaust systems that are supplied by the appliance manufacturer and are installed in accordance with the manufacturer's instructions.
3. A single light-duty electric convection, bread, retherm, or microwave oven. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC system.
4. A Type II hood is not required for electrically heated appliances, including but not limited to: toasters, steam tables, popcorn poppers, hot dog cookers, coffee makers, rice cookers, egg cookers and holding/warming ovens. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC system.

**507.2.3 Domestic cooking appliances used for commercial purposes.** Domestic cooking appliances utilized for commercial purposes shall be provided with Type I or Type II hoods as required for the type of appliances and processes in accordance with Sections 507.2, 507.2.1 and 507.2.2.

**507.2.4 Solid fuel.** Type I hoods for use over solid fuel-burning cooking appliances shall discharge to an exhaust system that is independent of other exhaust systems.

**507.3 Fuel-burning appliances.** Where vented fuel-burning appliances are located in the same room or space as the hood, provisions shall be made to prevent the hood system from interfering with normal operation of the appliance vents.

**507.4 Type I materials.** Type I hoods shall be constructed of steel not less than 0.043 inch (1.09 mm) (No. 18 MSG) in thickness, or stainless steel not less than 0.037 inch (0.94 mm) (No. 20 MSG) in thickness.

**507.5 Type II hood materials.** Type II hoods shall be constructed of steel not less than 0.030 inch (0.76 mm) (No. 22

Gage) in thickness, stainless steel not less than 0.024 inch (0.61 mm) (No. 24 Gage) in thickness, copper sheets weighing not less than 24 ounces per square foot (7.3 kg/m<sup>2</sup>), or of other approved material and gage.

**507.6 Supports.** Type I hoods shall be secured in place by non-combustible supports. All Type I and Type II hood supports shall be adequate for the applied load of the hood, the unsupported ductwork, the effluent loading, and the possible weight of personnel working in or on the hood.

**507.7 Hood joints, seams and penetrations.** Hood joints, seams and penetrations shall comply with Sections 507.7.1 and 507.7.2.

**507.7.1 Type I hoods.** External hood joints, seams and penetrations for Type I hoods shall be made with a continuous external liquid-tight weld or braze to the lowest outermost perimeter of the hood. Internal hood joints, seams, penetrations, filter support frames, and other appendages attached inside the hood shall not be required to be welded or brazed but shall be otherwise sealed to be grease tight.

**Exceptions:**

1. Penetrations shall not be required to be welded or brazed where sealed by devices that are listed for the application.
2. Internal welding or brazing of seams, joints, and penetrations of the hood shall not be prohibited

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## CHAPTER 15

# REFERENCED STANDARDS

**1501.1 General.** This chapter lists the codes and standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and the title. The application of the referenced standards shall be as specified in Section 102.4 of the building code.

**1501.2 Referenced Codes.** When indicated in the OMC, the following codes refer to provisions in the listed chapters of the Administrative Code:

<i>Referenced Code</i>	<i>Ohio Administrative Code Chapters</i>
<i>Building Code</i>	<i>4101:1-1 to 4101:1-35</i>
<i>Fire Prevention Code</i>	<i>1301:7-1 to 1301:7-7</i>
<i>Ohio Boiler And Unfired Pressure Vessels Rules</i>	<i>4101:4-1 to 4101:4-17</i>
<i>Plumbing Code</i>	<i>4101:3-1 to 4101: 3-13</i>

### 1501.3 Referenced Standards.

<b>ACCA</b>	Air Conditioning Contractors of America 1712 New Hampshire Ave, NW Washington, DC 20009	
Standard Reference Number	Title	Referenced in code section number
Manual D—95	Residential Duct Systems . . . . .	.603.2

<b>ANSI</b>	American National Standards Institute 11 West 42nd Street New York, NY 10036	
Standard reference number	Title	Referenced in code section number
Z21.8—1994(R2000)	Installation of Domestic Gas Conversion Burners . . . . .	.919.1
Z21.83—1998	Fuel Cell Power Plants . . . . .	.924.1

<b>ARI</b>	Air-Conditioning and Refrigeration Institute Suite 425 4301 North Fairfax Drive Arlington, VA 22203	
Standard Reference Number	Title	Referenced in code section number
700—1999	<i>Specification for Fluorocarbon Refrigerants</i> . . . . .	.1102.2.2.3

<b>ASHRAE</b>	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, NE Atlanta, GA 30329-2305	
Standard Reference Number	Title	Referenced in code section number
Handbook—2001	Fundamentals . . . . .	.312.1
Handbook—2000	HVAC Systems and Equipment . . . . .	.312.1
15—2001	Safety Standard for Refrigeration Systems. . . . .	1101.6, 1105.8, 1108.1
34—2001	Designation and Safety Classification of Refrigerants . . . . .	.202, 1102.2.1, 1103.1
62—2001	<i>Ventilation for Acceptable Indoor Air Quality</i> . . . . .	.403.2, 403.3

REFERENCED STANDARDS

**ASME**

American Society of Mechanical Engineers  
 Three Park Avenue  
 New York, NY 10016-5990

Standard Reference Number	Title	Referenced in code section number
B1.20.1—1983 (R2001)	Pipe Threads, General Purpose (Inch) . . . . .	1203.3.5, 1303.3.3
B16.3—1998	Malleable Iron Threaded Fittings, Classes 150 & 300 . . . . .	Table 1202.5
B16.5—2003	Pipe Flanges and Flanged Fittings. . . . .	Table 1202.5
B16.9—2003	Factory Made Wrought Steel Butt welding Fittings . . . . .	Table 1202.5
B16.11—2001	Forged Fittings, Socket-Welding and Threaded . . . . .	Table 1202.5
B16.15—1985(R1994)	Cast Bronze Threaded Fittings, Classes 125 and 250. . . . .	Table 1202.5
B16.18—2001	Cast Copper Alloy Solder Joint Pressure Fittings. . . . .	513.13.1, Table 1202.5
B16.22—2001	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings . . . . .	513.13.1, Table 1202.5
B16.23—2002	Cast Copper Alloy Solder Joint Drainage Fittings (DWV). . . . .	Table 1202.5
B16.24—2001	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Class 150, 300, 400, 600, 900, 1500 and 2500 . . . . .	Table 1202.5
B16.26—1988	Cast Copper Alloy Fittings for Flared Copper Tubes . . . . .	Table 1202.5
B16.28—1994	Wrought Steel Butt welding Short Radius Elbows and Returns . . . . .	Table 1202.5
B16.29—2001	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings-DWV . . . . .	Table 1202.5
BPVC—2004	Boiler & Pressure Vessel Code (Sections I, II, IV, V & VI) . . . . .	1004.1, 1011.1
BPVC Section IX—2004	Welding and Brazing Qualifications . . . . .	313
CSD-1—2002	Controls and Safety Devices for Automatically Fired Boilers . . . . .	1004.1

**ASTM**

ASTM International  
 100 Barr Harbor Drive  
 West Conshohocken, PA 19428

Standard Reference Number	Title	Referenced in code section number
A 53/A 53M—02	Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless. . . . .	Table 1202.4, Table 1302.3
A 106—04	Specification for Seamless Carbon Steel Pipe for High-Temperature Service . . . . .	Table 1202.4, Table 1302.3
A 126—04	Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings . . . . .	Table 1202.5
A 254—97(2002)	Specification for Copper Brazed Steel Tubing. . . . .	Table 1202.4, Table 1302.3
A 420/A 420M—04	Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service . . . . .	Table 1202.5
A 539—99	Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines . . . . .	Table 1302.3
B 32—03	Specification for Solder Metal . . . . .	1203.3.3
B 42—02 <sup>E1</sup>	Specification for Seamless Copper Pipe, Standard Sizes. . . . .	513.13.1, 1107.4.2, Table 1202.4, Table 1302.3
B 43—98(2004)	Specification for Seamless Red Brass Pipe, Standard Sizes . . . . .	513.13.1, 1107.4.2, Table 1202.4, Table 1302.3
B 68—02	Specification for Seamless Copper Tube, Bright Annealed. . . . .	513.13.1
B 75—02	Specification for Seamless Copper Tube . . . . .	Table 1202.4, Table 1302.3
B 88—03	Specification for Seamless Copper Water Tube . . . . .	513.13.1, 1107.4.3, Table 1202.4, Table 1302.3
B 135—02	Specification for Seamless Brass Tube. . . . .	Table 1202.4, Table 1302.3
B 251—02 <sup>E1</sup>	Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube. . . . .	513.13.1, Table 1202.4
B 280—03	Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service . . . . .	513.13.1, 1107.4.3, Table 1302.3
B 302—02	Specification for Threadless Copper Pipe, Standard Sizes . . . . .	Table 1202.4, Table 1302.3
B 813—00 <sup>E1</sup>	Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube . . . . .	1203.3.3
C 315—02	Specification for Clay Flue Linings . . . . .	801.16.1, Table 803.10.4
C 411—97	Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation . . . . .	604.3
D 56—02a	Test Method for Flash Point by Tag Closed Tester . . . . .	202
D 93—02a	Test Method for Flash Point of Pensky-Martens Closed Cup Tester. . . . .	202
D 1527—99	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe, Schedules 40 and 80 . . . . .	Table 1202.4
D 1693—01	Test Method for Environmental Stress-Cracking of Ethylene Plastics . . . . .	Table 1202.4
D 1785—03	Specification for Poly (Vinyl Chloride)(PVC) Plastic Pipe, Schedules 40, 80 and 120. . . . .	Table 1202.4
D 2235—01	Specifications for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings. . . . .	1203.3.4
D 2241—04	Specification for Poly (Vinyl Chloride)(PVC) Pressure-Rated Pipe (SDR-Series) . . . . .	Table 1202.4
D 2282—99 <sup>E1</sup>	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR-PR) . . . . .	Table 1202.4

ASTM—continued

D 2412—02	Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading . . . . .	603.8.3
D 2447—01	Specification for Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter. . . . .	Table 1202.4
D 2466—02	Specification for Poly (Vinyl Chloride)(PVC) Plastic Pipe Fittings, Schedule 40. . . . .	Table 1202.5
D 2467—04	Specification for Poly (Vinyl Chloride)(PVC) Plastic Pipe Fittings, Schedule 80. . . . .	Table 1202.5
D 2468—96a	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings, Schedule 40. . . . .	Table 1202.5
D 2513—04	Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings . . . . .	Table 1202.4, 1203.15.3
D 2564—02	Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems . . . . .	1203.3.4
D 2683—98	Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing. . . . .	Table 1202.4, 1203.15.1
D 2837—02	Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials . . . . .	Table 1202.4
D 2846/D 2846M—99	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot and Cold Water Distribution Systems . . . . .	Table 1202.4, 1203.3.4
D 2996—01	Specification for Filament-Wound Fiberglass (Glass Fiber Reinforced Thermosetting Resin) Pipe. . . . .	Table 1302.3
D 3035—03a	Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter. . . . .	Table 1202.4
D 3278—96 <sup>E1</sup>	Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus. . . . .	202
D 3309—96a(2002)	Specification for Polybutylene (PB) Plastic Hot and Cold Water-Distribution Systems . . . . .	Table 1202.4, 1203.10.1
D 3350—02a	Specification for Polyethylene Plastics Pipe and Fittings Materials. . . . .	Table 1202.4
E 84—04	Test Method for Surface Burning Characteristics of Building Materials . . . . .	202, 510.8, 602.2.1, 602.2.1.5, 604.3, 1204.1
E 119—00a	Test Method for Fire Tests of Building Construction and Materials . . . . .	607.5.2, 607.6.2
E 136—04	Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C . . . . .	202
E 814—02	Test Method for Fire Tests of Through-Penetration Fire Stops . . . . .	506.3.10
F 438—04	Specification for Socket Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40. . . . .	Table 1202.5
F 439—02 <sup>E1</sup>	Specification for Socket Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80. . . . .	Table 1202.5
F 441/F 441M—02	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80 . . . . .	Table 1202.4
F 442/F 442M—99	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR). . . . .	Table 1202.4
F 493—97	Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings. . . . .	1203.3.4
F 876—03a	Specification for Crosslinked Polyethylene (PEX) Tubing. . . . .	Table 1202.4
F 877—02a	Specification for Crosslinked Polyethylene (PEX) Plastic Hot and Cold Water-Distribution Systems. . . . .	Table 1202.4, Table 1202.5
F 1055—98 <sup>E1</sup>	Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing. . . . .	Table 1202.4, 1203.15.2
F 1281—03	Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe . . . . .	Table 1202.4
F 1974—04	Standard Specification for Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene Composite Pressure Pipe. . . . .	Table 1202.5

American Welding Society  
 550 N.W. LeJeune Road  
 P.O. Box 351040  
 Miami, FL 33135



Standard Reference Number	Title	Referenced in code section number
A5.8—2004	Specifications for Filler Metals for Brazing and Braze Welding. . . . .	1203.3.1, 1303.3.1

Canadian Standards Association  
 178 Rexdale Blvd.  
 Rexdale (Toronto), Ontario, Canada M9W 1R3



Standard Reference Number	Title	Referenced in code section number
CAN/CSA B137.10M—02	Crosslinked Polyethylene/Aluminum/Polyethylene Composite Pressure Pipe Systems . . . . .	Table 1202.4

**REFERENCED STANDARDS**

**DOL**

Department of Labor  
Occupational Safety and Health Administration  
c/o Superintendent of Documents  
US Government Printing Office  
Washington, DC 20402-9325

Standard Reference Number	Title	Referenced in code section number
29 CFR Part 1910.1000 (1974)	Air Contaminants . . . . .	.502.6

**FS**

Federal Specifications\*  
General Services Administration  
7th & D Streets  
Specification Section, Room 6039  
Washington, DC 20407

Standard Reference Number	Title	Referenced in code section number
WW-P-325B (1976)	<i>Federal Specifications for Pipe, Bends, Traps, Caps and Plugs; Lead (for Industrial Pressure and Soil and Waste Applications.</i> . . . . .	Table 1202.4

\* Standards are available from the Supt. of Documents, U.S. Government Printing Office, Washington, DC 20402-9325.

**ICC**

International Code Council  
5203 Leesburg Pike, Suite 708  
Falls Church, VA 22041-3401

Standard Reference Number	Title	Referenced in code section number
IECC—03	International Energy Conservation Code® . . . . .	202, 301.2, 303.3, 312.1, 603.9, 604.1, 1204.1, 1204.2
IFC—03	International Fire Code® . . . . .	201.3, 310.1, 311.1, 502.5, 502.7.2, 502.8.1, 502.9.5, 502.9.5.2, 502.9.5.3, 502.9.8.2, 502.9.8.3, 502.9.8.5, 502.9.8.6, 502.10, 502.10.3, 502.16.2, 509.1, 510.2.1, 510.2.2, 510.4, 513.12.3, 513.15, 513.16, 513.17, 513.18, 513.19, 513.20.2, 513.20.3, 606.2.1, 908.7, 1101.9, 1105.3, 1106.5, 1106.6, 1301.1, 1301.2
IFGC—03	International Fuel Gas Code® . . . . .	101.2, 201.3, 301.3, 701.1, 801.1, 901.1, 906.1, 1101.5

**IIAR**

International Institute of Ammonia Refrigeration  
Suite 700  
1101 Connecticut Ave., NW  
Washington, DC 20036

Standard Reference Number	Title	Referenced in code section number
2—99	Equipment, Design, and Installation of Ammonia Mechanical Refrigerating Systems. . . . .	1101.6

**MSS**

Manufacturers Standardization Society of the Valve & Fittings Industry, Inc.  
127 Park Street, N.E.  
Vienna, VA 22180

Standard Reference Number	Title	Referenced in code section number
SP-69—1996	Pipe Hangers and Supports—Selection and Application . . . . .	.305.4